UNIVERSITY of MARYLAND

# Medicine Bulletin

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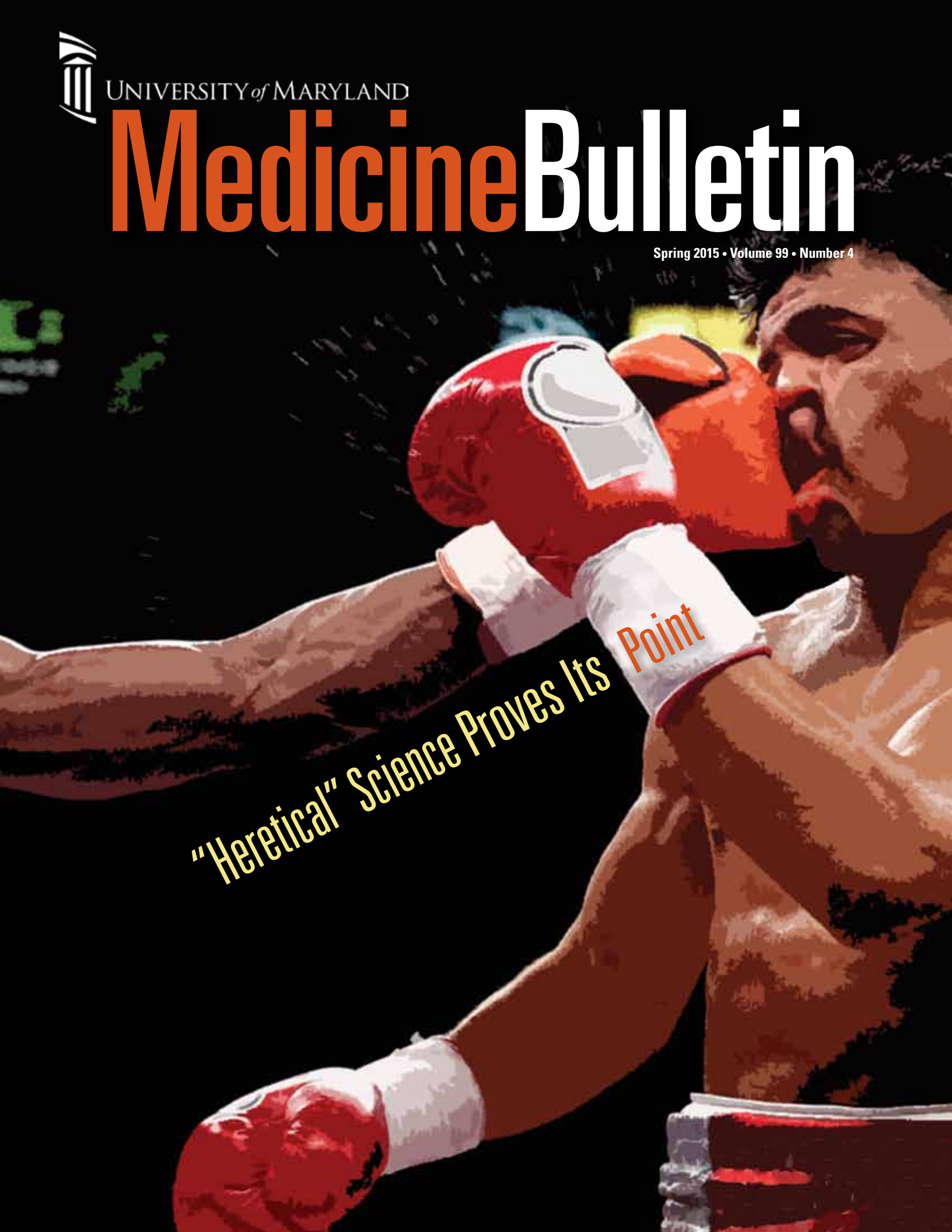

## "Heretical" Science Proves Its Point

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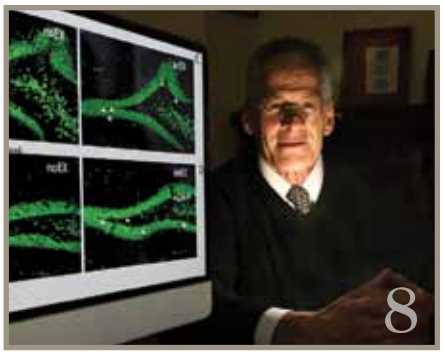
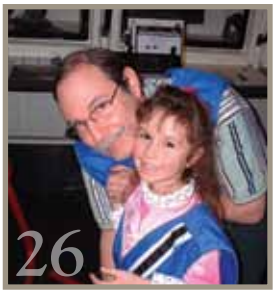



## "Heretical" Science Proves Its Point 8

Some referred to it as scientific heresy. Alan Faden, MD, professor of anesthesiology and director of the University of Maryland Center for Shock, Trauma and Anesthesiology Research, challenged long-held beliefs relating to traumatic brain injury and spinal cord injury. His research indicates that chronic brain inflammation and its neurological consequences are the cause of brain degeneration and can be reversed. They hope to translate these ideas into clinical trials very soon.

## Eugene Fauntleroy Cordell: Alumnus and Medical Historian for the Ages 15

Before attending medical school at Maryland, Eugene Cordell was wounded while fighting for the South during the Civil War. After graduation in 1868, he practiced in Baltimore, drawing praise from patients and colleagues for his medical acumen and caring demeanor. But Cordell is best remembered for his role later in life as the nation's first professor of medical history at Maryland. His publications elevated him to "elite" status among medical historiographers.




## Alumna Profile: Susan Mather, '65 24

*Being First*

After serving as director of adult health and epidemiology for the Prince Georges' County Health Department and earning an MPH from Johns Hopkins, Susan Mather was tapped for a position with the Veterans Administration in Washington, DC. During the next 27 years she confronted a host of emerging health issues among veterans, including the AIDS epidemic.

## Faculty Profile: Charles Resnik, MD 26

*History of a Fitting Tribute*

You'd expect a devoted radiology faculty member who has headed the department's residency program for more than 25 years would have little time for outside activities. Not for Charles Resnik, MD, seen here with daughter Jenna. In fact, his efforts promoting the legacy of his sister Judy, who died on the Challenger space shuttle in 1986, helps define him.

# departments

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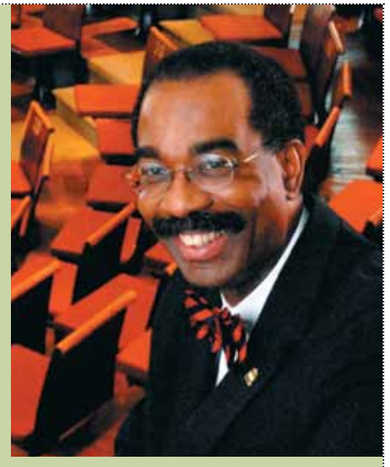
# dean's message



E. Albert Reece, MD, PhD, MBA
*Vice President for Medical Affairs, University of Maryland*
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In recent years, neuroscience has become strongly invoked as an area of great interest. President Obama's brain mapping project, the National Institutes of Health's BRAIN (Brain Research through Advancing Innovative Neurotechnologies) Initiative, and an increased focus on the neurobiology of the addicted brain are all signs of a contemporary "brain science buzz." The brain is one of our final frontiers, and the Mary Ellen Leuvers' Historical Perspective column (page 13) on the history of medical care of the brain demonstrates how far we have come, and how much farther we still need to go, in terms of understanding our most complex organ.

The medical school has many robust programs and outstanding faculty investigators conducting brain research. For example, our Brain Science Research Consortium Unit (BSRCU), led by **Bankole Johnson, DSc, MD, MPhil**, is an interdisciplinary research group aggressively advancing "Big Science" research questions in brain behavior and biology, drawing from faculty expertise in the areas of neurology, neurosurgery, neurobiology, trauma and psychiatry. The BSRCU projects include studies using high intensity focused ultrasound for neuromodulation, work to understand neuroinflammation and research on neuropsychiatrtic disorders. In addition, the Maryland Psychiatric Research Center, an organized research center housed within the department of psychiatry, is one of the premiere leaders in research on neuroimaging and biomolecular studies of the schizophrenic brain. Another strength lies in the body of research being conducted by **Alan Faden, MD**, whose work on spinal cord injury and neuroinflammation as a possible basis for brain disorders is featured in the cover story.

> The [Brain Science Research Consortium Unit] BSRCU projects include studies using high intensity focused ultrasound for neuromodulation, work to understand neuroinflammation and research on neuropsychiatrtic disorders.

President John F. Kennedy, when asked to comment on why he wanted the United States to go to the moon, answered, "I want to go, not because it's easy, but because it's hard." We need this energy and enthusiasm about science, embracing the most complex research and medical problems, such as brain science, and leading the charge into the future.

Our long track-record of taking on the hard tasks in medicine is touched upon in the article about **Eugene Cordell**, Class of 1868, who was an honorary professor of the history of medicine at Maryland, and one of the first to catalog the advancements in medicine in our state.

Our faculty and alumni stand above their peers in terms of their passion and dedication to improving the health and wellbeing of all people. Profiled in this issue of the *Bulletin* are two individuals who have made significant contributions, not only to our school, but to our nation.

In addition to his work in the department of radiology, **Charles Resnick, MD**, is the vice chair of the board and founding director of the Challenger Center for Space Science Education. Dr. Resnick's desire to foster the next generation of scientists, engineers and mathematicians is not just limited to Maryland, but to reaching students and teachers across the country.

**Susan Mather, '65**, who joined the Department of Veterans Affairs in 1979, has devoted her career to improving the lives of veterans, especially women veterans. Among her many accomplishments, Dr. Mather received a *Good Housekeeping*-Wyeth Award for Women's Health, an honor given by the magazine and the Center for American Women and Politics. After you read her piece in this issue of the *Bulletin* (page 24), I encourage you to read her profile in the July 2003 issue of *Good Housekeeping*.

We are fortunate to have faculty leaders who take on the hard challenges and truly embody the school's guiding principle of "discovery-based medicine," whereby our approach to educating our students and management of our patients are based on fundamental research conducted in the laboratory.



# news & advances

EVENTS

## Davidge Elm II Endures Winter

The original Davidge Elm survived 189 winter seasons before succumbing to old age and disease in 2001. For **Davidge Elm II**, this past winter was only its third since relocation to the grounds of the old medical building.

Now standing nearly seven feet tall, the next-generation elm was among several clippings taken to a nursery in North Carolina at the start of the millennium after the removal of its parent. Eight years later they were offered to alumni and friends. This one, obtained by **Richard L. Taylor, '75**, and wife Kathie, was gifted to campus during the 200-year anniversary celebration of the medical building.

Elms have the capability of growing to a height of 90 feet.

## Transitions

❖ **Claudia Baquet, MD, MPH**, professor of medicine and associate dean for policy and planning, retired in February after 20 years of service to the medical school. Baquet joined Maryland in 1994 from the U.S. Public Health Service where she served as deputy assistant secretary for minority health. She was appointed program director for the Maryland Area Health Education Center (AHEC). In addition to being an associate dean, Baquet later served as director of the organized research center in health policy and health services research. She championed the importance of reducing health care inequities for minorities and in rural and other underserved populations. **Richard Colgan, MD**, is succeeding her as head of the AHEC program.

❖ **Joshua M. Abzug, MD**, was named deputy surgeon-in-chief for the University of Maryland Children's Hospital, chief of pediatric orthopaedics at the medical center and vice-chair of the dean's council for pediatric surgery. A nationally recognized expert on pediatric upper extremity conditions, Abzug is an assistant professor of orthopaedics and pediatrics at Maryland and director of the University of Maryland Brachial Plexus Practice in the University of Maryland Medical System.

❖ **Mark W. Rogers, PT, PhD**, is the new chair for the department of physical therapy & rehabilitation science. He served in an interim-chair capacity since August of 2013 when **Mary M. Rodgers, PT, PhD, FAPTA, FASB**, stepped down after 15 years at the helm. Rogers is an NIH-funded scientist and expert in neuro-motor control and rehabilitation research who joined Maryland's faculty from Northwestern University in 2008. He is hoping to expand the department's research portfolio in the areas of muscle studies and bioengineering while exploring new multi-disciplinary academic programs and specialty concentrations.

Contributing writers to News & Advances include: Sharon Boston • Larry Roberts • Rita Rooney • Bill Seiler • Karen Warmkessel • Photos by: John Seebode • Mark Teske • Tom Jemski

EVENTS

## Maryland & Orioles in Sarasota

More than 40 alumni and friends joined medical school **Dean E. Albert Reece, MD, PhD, MBA**, for a reception and ballgame at the Baltimore Orioles spring training facility in Sarasota, Fla., on March 5. The event included a reception and Orioles/Blue Jays game at Ed Smith Stadium. Among the attendees were **Francis D. Drake, '67**, **W. Winslow Schrank, '69**, and wife Pamela.

## National Program in Lung Healing Launched

*Bartley P. Griffith, MD*

According to the NIH, chronic obstructive pulmonary disease (COPD) is the third leading cause of death in the U.S. The NIH also reports that more than 320,000 Americans are affected by acute respiratory failure each year, with COPD exacerbations, acute respiratory distress syndrome, influenza, and progressive pulmonary fibrosis.

In an effort to develop innovative approaches for preventing and treating acute lung disease, the school and medical center recently announced the formation of a national program in lung healing. The program will be led by **Bartley P. Griffith, MD**, the Thomas E. and Alice Marie Hales Distinguished Professor in Transplant Surgery, one of the leading surgeons in the nation for heart and lung transplantation, aortic diseases and pulmonary thromboendarterectomy. It will integrate faculty from the department of medicine's division of pulmonary & critical care, department of surgery, and the program in trauma's critical care division with emphasis on research and education. The medical center is already established as a national leader in lung healing, with a lung transplantation program credited with saving the lives of hundreds of patients.

## Degenerative Eye Disease Triggered by Mineral Deposits

Tiny lumps of calcium phosphate may be an important triggering factor for age-related macular degeneration (AMD), according to a Maryland researcher. **Richard Thompson, PhD**, associate professor of biochemistry and molecular biology, along with colleague Imre Lengyel, PhD, from University College, London, and a multidisciplinary international team, studied retinal samples from a group of elderly patients, some of whom had AMD. They found that the AMD samples contained spherules of hydroxyapatite, or HAP. Although HAP is common in the body, comprising the hard part of bones and teeth, it had never been identified in that part of the eye.

AMD develops slowly with the buildup of fatty protein deposits in the retina which cause damage by blocking the flow of nutrients into the light-sensitive portion of the eye as well as the outwardly flow of waste products. Thompson and his colleagues discovered that these deposits appear to form around bits of HAP. They are looking into the possibility of using the presence of HAP as an early warning signal for AMD risk with the hope that this will aid early intervention. Thompson adds that it may be possible to devise methods to reduce HAP deposits or limit the growth of the progression of the disease.

*Richard Thompson, PhD*

The study, supported by the Bright Focus Foundation in the USA and Bill Brown Charitable Trust in the U.K., appeared in the *Proceedings of the National Academy of Sciences*.

## Protein Keeps Heart Beating on Time

The average heart beats 35 million times a year–2.5 billion times over a lifetime. Those beats must be precisely calibrated; even a small divergence from the metronomic rhythm can cause sudden death. For decades, scientists have wondered exactly how the heart stays so precisely on rhythm even though it contains so many moving parts. Maryland researchers have helped identify how a particular protein plays a central role in this consistency, a discovery that could eventually help scientists treat heart problems that kill millions every year.

**W. Jonathan Lederer, MD, PhD**, professor of physiology at Maryland and director of the center for biomedical engineering and technology, and David Warshaw, PhD, professor of molecular physiology and biophysics at University of Vermont (UVM) and the Cardiovascular Research Institute of Vermont, described in a recent issue of *Science Advances* how myosin-binding protein C (C protein) allows the muscle fibers in the heart to work in perfect synchrony.

For years, researchers have known that calcium acts as a trigger for the heartbeat, activating proteins that cause the sarcomeres to contract. Lederer found that the calcium molecules are not distributed evenly across the length of each sarcomere; the molecules are released from the ends. Despite this, the sarcomeres contract uniformly. Exactly how had remained a thorny mystery.

*W. Jonathan Lederer, MD, PhD*

Lederer, Warshaw and their colleagues found the answer. Using an animal model, the researchers studied the physiology of sarcomeres, measuring calcium release and the muscle fibers' mechanical reaction. It turns out that C protein, which exists in all heart muscle cells, sensitizes certain parts of the sarcomere to calcium. As a result, the middle of the sarcomere contracts just as much as the ends, despite having much less calcium.

C protein appears to play a large part in many forms of heart disease. In the most severe cases, defects in C-protein lead to extremely serious arrhythmias, contributing to about 300,000 deaths a year, according to the American Heart Association.

Lederer and his colleagues think that it may be possible to affect arrhythmias by modifying the activity of C protein through drugs. "This protein is definitely a drug target," Lederer said.

The two researchers collaborated with scientists from the University of Pennsylvania, the University of Massachusetts Medical School, Cincinnati Children's Hospital Medical Center, and Eulji University in South Korea. The research was funded by the National Institutes of Health.

## Vesalius Painting Donated to UMB Library

A painting of Andreas Vesalius, father of modern anatomy, painted by renowned Baltimore artist Joseph Sheppard, was recently donated to the university's health science and human services library. The 5′x4′ work, donated by Dorothy L. and Henry A. Rosenberg Jr., is based on a 16th-century woodcut and features Vesalius dissecting a human cadaver in the operating theater at the University of Padua. The unveiling was held on February 27. "This is one of the two best medical libraries in the country, Sheppard said. It's fortunate that Vesalius comes here."

*Vesalius and artist Joseph Sheppard*

# Where They are 30 Years Later…

*Thanks to efforts by MAA president-elect* ***Alan Malouf, '85****, here are some interesting statistics about his class 30 years after graduation:*

| Training Specialties as published in *Terra Mariae Medicus* 1985 | | 2015 Specialties as published in *Doximity* | |
|---|---|---|---|
| Internal Medicine | 47 | Internal Medicine | 28 |
| Family Practice | 22 | Family Medicine | 21 |
| General Surgery | 14 | Anesthesiology | 12 |
| Pediatrics | 13 | Psychiatry | 12 |
| Psychiatry | 9 | Radiology | 11 |
| Anesthesiology | 7 | Cardiology | 9 |
| Radiology | 6 | Pediatrics | 8 |
| Ophthalmology | 5 | General Surgery | 7 |
| Orthopaedic Surgery | 4 | Ophthalmology | 7 |
| Otolaryngology | 3 | Orthopaedic Surgery | 5 |
| Preliminary Medicine | 3 | Emergency Medicine | 4 |
| Primary Medicine | 3 | Gastroenterology | 4 |
| Transitional | 3 | Neurosurgery | 4 |
| Neurology | 2 | OB/GYN | 4 |
| Neurosurgery | 2 | Otolaryngology | 4 |
| OB/GYN | 2 | Physical Medicine/Rehab | 3 |
| Research | 2 | Endocrinology | 2 |
| Medicine/Pediatrics | 1 | Nephrology | 2 |
| Pathology | 1 | Neurology | 2 |
| Physical Medicine/Rehab | 1 | Oncology | 2 |
| Urology | 1 | Pathology | 2 |
| | | Medicine/Pediatrics | 1 |
| Deferred Residency | 6 | Pediatric Infectious Disease | 1 |
| | | Pediatric Pulmonology | 1 |
| | | Plastic Surgery | 1 |
| | | | |
| **Primary Care:** | **54.8%** | **Today** | **36.5%** |

**Notables**

| | |
|---|---|
| Professional Publications: | 42 classmates producing 1,501 publications |
| Professional Awards: | 68 classmates receiving 112 awards |
| Clinical Trials: | 8 classmates undertaking 21 trials |
| Support Grants: | 6 classmates receiving 73 grants |

**Top Five Metropolitan Areas**

| | |
|---|---|
| Baltimore | 42 |
| Washington | 22 |
| Philadelphia | 6 |
| New York City | 5 |
| Pittsburgh | 4 |

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**Elizabeth Brown, MD '72**

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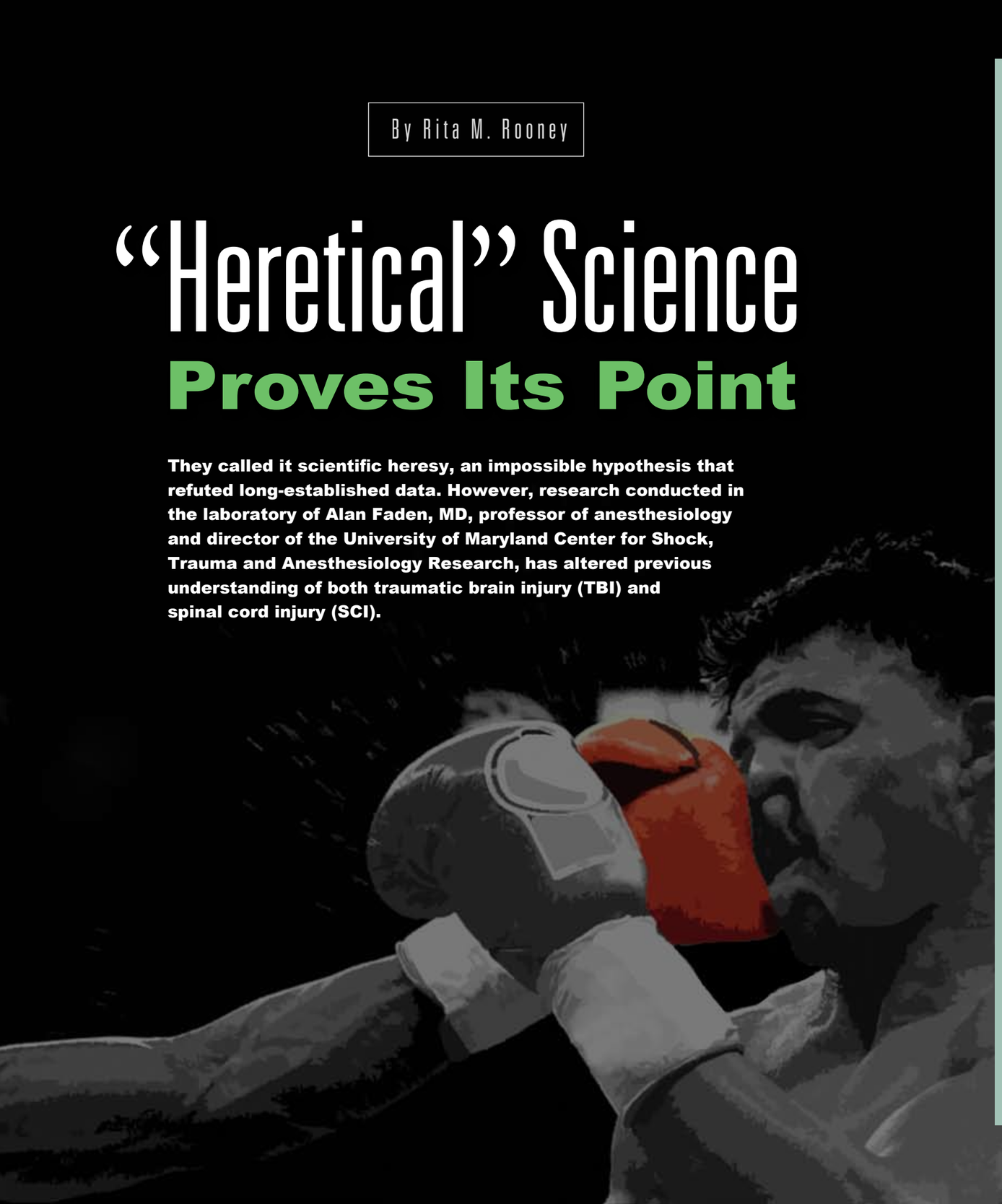
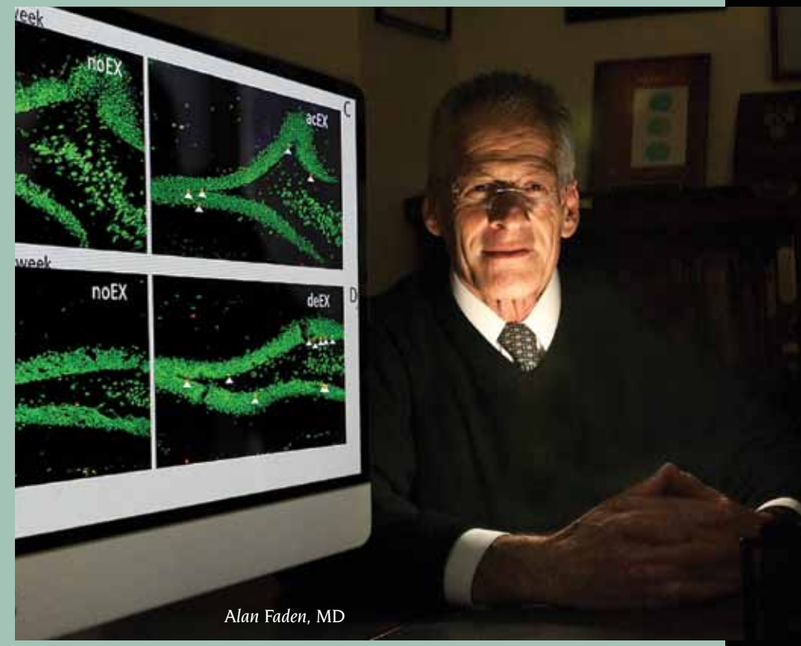
By Rita M. Rooney

# "Heretical" Science Proves Its Point

**They called it scientific heresy, an impossible hypothesis that refuted long-established data. However, research conducted in the laboratory of Alan Faden, MD, professor of anesthesiology and director of the University of Maryland Center for Shock, Trauma and Anesthesiology Research, has altered previous understanding of both traumatic brain injury (TBI) and spinal cord injury (SCI).**






*Alan Faden,* MD

Photo by Richard Lippenholz

Faden's group discovered that, in addition to more acute physiological changes, TBI often leads to chronic brain inflammation with important neurological consequences. In addition to defining the mechanisms by which this happens, they demonstrated that the process is reversible even one month or longer after the trauma, resulting in improved neurological outcomes. Although the group's data appeared incontrovertible, the research was first met with disbelief from a scientific community that claimed such reversal was unattainable.

Another series of studies raised scientific doubt when they proposed that isolated SCI can also cause sustained brain inflammation that leads to loss of cognitive function and depression, a process that can be prevented by modifying specific targeted pathways. Previously, most studies of SCI concentrated on the impact of damage to the spinal cord, overlooking any impact on brain function. Both the TBI and SCI studies, although slow to be accepted, have since been published from 2012 to 2014 in leading journals, and are changing scientific thinking in these fields.

Faden notes that few laboratories currently conduct research on both TBI and SCI. "I did it by accident," he says. "I began studying spinal cord injury 35 years ago, and then moved on to studies of TBI because the two appeared to share important common mechanisms."

## False Premise

Contributing to the initial doubt about Faden's discoveries is the long accepted view that traumatic brain injury causes chronic brain cell loss through other mechanisms, including increasing the probability of subsequent Alzheimer's Disease.

"You'll find that in every textbook," he says. "In fact, it is considered that, other than family history and genetic susceptibility, TBI is the most prevalent contribution to Alzheimer's. But that does not appear to be true."

He published a paper questioning the concept, underscoring the unreliability of earlier epidemiological studies from the 1970s. He says that less was known of Alzheimer's at that time and it was often not distinguished from other forms of dementia. More recent epidemiological studies evaluating more than 600,000 and 800,000 people respectively, showed no significant correlation between TBI and Alzheimer's, but a clear connection to dementia of other cause. David Loane, PhD, assistant professor of anesthesiology who trained with Faden has special interest and expertise in examining neuro-inflammatory changes in the aged. His own NIH-funded work on

inflammation in TBI confirms the impact of both brain and circulating immune cells on nerve cell degeneration and long-term neurological dysfunction after injury.

Another popular misconception about brain injury concerns a condition labeled "boxer's brain," or chronic traumatic encephalopathy (CTE). For years, some scientific reports—but many more popular press accounts—have highlighted the consequences of high impact sports in causing CTE—a severe progressive condition following repeated concussive injuries, and resulting in cognitive decline, psychiatric disease and not uncommonly suicide. It is claimed to be a well-defined disorder resulting from deposition of a pathological protein in the brain.

"The problem with this conclusion is the absence of specificity and relative paucity of documented cases," Faden says. He adds that there have been only approximately 60 such cases cited worldwide as of 2013 in non-boxers, in contrast to the millions of individuals engaged in high impact sports. Perhaps more significant, he says such conclusions are based on patients who show depositions of the hyper-phosphorylated tau protein. However, such patients also show more diverse pathology and deposition of other factors as well. Moreover, the definition of the disorder now often includes tau deposits, even though a number of the cases in the major "boxer" literature did not show such pathology. The research of Faden and colleagues shows experimental moderate brain trauma or repeated mild (concussive) brain trauma causes inflammation over many months that causes late loss of brain cells. A recent study from Scotland showed that almost 30 percent of those who died months to years after head injuries showed brain inflammation. The study did not sample deeper areas of the brain, which often show inflammation, so this percentage is likely underestimated.

David Loane, PhD

Photo courtesy of Juan Faidley, Nuaje Visions Photography

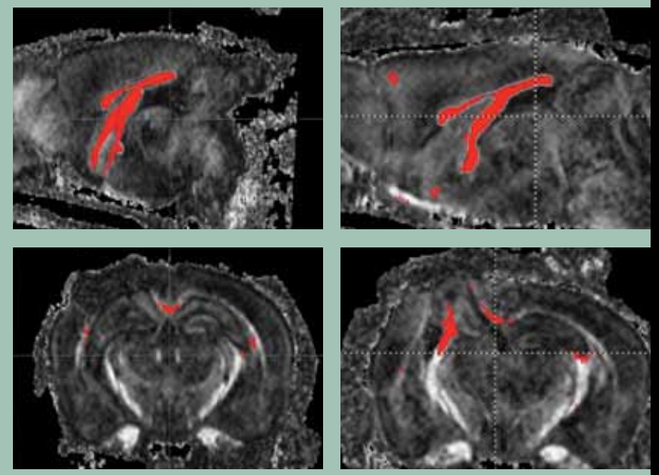
## Inflammatory Findings

Faden points to an important 2012 study in the Annals of Neurology for which he wrote an editorial. The study evaluated individuals, years after their TBI incident, who had undergone specialized neuro-imaging showing inflammation in the brain. The study reported persistent inflammation up to 17 years after injury, not at the trauma site but diffusely in the brain. Moreover, the brain sites showing greatest inflammation were correlated with specific cognitive impairments.

Since then, there have been significant animal studies indicating continuing inflammation. Faden's group published a paper showing progressive degeneration of the brain one year after injury and suggested a specific mechanism. There appears no question that, in animal models, moderate or severe TBI is associated with long term inflammation of the brain. Last year, Faden's lab published a paper examining inflammation and degeneration after repeated concussive events in animals. If they occurred in close proximity, the consequences completely mirrored the consequences of moderately severe injury, including chromatic inflammation. This finding has now been replicated by other labs and may help explain the detrimental consequences of repeated concussion.

> **"If one believes that brain injury causes chronic inflammation, and that in turn causes chronic progressive degeneration, then theoretically it's reasonable to assume intervention is possible."**






Very recently, another group used a newer and more specific brain imaging tracer to examine inflammation in retired professional football players who had suffered concussions. Prominent brain inflammation was found in this group, consistent with the animal work, and providing further support for the concept that chronic post-traumatic inflammation may commonly occur even after repeated mild injuries.

## Reversing the Inevitable

Despite these rapidly accumulating data from a number of clinical and pre-clinical groups, many in the establishment do not appear ready to accept these newer conceptions about the brain's response to injury. After more than three decades of success unraveling the mechanisms of cell death from exposure to spinal cord injury or traumatic brain injury, Faden has repeatedly faced resistance to proposals that challenge the "gospel." He has tried to reinforce this concept by adopting a new term, chronic *traumatic* inflammatory encephalopathy to underscore the nature of the mechanism and to distinguish it from the accepted term for chronic inflammatory encephalopathy.

More important, new conceptions about the role of inflammation in chronic brain or spinal cord injury may offer novel opportunities for treatment. "If one believes that brain injury causes chronic inflammation, and that in turn causes chronic progressive degeneration, then theoretically it's reasonable to assume intervention is possible," Faden says.

Determined to address this issue, the lab induced the same injuries in three groups of animals and, after one month, did MRI scans as well as motor and cognitive assessment. At that point, the animals, all with the same degree of impaired motor function and cognition, were randomized. One group got control injections. The second group got a drug shown by Faden's group to modify a specific receptor related to chronic inflammation. The third group received an injection of the drug plus the anti-drug (antagonist) in the blood. The animals were followed for four months. Only the animals that received the anti-inflammatory drug alone showed recovery of function, and such recovery was marked. In addition, in contrast to the other groups in which MRI scans showed progression of the one-month lesion size, treated animals showed no such progression.

Confirmation of these results came from Johns Hopkins collaborators who performed a blinded study of the brains, using an exceptionally high field MRI scanner to measure fiber tracts in the brain. It showed that the animals receiving the single dose anti-inflammatory treatment had marked preservation of their brain fibers, whereas the other two animal groups had far less preservation. This remarkable discovery indicates that it may be possible to intervene long after traumatic brain injury, and still improve brain recovery.

Faden's group has also been studying the impact of exercise on the brain and has shown that introducing aerobic exercise in an animal weeks after injury minimizes the inflammation and strongly improves animal recovery. However, exercise introduced shortly after trauma actually increases the inflammation, with little recovery. The latter observance is consistent with considerable experimental and clinical observation showing that early highly active rehabilitation can worsen outcomes after spinal cord injury or stroke.

Further studies by the group identified the enzyme NADPH oxidase or NOX2 as a key factor in the destructive chronic inflammatory response, a pathway specifically targeted by both the novel drug treatment and exercise. Loane led parallel studies that compared post-traumatic inflammation in aged animals to juveniles. It has been known for some time that older people with head injuries do not do as well as younger individuals. Following TBI, the aged animals showed tissue loss that was four times larger than that of the younger animals. This was associated with greater inflammation and increased expression of NOX2. These findings may help explain why brain trauma is worse among the elderly, and suggests that targeting the inflammation may improve outcomes.

### From Brain to Spinal Cord

Junfang Wu, BM, PhD, assistant professor of anesthesiology, has spent most of her professional life researching spinal cord injury, most recently in pharmacologic and gene therapy intervention. Her focus has been on secondary injuries, and the pathophysiologic role on cell cycle pathways. She can pinpoint the day she considers the most exciting in her career.

"It was when I realized the impact of our work and that it would lead to pain relief for people with spinal cord injury," she says. "Ten years ago, no one thought that was possible. None of the research seemed even close."

Faden says, "If you ask a patient with severe SCI to fix one problem, the answer would not likely be paralysis, sexual or bladder function, but rather to get rid of the chronic pain, which may occur in up to 70 percent of these patients."

Wu and Faden, working with Asaf Keller PhD, professor of anatomy and neurobiology, published a paper showing late changes in the brain associated with inflammation. When the inflammation is blocked, so is the pain. They subsequently noted that the inflammation was not restricted to pain pathways but also more diffusely in the brain, resembling that observed following TBI.

Photo by Richard Lippenholz



*Junfang Wu, BM, PhD*

Remarkably, follow-up studies showed that isolated SCI can cause cognitive loss and depression. Although some earlier clinical reports suggested this association, the premise was not accepted because it was assumed there must have been concurrent unrecognized head injury. When drugs were used to reduce the inflammation after spinal cord injury, treated animals showed minimal decline or depression.

What remains is development of a drug to block inflammation after TBI and SCI. One of the most effective treatments used in the experimental studies, and recently published by Faden, Loane and colleagues is a positive allosteric modulator of the receptor mGluRs—a class of drugs currently being evaluated for psychiatric disorders.

Effective treatments for TBI and SCI have been long sought but not yet identified. A particular limitation has been the focus on early injury mechanisms, which may not be readily adapted for clinical treatment. These recent studies, by challenging conventional wisdom and prior methodologies, hopefully will provide novel and effective new treatment approaches.

Faden reports, "Our group eagerly anticipates helping to translate these ideas into clinical trials, as well as to turn some "heresy" into new "gospel."



*Historical Perspective* By Mary Ellen Leuver

# Trauma Trepanation and Bumpology:

## The Historical Quest to Understand the Brain

Do you have a protrusion on the back of your skull, in the very center? Perhaps you possess a bump at the center of your forehead that is atypically large. Or, importantly, does your child have a protuberance just above the ears? Exercise caution if you answer "yes" to the last question—according to mid-19th-century phrenology, your child has a tendency toward destructiveness and a desire to torment. But perhaps, as a parent, you were already aware of that.

For thousands of years, humans have endeavored to understand the link between personality and the body. Although love is often associated with the heart, the brain has been recognized throughout medical history as the site of personality and bodily function.

It is easy to understand how the head and brain were linked so early to personality and the workings of the body. Attempts to relieve head injuries were the earliest surgeries in human history.

Perforation of the skull and removal of skull fragments from the cranial vault, known in the West as trepanation, was the earliest form of surgery for which we possess archaeological evidence. The oldest collection of remains bearing trepanation wounds are from a burial site at Ensisheim, in Alsace. Here, 40 of 120 human skulls bear trepanation wounds. Most of these skulls have remodeled bone at the trepanation site, indicating long-term healing after the procedure. The skulls at this burial site date back to 6,500 BCE. Earlier neolithic skulls dating back 10,000 years may also bear wounds from the procedure and remodeling.

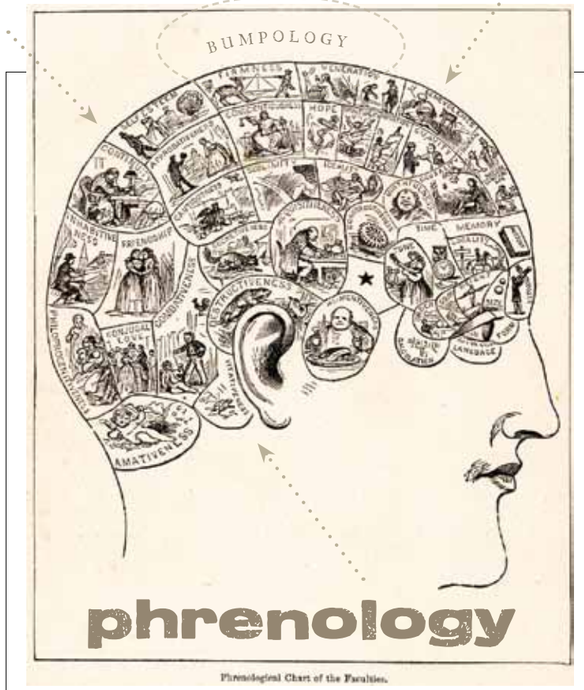
Trepanation is not only the oldest surgical procedure, it is also one of the most widespread among human civilization. Trepanation wounds have been found on every populated continent, from the Indus Valley, where skulls date from 3,300 BCE, to sites in Peru dating to 400 BCE.

Head injuries were among the most revealing ways for medical practitioners to examine the relationship of the human brain to bodily function and personality. Galen, one of Western medicine's most influential practitioners, began his medical career as the surgeon for a school of gladiators in 159 CE. Historians of Greek medicine believe that Galen's time examining and treating head wounds, in the minutes after the mangling gladiatorial battles, deeply informed his ideas of the brain and the neurological system.

Building upon Galen's work, Abu Bakr Mohammad Ibn Zakariya al-Razi practiced brain surgery in Baghdad from 872–932 CE. His book, *On Surgery*, became part of the medical curriculum in Western universities while his writings dictated the practice of brain surgery throughout the Middle Ages after trepanation was abandoned. Through the study of Galen and Razi, physicians like Hugh of Lucca, an Italian battlefield surgeon during the eleventh-century Crusades, used observations of traumatic head wounds to popularize the notion that removing significant parts of the brain may not result in death.

By 1860 in the United States and Europe, the idea

The idea behind the 19th century phenomenon of feeling the skull to analyze personality was simple:



Phrenological Chart of the Faculties.

that different parts of the brain impacted personality was so wide-spread that requesting someone feel the bumps on your head to confirm a good marriage or business partnership was not an entirely ludicrous proposition.

The idea behind the 19th century phenomenon of feeling the skull to analyze personality was simple: different regions of the brain indicated the development or absence of certain personality traits. These regions became physically larger when they were used. An analysis of the skull could thus tell an astute examiner about a person's behaviors and private inclinations.

German physician Franz Joseph Gall developed this field of inquiry in 1791. Called "bumpology" by its critics, the study of phrenology gained a mass following throughout Europe and the United States from 1800 to the turn of the 20th century.

Phrenology's popularity arose from millennia of speculation about the brain. Among intellectuals, phrenology became a tool for self-awareness in the decades before psychology became a discipline. Phrenology was also deployed as a method of understanding partnerships and classifying humans under the new construct of "race." Fiction writers also widely used phrenology in stories and novels. Edgar Allan Poe was among the most popular authors who used phrenology as a method of explaining personality, criminality, and the mysterious behavior of men and women.

Beyond popular fiction, scientific and medical discoveries in the mid-19th century contributed to ideas about regions of the brain and function.

...different regions of the brain indicated the development or absence of certain personality traits. These regions became physically larger when they were used. An analysis of the skull could thus tell an astute examiner about a person's behaviors and private inclinations.

In September 1848, American railroad foreman Phineas Gage survived an explosion that sent a one yard-long metal rod, measuring 1.25 inches in diameter, through his left cheek. The rod exited the top of his skull and destroyed his left frontal lobe. His survival, the resultant change in personality, and his interactions with Harvard University and the showman P.T. Barnum drove his case to international acclaim.

By 1861, French physician and anatomist Paul Broca's work on aphasia and connections to lesions in the frontal lobe confirmed the mid-century belief in the distinct functions of brain regions. German physician Carl Wernicke's research on aphasia related to other parts of the brain, outside the frontal lobe, further persuaded the medical community. With the concurrent development of anesthesia and new surgical procedures using asepsis and antisepsis, more invasive and precise brain surgery became a possibility.

Phrenology's popularity waned at the end of the 19th century but, in the immediate decades before the founding of psychology, psychiatry, and neurosurgery, phrenology did the work of convincing millions of Americans and Europeans that the brain was not merely a single clump of matter but a highly complex organ.

If you do possess that protrusion in the back of your skull, your phrenologist would have said that you have a highly developed sense of philoprogenitiveness—love for your children. Additionally, that bump in the center of your forehead indicates your benevolence. And while some bumps could lose their import due to others, what is not lost on history is the importance humanity has placed on repairing and understanding the human brain since our earliest attempts to treat the human body.

*About the author: Mary Ellen Leuwer is a doctoral candidate in the History of Science & Medicine at Yale University specializing in bioethics and the history of infectious diseases. She consults on medical history at the University of Maryland School of Medicine.*



By Philip A. Mackowiak, MD, and Richard J. Behles

# Eugene Fauntleroy Cordell

## Alumnus and Medical Historian for the Ages

In their article, "Making the Case for History in Medical Education," published online on November 13, 2014 in the *Journal of the History of Medicine and Allied Sciences*, Doctors David S. Jones (Harvard), Jeremy A. Greene (Johns Hopkins), Jacalyn Duffin (Queen's University, Ontario) and John Harley Warner (Yale) could find no better answer to the question implied in its title than that offered by Eugene Fauntleroy Cordell, class of 1868, over a century ago. According to them, Cordell deserves credit for having articulated the principal means by which knowledge of the history of medicine contributes to the making of better doctors. His proposal was that medical history:

1. Teaches [physicians] what and how to investigate.
2. Is the best antidote we know against egotism, error, and despondency.
3. Increases knowledge, gratifies natural and laudable curiosity, broadens the view, and strengthens the judgment.

4. Is a rich mine from which may be brought to light many neglected or overlooked discoveries of value.
5. Furnishes the stimulus of high ideals which we poor, weak mortals need to have ever before us; it teaches our students to venerate what is good, to cherish our best traditions, and strengthens the common bond of the profession.
6. Is the fulfillment of a duty—that of cherishing the memories, the virtues, the achievements, of a class which has benefited the world as no other has, and of which we may feel proud that we are members."

> It is probable that we may learn equally as much from the follies, omissions, and failures of the past as from its successes and achievements.

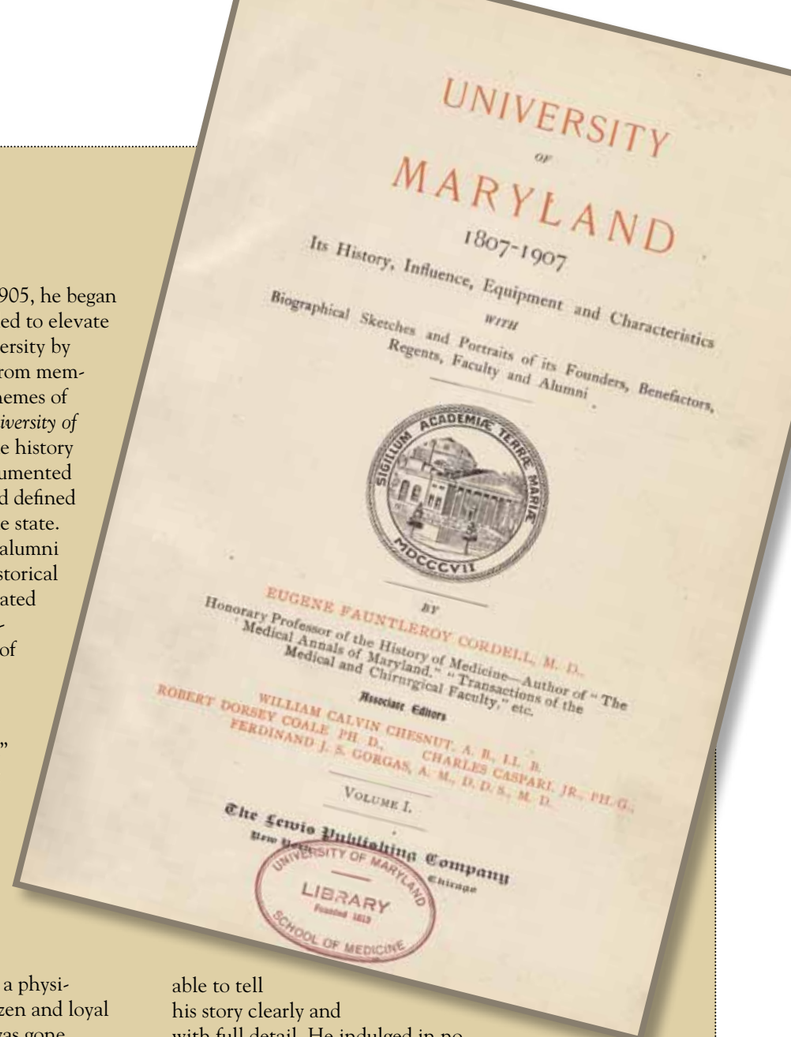
These eminent historiographers honored Cordell further by pointing out that he, more even than Osler and his peers, recognized the value of exploring the embarrassing history of failures and paths not taken. "It is probable," according to Cordell, "that we may learn equally as much from the follies, omissions, and failures of the past as from its successes and achievements." In that regard, he believed that every medical school should feature a medical history curriculum supported by designated faculty, required lectures and rigorous exams. Jones and colleagues opined that: "If Cordell's vision did not come to fruition over the century that followed, much of the work that has been done to make the case for the history of medicine has, nevertheless, followed his lead, even if unacknowledged." In revealing to their readers just who this man, Cordell, was, they indicated only that he was an early "president of the Johns Hopkins Historical Club (established in 1890)."

Cordell, however, was a great deal more than an early president of the Johns Hopkins Historical Club. He was a native of Charlestown, Virginia (now West Virginia), and a thrice-wounded Civil War hero, albeit of the Southern side. He was an 1868 graduate of our medical school, librarian for the Medical and Chirurgical Faculty of Maryland (1870-1871; 1880–1887), and co-editor of the *Maryland Medical Journal* (1880–1882). He was an indefatigable public servant, who served as president of Baltimore's Hospital Relief Association for several years, and president of Med-Chi (1903–1904). He founded the Home for Incurables and the Home for Widows and Orphans of Physicians, and co-founded the Women's Medical College of Baltimore (which existed from 1882 to 1910). He was also responsible for efforts to improve standards of medical education among the five medical colleges then existing in Baltimore, which led to similar regional and national movements that culminated in the founding of the Association of the American Medical Colleges in 1876.

Furthermore, no alumnus did more than Cordell for our school during a critical period in its history to secure its future as one of the country's pre-eminent universities or to instill in it an institutional spirit. Largely through his efforts, what had been a loose confederation of "departments" (now known as "schools"), with independent identities and priorities, evolved into a unified university. Until Cordell joined the faculty, the departments had little in common. They had no general endowment fund, no common interests, no effective centralized governance, and no "university idea." Cordell recognized the importance of an endowment in ensuring the survival of the university, and by the time he died, had managed nearly single-handedly to raise an endowment fund nucleus of some $50,000 for his alma mater. Moreover, he was largely responsible for merging together the varied interests of the individual departments into a unified institution, in which all of the departments came to be regarded as one university.

Cordell orchestrated this transformation through numerous collaborative activities embodying his personal motto, *toti non partibus* ("all not parts"). In 1905, he began publishing *Old Maryland*, a periodical intended to elevate a sense of institutional pride within the university by featuring regular side-by-side contributions from members of each of the schools that drew upon themes of common interests. In 1907, he published *University of Maryland, 1807–1907*, a massive, two-volume history of the institution's first 100 years, which documented its importance as an American university and defined its singular place in the medical history of the state. In 1903, he founded the university's general alumni association, and in 1904, the Library and Historical Society of the University of Maryland, dedicated to "embracing all departments of the University….[in] the investigation and elucidation of questions of literary, scientific and historical character." Osler spoke at the Society's first meeting on "John D. Godman, MD (class of 1818), Anatomist, Naturalist and Literateur."

Cordell also served as the university's first professional librarian from 1903 until his death from a cerebral embolism in 1913 at age 70. At the time of his appointment, the library consisted of just a few hundred ancient, dust-covered volumes. By the time he died, these had increased to some 14,000 books, all indexed and properly arranged.



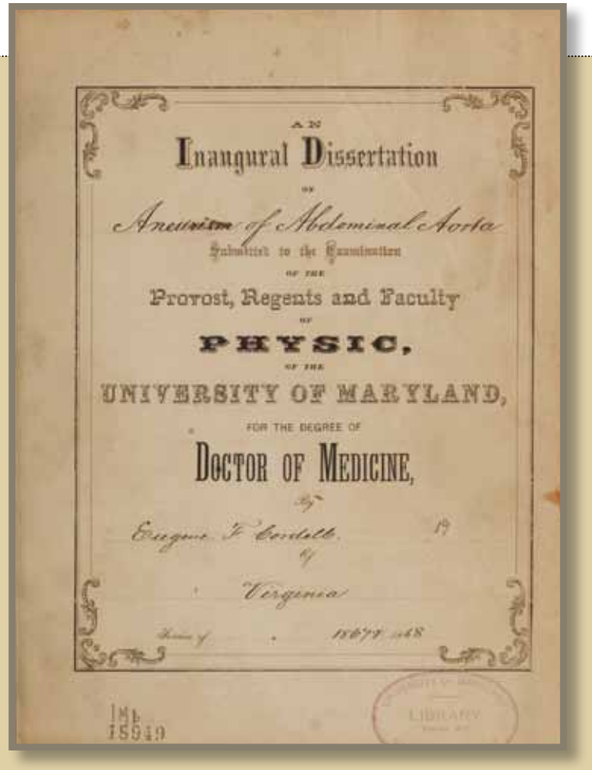

Yet for all of Cordell's accomplishments as a physician, teacher, public servant, patriotic citizen and loyal alumnus, those who eulogized him after he was gone maintained that it was "as a medical historiographer that he [would] be best known to those who came after." In describing his special characteristics as a medical historian, Randolph Winslow, MD, a fellow faculty member, said of him: "He searched the old files of newspapers, hunted up old books, discovered forgotten diaries, brought to light important facts in old ledgers, rescued old pamphlets from oblivion and delved into acts of the legislature and city ordinances. In this manner he attained a mastery of the subject and knew the names and careers of our local men and their relations not only to each other but also to medical advances. Having once ascertained his facts, he was able to tell his story clearly and with full detail. He indulged in no wild conjectures or lofty flights of imaginative rhetoric, but was perfectly contented to let the facts which he found speak for themselves."

> He searched the old files of newspapers, hunted up old books, discovered forgotten diaries, brought to light important facts in old ledgers, rescued old pamphlets from oblivion and delved into acts of the legislature and city ordinances.

Sadly, only a few present-day historians, of the likes of Jones, Greene, Duffin and Warner, know anything of this remarkable man. Even they appear to have only the barest conception of who he was and what he accomplished as a historiographer, much less as an alumnus of the University of Maryland.

Cordell's brief stint as president of the Johns Hopkins Historical Club was far from his most significant contribution to historiography. In addition to his history of the

University of Maryland mentioned above, he wrote: *Historical Sketch of the University of Maryland 1809–1890* (1891), *Medical Annals of Maryland* (an 887 page history of Med Chi and comprehensive assessment of medicine in the state published in 1903). He also published a host of monographs and papers concerned with a variety of historical subjects, including: "The Medicine and Doctors of Horace" (*Johns Hopkins Bull* 1901; 20:371-7), "The Medicine and Doctors of Juvenal" (*Hist J Brooklyn* 1903; 1: 8-17), "Aretaeus the Cappadocian" (*Johns Hopkins Bull* 1909; 12: 233-40), and "Library of a Colonial Physician" (*Old Maryland* 1912; 8: 98-101).


AN
Inaugural Dissertation
ON
Aneurism of Abdominal Aorta
Submitted to the Examination
OF THE
Provost, Regents and Faculty
OF
PHYSIC,
OF THE
UNIVERSITY OF MARYLAND,
FOR THE DEGREE OF
DOCTOR OF MEDICINE,
BY
Eugene F. Cordell
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In 1903, the University of Maryland honored Cordell for his work as a historiographer by appointing him professor of medical history. He believed he was the first such professor in the country, and we have been unable to find evidence of anyone having preceded him as such. Osler was a close friend and admirer, who provided financial support that enabled Cordell to write *The Medical Annals of Maryland 1799–1899*. What is more, after moving to Oxford, Osler appealed to Baltimoreans to recognize Cordell's work by commissioning a portrait of his friend and fellow historian. In writing to Cordell of the gesture, he said: "It is just recognition for all you have done for the profession of Maryland. You know, my dear Cordell, how much I have always appreciated your devoted and unselfish labors."

When the portrait was presented to the Medical and Chirurgical Faculty of Maryland in May 1912, William H. Welch, MD, another Hopkins luminary, spoke at the unveiling. A second portrait, painted by Irving Ward, was presented to the university on academic day, November 11, 1914. It is currently displayed outside of the Theodore E. Woodward Historical Suite in the health sciences and human services library.

During his lifetime, Cordell was honored further for his work as a historiographer by being elected to the Royal Society of Medicine, London, section of history of medicine; and long after his death, his alma mater created the Cordell Historical Society of the University of Maryland, which during its brief existence (1936–1942) hosted meetings held alternately at Maryland and Hopkins. True to its namesake's motto, *toti non partibus*, the society featured presentations by senior faculty members from each of the universities. The society was accorded (constituent) membership in the American Association of the History of Medicine before failing due to hardships imposed by World War II.

Cordell kept a diary from 1903 until his death in 1913. In it, he intimates that his early efforts to teach medical history were not taken seriously by the university, and that at least some of his colleagues felt that he might spend his time more productively on other matters. Osler again came to his aid, this time with moral support. According to a March 1905 entry in the diary: "[Osler] spoke of the advantage we enjoyed in our name….and that we should not [hesitate] to revive an academic department [of medical history]" Cordell and his diary are regarded as sufficiently important historically for Duke University to have purchased the manuscript, which now resides along with other Cordell works in Duke's Rubenstein Library.

One might assume, given Cordell's prominence as a medical historiographer, that he was the product of a rich tradition of the study of medical history at the University of Maryland. However, before Cordell, few members of the Maryland faculty exhibited any compelling interest in the subject, and after him, many years were to pass before such interest took root in the university. Nathanial Potter, MD, a founder of the medical school and its first chair of medicine, wrote an *Account of the Rise and Progress of the University of Maryland*, without which we would know little of the early struggles involved in the founding of our school. Robley Dunglison, MD, who joined the faculty of the University of Maryland in 1833 as professor of materia medica, hygiene and medical jurisprudence, was another medical historian among the early faculty. He came to Maryland from the University of Virginia, where he taught the history of medicine at the insistence of Thomas Jefferson. And John Ruhräh, an 1894 graduate of the College of Physicians and Surgeons of Baltimore (later incorporated into the University of Maryland), and the university's first professor of pediatrics, published a history of pediatrics in 1925 entitled *Pediatrics of the Past*.

Cordell believed that knowledge of history has the potential to bring wisdom before too late, and vigorously promoted such knowledge as a critical element of medical education.

Aside from these modest contributions to the discipline, the University of Maryland did little to advance medical historiography beyond the work of Cordell until Theodore E. Woodward, class of 1938, chairman of the department of medicine (1954 to 1981), began publishing a series of books and articles in the early 1970s profiling prominent Maryland physicians along with ones describing great moments in the history of infectious diseases, the sub-specialty he helped to found. Before he died, Woodward published no fewer than eight books on these subjects, including his *Department of Internal Medicine: University of Maryland School of Medicine 1807–1881* and *Research on Infectious Diseases at the University of Maryland School of Medicine & Hospital. A Global Experience 1807 to 2000*.

Happily, the campus now features a surprisingly rich and diverse collection of assets related to the history of the medical sciences, thanks to the efforts of numerous alumni, faculty and friends of the university. These include a revitalized Davidge Hall, dental and nursing museums, a health sciences library historical collection supported by a full-time historical librarian, the AOA History of Medicine Lecture Series, a history of medicine student interest group, an annual historical clinicopathological conference that has generated 20 peer-reviewed articles and two books, and an endowed Carolyn Frenkil and Selvin Passen History of Medicine Scholar-in Residence at the medical school. Recently published books by members of the University family include: *University of Maryland School of Medicine. The first Two Centuries 1807–2007* (by Larry Pitrof, executive director of the Medical Alumni Association), *Mergers of Teaching Hospitals in Boston, New York, and Northern California* (along with several other books concerned with the governance of academic medical centers by John Kastor, MD, former chairman of the department of medicine), *Medicine: Perspectives in History and Art* (by Robert Greenspan, class of 1971), *Advice to the Young Physician and Advice to the Healer* (by Richard Colgan, MD, department of family medicine), *The History of Dermatology at the University of Maryland* (by Ronald Goldner, class of 1965, department of dermatology), *Wilson's Way. Win Don't Whine* (by Donald Wilson, MD, former medical school dean), *Baltimore's Own: The World's First Dental School 1840–2006* (by John Hyson, dental school), and *Alignment. The Key to the Success of the University of Maryland Medical System: America's First Teaching Hospital* (by Morton Rapoport, class of 1960, and Stephen Schimpff, MD, former CEO and COO of the University of Maryland Medical System).

"Life's tragedy," according to Ben Franklin, "is that we get old too soon and wise too late." Cordell believed that knowledge of history has the potential to bring wisdom before too late, and vigorously promoted such knowledge as a critical element of medical education. For he well understood, as Thomas Fuller had proposed some three centuries earlier, that "History maketh a young man to be old, without either wrinkles or grey hairs; privileging him with the expenses of age, without either the infirmities or inconveniences thereof. Yea, it not only maketh things past, present; but enableth one to make a rational conjecture of things to come. For this world affordeth no new accidents….Old actions return again, furnished over with some new and different circumstances.

*Authors: Philip A. Mackowiak, '70, is emeritus professor of medicine and the Carolyn Frenkil and Selvin Passen History of Medicine Scholar at the University of Maryland, Baltimore; Richard J. Behles is the historical librarian and preservation officer for the University of Maryland, Baltimore Human Services and Health Sciences Library.*

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*Page 15: Portrait of Dr. Cordell painted by Dieterich of Baltimore, courtesy of MedChi.*

# The Baltimore VA: Old, New and Newer

By Wayne Millan

NO MILITARY OFFICER had done more than General Omar Bradley to defeat the German Army in the European Theater of Operations during World War II. Ink on surrender documents for Victory in Europe was barely dry in May of 1945 when Bradley's commanding officer, General Dwight Eisenhower, told him that President Truman wanted him back in Washington for a very different assignment. His new job would be to lead the Veterans Administration. Bradley was not enthused at the prospect of replacing front-line command of a million-plus field army with administration of a creaking bureaucracy that had been led by the same individual for over 20 years; yet his commander-in-chief—a fellow Missourian—specified Bradley for the mission. The challenge of helping millions of service men and women to return to civilian life was enough incentive for Bradley to take charge of the VA rather than begin a more comfortable retirement.

Even before he returned stateside, Bradley was celebrated as America's popular "G.I. General," and he was able to get positive attention for the VA in congress as perhaps no other American leader could have at that time. His predecessor, Frank Hines, had been a brigadier general in charge of troop transport during World War I. Although Hines was known as a reformer and a good organizer, greater political heft was called for given the scale of operations then in place: over 12 million uniformed personnel by 1945 (16 million by '47) in contrast to the approximately four million who served during the whole of US involvement from 1917–1919.

Even before he returned stateside, Bradley was celebrated as America's popular "G.I. General," and he was able to get positive attention for the VA in congress as perhaps no other American leader could have at that time.

Bradley began his WWII years by creating the prototype officer candidate school at Fort Benning in Georgia. Now his burdens included a large-scale building campaign at new and revamped veterans' medical centers across the United States. The Baltimore area's older medical facilities like the one opened at Fort Howard in 1940 needed to be supplemented. With Bradley's help, a 300-bed hospital to focus on pulmonary cases—specifically tuberculosis—was approved by congress in October of 1945. It was one of 19 new VA hospitals authorized that fall alone, many of them built from the same set of architectural plans. There was also talk of a larger, 1,000-bed general hospital in or near Baltimore just for veterans' care. It was urged on Bradley by then-Congressman Thomas D'Alesandro, Jr., though it was never built.

The slow process of congressional appropriations meant ground was not broken for the new tuberculosis hospital until 1949. The VA's chosen site was on Loch Raven Boulevard at the corner of The Alameda. Construction costs totaled just under $5 million; the hospital was completed and opened at the end of 1952. "Loch Raven," as it came to be known, quickly established working relationships with both Maryland and Johns Hopkins. Personnel from the two institutions were designated by the VA to participate in research as well as treatment. Hopkins developed a surgical service while Maryland supplied many of the hospital's student staff and resident physicians. Unusual for the time, most patients had private rooms since the original focus was to treat tuberculosis in isolation. Yet 1952 was also the year when isoniazid—marketed by Roche as Rimifon—became widely available, and TB as a public health threat began to diminish soon thereafter.

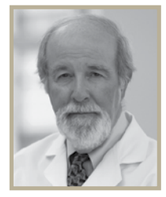
Physicians who were on the staff of the VA during the Loch Raven years recall it as a facility where both medical students and resident physicians liked to work. **Morton I. Rapaport, '60**, who became the first CEO of the University of Maryland Health Systems in 1984 after serving as chief of medicine at Loch Raven, and **Frank Calia, MD**, who was named Loch Raven's chief in 1976, each recall a good environment. Maryland provided much of the staff in internal medicine while Hopkins continued to run the surgical unit. Their competition was healthy and "collaborative" according to Calia.

Thanks in part to isoniazid, by the mid-1960s tuberculosis hospitals were becoming a rarity. Loch Raven was redesigned as a general hospital for veterans' care, and at almost the same time, press accounts (notably in the *Baltimore Sun*) started to report an effort to replace it. On August 14, 1967, the *Sun* stated that Hopkins and Maryland were jointly negotiating with the VA to build a 720-bed facility to be located in downtown Baltimore. The VA's Oliver J. Harris, MD, was quoted as saying that their goals were to replace the Fort Howard Hospital entirely and provide veterans with state-of-the-art capabilities like kidney dialysis. One of the VA's key concerns was the small size of existing patient rooms. Many at Loch Raven had been intended for only one patient and had minimal space for technological improvement. Harris warned, however, that "machinations of government" meant it would likely be the early 1970s before construction could start.

As events played out, this newer VA was not completed for over 20 years. The intervening two decades of machinations in congress and various presidential administrations frustrated repeated efforts on the VA's behalf by figures such as the late **John Dennis, '45**, who took over as Maryland's dean in 1973, and **Theodore Woodward, '38**, long-time chair of medicine. Some $5.2 million in funds appropriated for an initial phase of construction were "impounded" by the Nixon Administration in March of 1973, a move that angered then-Senator Charles McC. Mathias. Later arguments raised against a new hospital included the presence of excess beds in the Baltimore region–excess if total beds, not just VA, were counted. This criticism was floated by President Carter's "inflation czar," Alfred Kahn, in 1980, and after the Reagan Administration came to power in 1981 by their budget chief, David Stockman. As late as February of 1986, Woodward even had to fend off a letter to President Reagan from John Cameron, MD, of Johns Hopkins in which Cameron argued that a new VA hospital was not a good idea. He asserted that the appropriation required—by then estimated to be over $100 million (equivalent of c. $22 million in 1952 terms)—was too great and that Maryland had "approximately 5,000 too many acute-care hospital beds" already (the *Sun* was reporting only 2,600 excess). Once again, a critic was lumping VA beds in with civilian ones.

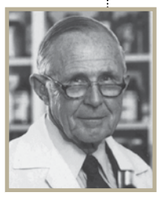
The site for a newer VA on the corner of Greene and Baltimore Streets had been selected as long ago as the early 1970s. The project finally gained full congressional approval at the end of the Reagan years, was built and then opened in October of 1992. The *Sun* and other press outlets called it a "Hyatt Regency" of hospitals, as if to echo critiques by earlier federal budget chiefs; yet it enjoyed quick access to our medical center across the street as well as to the medical school and to Baltimore's renovated waterfront area. The University of Maryland expanded its relationship with the VA, and that relationship, or "alignment" in Rapaport's term, was further cemented by the construction of a pedestrian bridge over Baltimore Street. That bridge today connects the two institutions perhaps more closely than even General Bradley and his million-plus soldiers could have.

*Morton I. Rapaport, '60*



*Frank Calia, MD*

*John Dennis, '45*



*Theodore Woodward, '38*

*Author Wayne Millan teaches classical Latin and the history of medicine at The George Washington University. He has launched a series of on-line courses for the institution which this summer will include a new offering on ancient medicine and medical terminology. Millan has been involved with Maryland's annual Historical Clinicopathological Conference as a historical consultant since 2001.*

## Awards & Honors

❖ **Alash'le Abimiku, PhD**, associate professor of medicine in the institute of human virology, was made a member of the Order of the Niger of the Federal Republic of Nigeria by President Goodluck Ebele Jonathan. The Award honors Nigerians "from all walks of life, those who have rendered special and outstanding services in their various callings, to the benefit and progress of the nation." The award to Abimiku was presented during a ceremony in Abuja, Nigeria, on September 29, 2014. It was given in recognition of her 30 years of service to developing research infrastructure with the goal of empowering Nigeria's response to its myriad health challenges, particularly HIV.

*Curt Civin*, MD

❖ **Curt Civin, MD**, associate dean for research, director, center for stem cell biology & regenerative medicine, and professor, departments of pediatrics and physiology, was featured on the cover and in a feature story in the *National Foundation for Cancer Research Progress Report*. The interview was titled "Molecular Sawdust Holds The Key—The Power of microRNA."

*Robert Gallo*, MD

❖ **Robert Gallo, MD**, the Homer and Martha Gudelsky Distinguished Professor in Medicine, and director of the institute of human virology, received the Bonino Pulejo International Prize on October 14, 2014, at the University of Messina in Sicily, Italy. The prize was given by the Fondazione Bonino-Pulejo, a foundation dedicated to fostering fellowships for newly graduated medical and law students from Universities in Sicily and Calabria. Gallo received the award for his research on viral proteins and human retroviruses.

❖ **Kathirkama Shanmuganathan, MBBS**, professor, department of diagnostic radiology & nuclear medicine, was awarded the American Society of Emergency Radiology Gold Medal at its annual scientific meeting in Portland, Oreg., last September. The award recognizes outstanding service to the society or the radiologic specialty the society represents.

## Grants & Contracts*

*Edson Albuquerque*, MD, PhD

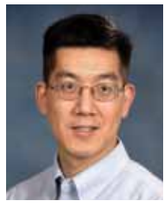
❖ **Edson Albuquerque, MD, PhD**, professor, department of epidemiology & public health, received a two-year, $1,551,295, SBIR award from NIH, via the Countervail Corporation, for "Definitive Studies for Use of Galantamine as a Pre-Treatment Countermeasure Against Nerve Gas Poisoning."

*Thomas Blanpied*, PhD

❖ **Thomas Blanpied, PhD**, associate professor, department of physiology, received a five-year, $2,220,872 grant from the National Institute of Mental Health for the competing renewal of his research grant "Internal Dynamics of Post-synaptic Density."

*Man Charurat*, PhD

❖ **Man Charurat, PhD**, associate professor of medicine in the institute of human virology, received a five-year, $3.1 million award from the National Institutes of Health in collaboration with Claire Fraser, PhD, professor, departments of medicine and microbiology & immunology and director of the institute for genome sciences, for "Microbiome Affects Risk of Growth in HIV-Exposed but Uninfected Infants-Nigeria."



*Wilbur Chen*, MD, MS

❖ **Wilbur Chen, MD, MS**, associate professor, department of medicine, and **Karen Kotloff, MD**, professor, department of pediatrics, both from the center for vaccine development, have been awarded up to $1,098,151 for a task order to perform "A Phase II Randomized, Partially Blinded, Controlled Trial in Healthy Adults Aged 65 Years and Older to Assess the Safety, Reactogenicity, and Immunogenicity of an MF59-Adjuvanted, Monovalent Inactivated Influenza A/H7N9 Virus Vaccine Administered Intramuscularly at Different Intervals and Dosages." This is part of the NIAID's Vaccine and Treatment Evaluation Unit contract.

❖ **Larry Forrester, PhD**, associate professor, department of physical therapy & rehabilitation science, received a VA Merit grant for $1.1 million over four years for "Adaptive Ankle Robot Control System to Reduce Foot-Drop in Chronic Stroke." **Richard Macko, MD**, professor, department of neurology, is co-PI on the project.

*Seth Himelhoch*, MD, MPH

❖ **Seth Himelhoch, MD, MPH**, associate professor, department of psychiatry, received a four-year $2,000,000 grant from the Substance Abuse and Mental Health Services Administration for "STIRR-IT: Co-located HIV/HCV Prevention & Treatment in a Behavioral Health Setting."

*Mary Kay Lobo*, PhD

❖ **Mary Kay Lobo, PhD**, assistant professor, department of anatomy & neurobiology, received a five-year, $1,918,750 grant from the National Institute on Drug Abuse for "Cell Subtype Transcriptional Mechanisms in Cocaine Addiction." Lobo was also selected as one of 10 early career investigators from across the world to participate in a future leaders group at the 11th Annual Science and Technology in Society Forum, held in Kyoto, Japan, last October, representing the United States

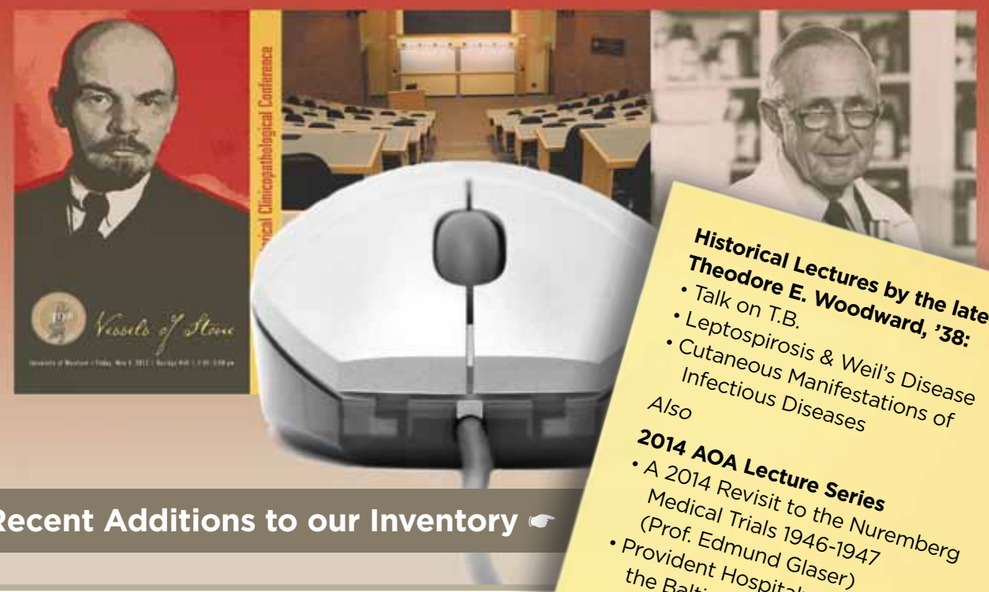
*Kirsten Lyke*, MD

❖ **Kirsten Lyke, MD**, associate professor, department of geographic medicine, received a two-year $2,081,000 grant from the Joint Warfighter Medical Research Program/ Department of the Army, in collaboration with Sanaria Inc., and the Naval Medical Research Center, for "Phase 2 Development of the PfSPZ Vaccine to Protect the Warfighter from Malaria." The study evaluates the irradiated P. *falciparum*, metabolically active whole sporozoite malaria vaccine in healthy, malaria-naive volunteers and assesses protective efficacy against heterologous strains of malaria. **Andrea Berry, MD,** assistant professor, and **Matthew Laurens, MD, MPH**, associate professor, both with the department of pediatrics and the center, are investigators for the study.

**Grants & Contracts of $1 million and above*

## On-line Classroom Lectures for Alumni

Dues-paying members of the Medical Alumni Association are invited to view **On-line Classroom Lectures.** These include many of the first- and second-year presentations available to students as taught from Taylor Lecture Hall in the Bressler Laboratory, as well as recordings of grand rounds. In addition, the MAA Annual Historical Clinicopathological Conferences and a few historical lectures by Theodore E. Woodward, '38 are available for viewing. Enrich your education by visiting the MAA website and registering today: www.medicalalumni.org.



By Rita M. Rooney

[Alumna Profile]

# Susan Mather, '65 Being First

AS A MEDICAL STUDENT, Susan Mather, '65, never expected her life to be punctuated by a series of "firsts." Nor did the pulmonologist see herself as a trailblazer on behalf of American veterans. But Mather has an inherent mix of compassion and common sense that paved the way for an unplanned but distinguished career that included advocacy on behalf of women vets and victims of AIDS.

Following a residency in medicine and fellowship in pulmonary diseases at Maryland, Mather became Maryland's student health physician and instructor of ambulatory care before becoming director of adult health and epidemiology for Prince Georges' County Health Department and earning an MPH from Johns Hopkins. When offered the position of program chief of pulmonary and infectious diseases for the Veterans Administration's (VA) Central office in Washington, she declined.

"My two children were very young at the time," she explains. "I knew the job involved considerable travel, and I was not willing to be away from them for possibly long periods; so I felt it best that I turn down the offer.

The VA had other plans however. They called Mather and told her that, if she accepted, she would not have to travel any more than she wanted. It was the proverbial offer she couldn't refuse, and so for the next 27 years, her service to her country paralleled emerging health needs among America's veterans.

*Mather, left, at a 1995 White House meeting with Hillary Clinton on Gulf war veterans*

While still a relative novice at the VA, Mather responded to her initial national crisis necessitating travel—the outbreak of Legionaire's Disease in a Los Angeles facility, leading to two deaths which threatened to close the hospital. The situation left her no alternative but to put together a team and travel to the site. They determined that the public water supply had lost chlorination in the hospital and, while that was never proved as the cause of the problem, it was resolved with the return of a chlorinated water supply. It would not be the first time crisis forced Mather to travel away from home and family.

In 1988, she achieved her professional "first," when she became the VA's pioneer director of its AIDS program. She had received reports of what was essentially a mystery illness from several infectious disease physicians at VA hospitals. When the Centers for Disease Control published its report, several patients in New York and San Francisco were identified, two of whom were in VA hospitals. Mather lost no time in responding. She crafted a training program and traveled to all parts of the country to implement it.

"We didn't know much about this new threat except that it was spreading rapidly," she says. "We did know we could protect staff against bloodborne pathogens, and that we had excellent infection control people. So, like it or not, I was on the road a great deal."

Remembering those early days of the epidemic, she recalls a nurse who refused to treat AIDS patients. She insisted he be fired. The employee took his case to the nurse's union but the review board rightly determined that a nurse must treat patients.

"The word went out fast," Mather says. "If you worked for the VA, you took care of patients, all patients."

Until she [Mather] took on the challenge and established the first women's health program, facilities for women at VA hospitals were deplorable.

Sometime later, she sat next to a young man on a plane who revealed he had AIDS. He said that, when he first went to a hospital, he was asked if he was a veteran and said he wasn't. The staffer replied, "Too bad, because VA has the best AIDS program." That remark made my day," Mather says.

In the beginning, compassion was the primary source of care, she recalls. Some of the infections could be treated, but it remained unknown whether it was an immune system disease or an infectious illness. Mather became a mother figure to many of the patients. Eventually, as research advanced, specific care became available.

AIDS led to another Mather "first." It was the custom to charge employees $1 each for their flu shots. She fought to reverse this, arguing that flu shots were imposed, not to protect employees, but patients.

"It was a minor issue at the time," she acknowledges "However, I knew the hepatitis B shot, which was $100, was about to become a rule throughout hospitals. I wanted free shots for employees to become a precedent before that happened."

Her next historic "first" involved the care of women vets. Until she took on the challenge and established the first women's health program, facilities for women at VA hospitals were deplorable.

"I had never thought of myself as an activist," Mather says, "But I had to do something about this." She says women patients had no access to a gynecologist. There were no proper examining tables for women, mammograms were unavailable as were specific necessary products for women. General facilities were lacking. Mather authored a letter to all VA facilities about the needs of women patients. When the Government Accounting Office (GAO) surveyed them, they found her recommendations had been ignored.

"Someone remembered I was "pushy," she says, "and asked me to work out a plan." The GAO report got the attention of President Ronald Reagan. He turned the problem over to Harry Walters, administrator of veteran affairs, saying, "If you don't do anything else, do fix this." Mather and Walters' special assistant worked together to improve conditions. An advisory committee was formed that suggested that hospitals have women coordinators. Today, every VA hospital has such a point person with responsibility for women's care.

"Looking back, I consider that to be the biggest impact I've had on VA care," Mather says.

Her other "firsts" constitute a long list including leading VA's epidemiological investigation of Legionaire's Disease, directing the VA's first hepatitis B immunization, and chairing the first VA Task Force on Agent Orange following release of the study on veterans and Agent Orange.

The recipient of several awards, including one from the Vietnam Veterans of America for outstanding contributions to women veterans, Mather won the *Good Housekeeping* Magazine Woman of the Year in Government Award, which included a $25,000 honorarium.

Susan Mather's career has been that of physician and pathfinder, often trailblazer and, when necessary, even activist.

## Small World

In 1984, at a luncheon honoring women vets, the guest speaker was Judy Resnik, astronaut sister of Charles Resnik, featured on page 26 of this issue. Mather remembers her as a petite, lovely young woman who shared with her audience the fact that her full participation at NASA was delayed while special clothing was tailored for her because she was so small. Mather asked for and received an autograph for her then 11-year-old daughter who still treasures it. Two years after that event, Resnik was among the Challenger astronauts who died in the explosion. Mather's daughter, who was shattered by the event, told her mother, "This is the end of the innocence of my childhood. I didn't know such things could happen."

By Rita M. Rooney

[Faculty Profile]

## Charles Resnik, MD

# History of a Fitting Tribute

Just three months after the explosion, still suffering from the raw grief of their losses, Resnik and the families of all the Challenger astronauts came together to form the Challenger Center for Space Science Education.

IT WAS JANUARY 28, 1986, a day that left an indelible imprint on mankind. The hopes of America and the world rose with the Challenger space shuttle's *Teacher in Space* mission as it lifted from the launch pad with seven crew members aboard. **Charles Resnik, MD**, professor of diagnostic radiology and associate vice chair of education, department of diagnostic radiology and nuclear medicine, was a spectator, along with his father and his two young children. One minute after takeoff, the Challenger exploded, killing all aboard. Among them was Resnik's sister, Judith Resnik, a biomedical engineer, classical pianist and Challenger mission specialist.

"Judy entered the astronaut program as a scientist," Resnik explains. "She joined at a time when NASA was seeking candidates to work on development of its science in space program."

Just three months after the explosion, still suffering from the raw grief of their losses, Resnik and the families of all the Challenger astronauts came together to form the Challenger Center for Space Science Education. Every one of the families remains involved today, and Resnik serves as a founding director and vice chairman of the board of directors. Twenty-nine years after the disaster, the organization has brought space science education to more than four million students through various programs that include 44 Challenger Learning Centers around the globe.

To an observant world, it must have seemed remarkable that a tribute like this could be born so soon after the pain of such loss. Resnik explains it, saying simply, "It was tough, but we wanted something good to come of it."

Today, the Challenger Center for Space Science Education provides numerous programs as an outgrowth of its pioneering STEM education (Science, Technology, Engineering and Math). Among components is a program Resnik refers to as the *Wow Factor*, learning centers for school-age children, primarily at the junior high level, in which they get to go on a simulated mission, possibly to the moon, another planet, or to experiment with Halley's Comet. A class is divided into science teams, mission control and space station. Each team is further divided into responsibilities, such as communication support among astronauts and mission control, or monitoring the Earth Observation Satellite Network. They are sent out to do a specific task which must be successfully completed within a certain time frame. If they encounter problems, their flight director, or more likely, their teammates guide them. Preparation for these missions begins at the classroom level among specific schools engaged in the initiative. How many of the students provided with this early exploration of space become astronauts? It's impossible to say, although many young scientists have come forward to talk of the Challenger Center experience that inevitably led them to the space program.

"I can't begin to explain how rewarding it is to watch these young people during one of these simulated missions," Resnik says. "Without realizing it, they are learning life skills, whether or not they are specifically interested in space science."

Resnik's youngest daughter, 12-year-old Jenna, has inherited the family's concern about space exploration. She recently put together a power point presentation on the Challenger Center that generated so much interest among her teachers that a question-answer session ran into the next period. The presentation wound up being presented to the Challenger Center Board of former astronauts and CEOs of science organizations who praised it for its depth and perception of the program.

A member of the Society of Skeletal Radiology (SSR) for more than 25 years, Resnik is a past president of that organization and of the Association of Program Directors in Radiology (APDR). He received the APDR Achievement Award in 2003, and is a longtime faculty advisor for the American Alliance of Academic Chief Residents in Radiology, APDR and SSR. In addition, he has served on the boards of two major radiology journals and as a manuscript reviewer for many other journals.

Resnik has been director of the diagnostic radiology residency program at Maryland for more than 25 years, a rare distinction in academic medicine. Teaching has been an extremely important focus in his career. In 2012, he received the department's excellence in teaching award.

"I had given a number of important lectures that year which led to the award," he says. "However, the environment we've created for teaching in this department is a strong one and, in that setting, exceptional teaching is the result of interaction between students and the teacher. I'm not sure there are awards for that."

In the early years of his career, Resnik's research as well as his publications focused on clinical research interests. Somewhere along the way, he says, they turned to resident education.

As for research, he collaborated with **Marc Hochberg MD**, director of rheumatology and principal investigator of a recently concluded 12-year NIH multi-institutional study evaluating patients with osteoarthritis to determine the most effective treatment. Papers emanating from the study are forthcoming.

Discussing the future of the space program, Resnik says it depends largely on funding. The United States and many other countries believe STEM education is critical. But space exploration remains the defining factor.

"When the shuttle program ended, many people believed it was the end of NASA. It was not," he says. "To many, space exploration is defined by astronauts going into space. They don't realize that NASA remains strong, and many of its most compelling programs are still being pursued."

Asked about the impact of recent views from the Hubble Space Telescope and the successful test flight of NASA's Orion spacecraft capable of sending humans to deep space destinations, Resnik regrets that, while these discoveries are hailed by the scientific community, Orion hasn't yet stirred the focus of the public. He predicts, however, that assuming the government continues necessary funding, travel to Mars is likely to occur within our lifetime.

Considering the significance of Orion studies and the knowledge gained through STEM education brings one to an inescapable conclusion about the decision made by those Challenger families 29 years ago.

Resnik recalls that, in the wake of the explosion, hundreds of memorials and monuments were dedicated to the astronauts. He says, "The families were grateful. But we were united in wanting to honor the crew for who they were and what they did through their contribution to NASA's science in space mission." It would seem they succeeded.

**For additional information, visit www.challenger.org**

## Personal Crisis Inspires Professorship in Stroke Neurology

The Greenebaum name has been synonymous with philanthropy and civic leadership in Maryland for decades. Considered to be one of Baltimore's most well-known and respected families, the Greenebaums are among the largest supporters of the school and medical system.

The family's generosity includes both commitments of time—several members have held key leadership positions within the University, including the school's board of visitors—and philanthropic support. For example, the Greenebaums established an annual distinguished scholar lecture series for the institute of human virology, and initiated the access to medicine fund, which provides scholarships for Maryland medical students who are state residents.

In 1995, the Greenebaums made a then-record-breaking $10 million donation to the university for the creation of The Marlene and Stewart Greenebaum Cancer Center. The gift, made exactly five years after Marlene Greenebaum's diagnosis of cancer, celebrated her successful treatment and recovery.

Stewart Greenebaum calls The Greenebaum Cancer Center "my true life's work," and predicts that it will "still be changing lives … long after the buildings I have built have been forgotten."

However, another, more recent personal crisis gave the family the inspiration to make an impact in a new and different way than their previous efforts: The creation of the Stewart J. Greenebaum Endowed Professor in Stroke Neurology.

In 2011, Stewart Greenebaum suffered a devastating stroke and required immediate medical attention. Without a moment's hesitation, the family turned to Maryland for assistance. Greenebaum was treated by a multidisciplinary team of stroke experts led by **Barney Stern, MD**, interim chair and professor of neurology and also director of the comprehensive stroke center at the medical center.

*Barney Stern, MD, left, and Dean E. Albert Reece, MD, PhD, MBA, right with members of the Greenebaum family*

Because of his research and clinical work on stroke and the neurological complications of sarcoidosis, an inflammatory disease that affects a range of organs, including the brain, Stern was able to diagnose Greenebaum's condition and provide the treatment that he needed.

"The care that my father received from Dr. Stern and his team at the University of Maryland saved his life," says Michael Greenebaum, president of Greenebaum Enterprises Inc.

During and after his father's treatment, Michael Greenebaum says the family developed a relationship with Stern and took an interest in the work that he and others were performing, including an experimental treatment, Glyburide, which is used to prevent brain swelling following a stroke.

"It became apparent to us that the neurology department needed a boost," he says, "The family thinks the world of Dr. Stern, and we saw that a gift would be very meaningful for helping him continue the important work he is doing."

That "boost" became the decision to create the Stewart J. Greenebaum Professorship in Stroke Neurology, which, appropriately, was awarded to Stern. Established and funded through the Greenebaum family foundation, the professorship is designed to "advance biomedical research aimed at understanding, diagnosing, and treating stroke."

"Since Stewart honored me with his gift of the Greenebaum Cancer Center, I wanted to honor him as well," said Marlene Greenebaum. "Also, our family wanted to honor and support the people who saved Stewart's life and to help to facilitate research that may save other people from the devastation of massive stroke."

"I am truly grateful and honored to be the inaugural recipient of The Stewart J. Greenebaum Endowed Professorship in Stroke Neurology," Stern commented, during his investiture ceremony in October 2014.

Stern added that funding from the professorship will allow him and his colleagues to continue to develop new treatments for stroke-associated complications, such as brain swelling.

"Dr. Stern has a stellar record as a clinician, researcher and teacher, and this is a fitting honor for him. I congratulate him, and express my deepest gratitude to the Greenebaum family," said **Dean E. Albert Reece, MD, PhD, MBA**.

Michael Greenebaum, who serves on the school's board of visitors as well as the Greenebaum Cancer Center Board of Advisors, says his family has "a high comfort level" when it comes to making donations to Maryland.

"We know that any money we've ever given is going to be put to work in the best way possible," he says. "We hope our gift will encourage others to do the same thing."



Managing wealth

# Financial Planning

*This column is prepared by Ken Pittman, CFP®, a senior vice president and senior wealth planner at PNC Wealth Management. Pittman provides wealth planning services and can be reached at 410.626.2104 or at kenneth.pittman@pnc.com*

Financial planning is a process that can help an individual target his or her financial goals by evaluating the whole financial picture and outlining strategies that are tailored to meet one's needs. Plans vary by scope and complexity, but some basic steps in implementing a comprehensive financial plan include:

- **Maintaining an adequate cash reserve**—being prepared for emergencies or opportunities by having a surplus of three to six months of one's ongoing living expenses is important. Establishing an automatic funding plan with some amount being deposited into a savings account from each paycheck to build and maintain a cash reserve is one approach to addressing this objective.
- **Reducing high interest rate credit card debt**—for individuals who are carrying-over credit card balances from one period to the next and are incurring interest charges, it may be appropriate to pay more than the required monthly minimum and thereby accelerate the timetable for reducing the outstanding debt. If available and when necessary, the use of a credit card that offers a lower rate may help to reduce one's overall interest expenses.
- **Establishing a household budget**—determining how money is spent may lead to identifying how to reduce some expenses. Using a household spending analysis worksheet to track income and expenses can be a helpful budget management tool.
- **Reviewing insurance protection**—insurance can be used to provide protection against unforeseen events. It is important to periodically review the insurance coverage that is associated with one's possessions (ex: auto and home), and individual life and health situations. Focusing on the level of deductibles and the key coverage amounts may help to obtain the desired level of protection at an effective cost.
- **Investing for retirement**—reviewing the details of an employer's retirement plan to potentially take advantage of the company match can be a good planning strategy. In addition to the employer's plan, the possibility of making contributions to an IRA or to a Roth IRA should be considered. The potentially available income tax advantaged compounding aspects of these plans may enable one's funds to grow faster over time.
- **Taking care of estate planning**—having an up-to-date Will may help to make sure that assets are distributed as desired at death, and can help to reduce any estate taxes and settlement fees that may be due. However, estate planning is more than trying to reduce taxes and fees. An individual's estate plan might also include documents that designate someone to make financial decisions if one is incapable of making them (durable power of attorney for finances), someone to make medical decisions if one is incapacitated (durable power of attorney for health care) and a guardian for minor children (if applicable).
- **Organizing financial records**—having a system for tracking monthly income and expenses can reduce the time needed to handle everyday finances. In addition, maintaining easily accessible files for investment, insurance, tax and estate planning records may make the search for important information less time consuming.

The financial planning process does not end once an initial plan has been created. The plan should be reviewed at least once a year to make sure that it remains appropriate. In fact, it is possible that the plan will need to be updated on a more frequent basis due to changes in personal circumstances or other factors such as changes in the investment markets or the economy. If you have questions about financial planning, or if you require assistance in creating or managing a comprehensive financial plan, you would be well served by seeking guidance from a qualified wealth planning professional.

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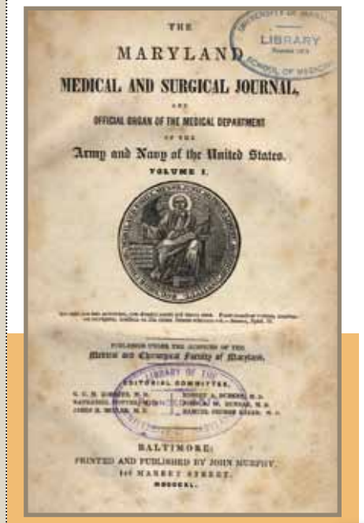
# recollections

**A look back at America's fifth oldest medical school and its illustrious alumni**

## 175 Years Ago

In 1840, *The Maryland Medical and Surgical Journal*, edited by Maryland's faculty, became the first official publication to be adopted by the medical departments of the U.S. Army and Navy.


THE
MARYLAND
MEDICAL AND SURGICAL JOURNAL,
AND
OFFICIAL ORGAN OF THE MEDICAL DEPARTMENT
OF THE
Army and Navy of the United States.
VOLUME I.
BALTIMORE:
PRINTED AND PUBLISHED BY JOHN MURPHY,
160 MARKET STREET.
MDCCCXL.

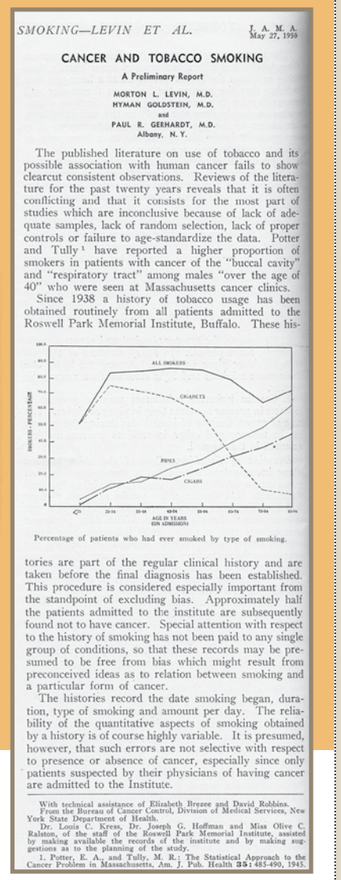
University of Maryland
FACULTY OF PHYSICK
Class of Anatomy.

## 110 Years Ago

In 1905, Maryland professors began depositing lecture fees into a central fund and earned salaries, rather than selling tickets directly to students. The old system had been in place since 1807, and the change attempted to mitigate the ongoing financial difficulties created by this proprietary system.

## 65 Years Ago

**Morton I. Levin**, class of 1930, directed the initial convincing study linking cigarette smoking to the development of lung cancer. Published in the *Journal of the American Medical Association*, the study included examination of patients admitted to Roswell Park Memorial Hospital in Buffalo, N.Y., from 1938 to 1950, where Levin was chief of the department of epidemiology.


SMOKING—LEVIN ET AL. J. A. M. A. May 27, 1950

CANCER AND TOBACCO SMOKING

A Preliminary Report

MORTON L. LEVIN, M.D.
HYMAN GOLDSTEIN, M.D.
and
PAUL R. GERHARDT, M.D.
Albany, N. Y.

The published literature on use of tobacco and its possible association with human cancer fails to show clearcut consistent observations. Reviews of the literature for the past twenty years reveals that it is often conflicting and that it consists for the most part of studies which are inconclusive because of lack of adequate samples, lack of random selection, lack of proper controls or failure to age-standardize the data. Potter and Tully[1] have reported a higher proportion of smokers in patients with cancer of the "buccal cavity" and "respiratory tract" among males "over the age of 40" who were seen at Massachusetts cancer clinics.

Since 1938 a history of tobacco usage has been obtained routinely from all patients admitted to the Roswell Park Memorial Institute, Buffalo. These histories are part of the regular clinical history and are taken before the final diagnosis has been established. This procedure is considered especially important from the standpoint of excluding bias. Approximately half the patients admitted to the institute are subsequently found not to have cancer. Special attention with respect to the history of smoking has not been paid to any single group of conditions, so that these records may be presumed to be free from bias which might result from preconceived ideas as to relation between smoking and a particular form of cancer.

The histories record the date smoking began, duration, type of smoking and amount per day. The reliability of the quantitative aspects of smoking obtained by a history is of course highly variable. It is presumed, however, that such errors are not selective with respect to presence or absence of cancer, especially since only patients suspected by their physicians of having cancer are admitted to the Institute.

With technical assistance of Elizabeth Breeze and David Robbins, From the Bureau of Cancer Control, Division of Medical Services, New York State Department of Health.

Dr. Louis C. Kress, Dr. Joseph G. Hoffman and Miss Olive C. Ralston, of the staff of the Roswell Park Memorial Institute, assisted by making available the records of the institute and by making suggestions as to the planning of the study.

1. Potter, E. A., and Tully, M. R.: The Statistical Approach to the Cancer Problem in Massachusetts, Am. J. Pub. Health **35**:485-490, 1945.

ALL SMOKERS
CIGARETTE
PIPES
CIGARS
AGE IN YEARS (ON ADMISSION)

Percentage of patients who had ever smoked by type of smoking.



# student activities

## Students Enjoy MAA-Sponsored Events

*Third-year students Payal Patel, Rochelle Arbuah, Nisha Basappa, and Carolyn Rosinsky*

Third-year students from the class of 2016 were treated to the annual Junior Bull & Oyster Roast, sponsored by the Medical Alumni Association. The event was held on December 4 in the MSTF Atrium. This is a busy time for third-year students who began rotations on July 1. Yet about 90 members of the class attended—joined by more than a dozen faculty. The MAA extends a special thanks to its three class representatives who helped organize the gathering: **Tara Barry, Miranda Gordon-Ziegel**, and **Sheila Razdan**.

Then on Thursday, January 8, about 80 members of the second-year class of 2017 gathered at Alewife, a pub located across the street from the Hippodrome Theater just blocks from campus. The event was scheduled after the break to welcome students back for their final semester before third-year rotations begin. Special thanks to class representatives **Brooke Farquhar, Kerry Campbell, Charlotte Deck** and **Angelina She**. Both events were underwritten by **Carolyn Frenkil**, a member of the school's board of visitors.

*Second-year students Chuma Obineme, Joey Gill, Seda Tolu, Christopher Papa, Daniel Summers and Carlos Salgrado*

## 1940s

**1947: Jose G. Valderas** of Keller, Texas, recently celebrated his 89th birthday. He has eight children, 14 grandchildren, one great-grandchild, and each year he visits Puerto Rico. **1948: James T. Welborn** and wife Lillian of Lexington, N.C., have enjoyed 65 years of marriage.

## 1950s

**1954: Robert H. Ellis** of Fort Collins, Colo., reports that he retired from the active staff of Poudre Valley Hospital after 50 years of internal medicine. He was also affiliated with Malcolm Baldridge Hospital, ranked one of the best in the nation. ❖ **Lewis C. Richmond Jr.**, is retired from family practice and living with wife Patricia in Princeton, W.Va. He is active in Kyani International which deals with improving the quality of health and life through proper nutrition. **1955: Donald H. Dembo** of Baltimore continues teaching CPR and lay courses. He is retired from Johns Hopkins and is past president of MedChi and former Maryland governor of the American College of Cardiology. **1956: Charles A. Sanislow** of Midland, Mich., reports there is too little time and too much to do. He sends regards to classmates. **1957: Walter M. Shaw** of Bonita, Calif., reports that he and family are blessed with good health, and he wishes the same for all classmates. **1959: Robert J. Dawson** retired last September after 50 years of practicing pediatrics at the Children's Medical Group in Cumberland, Md.

## 1960s

**1960: John D. Hensala** of Lake Oswego, Oreg., enjoys traveling, bicycling and cheering for the Orioles. He retired from his psychiatric practice in 2001. ❖ **Morton E. Smith** of Olivette, Mo., presented the George Wise Memorial Lecture at Einstein Medical College/Montefiore Hospital in New York City last June. **1963: Stephen P. Cohen** of Naples, Fla., reports that he is enjoying retirement—golf, bridge, reading, eating, and miscellaneous charity projects. **1965: D. Gary Benfield** of Chapin, S.C., recently authored two children's books: *Making New Friends* and *Throwing Stones*: A *Book about Bullying*, available on amazon.com and at Barnes & Noble. He has five more publications in the pipeline for 2015. ❖ **Frank R. Lewis Jr.**, of Philadelphia, executive director of the American Board of Surgery, presented "Supply Dependent Oxygen Consumption: Getting it all

*Frank R. Lewis, Jr., '65, with Shock Trauma fellows Drs Anthony Iaaco, Cherisse Berry, Kyle Cunningham, Zachary Ginsberg, Maria Escano, Michael Anstadt and Ashley Menne*

Backwards" at Shock Trauma grand rounds on February 19. **1966: James W. Spence** of Lakeland, Fla., is no longer operating, and enjoys spending time with family which includes four grandsons. **1967: David M. Hadden** of Fresno, Calif., sold his pathology practice, and after 32 years as an elected coroner in Fresno County has retired. ❖ **Boyd D. Myers** of Annandale, Va., extends a wealth of contentment to alumni—especially to the great class of 1967. He cherishes his four years of education during which time the class acquired knowledge of the art and science of a great profession. ❖ **Allan S. Pristoop** of Owings Mills, Md., has four grandchildren under the age of two. **1969: Edward J. Kosnik** of Columbus, Ohio, suspended retirement in 2013 to join the neurosurgery department at the Medical University of South Carolina where daughter Libby, MD, was serving as chief resident. The two were written up in the *Post and Courier*, believed to be the only known father-daughter duo in the pediatric neurosurgery specialty across the country who regularly worked side-by-side.

## 1970s

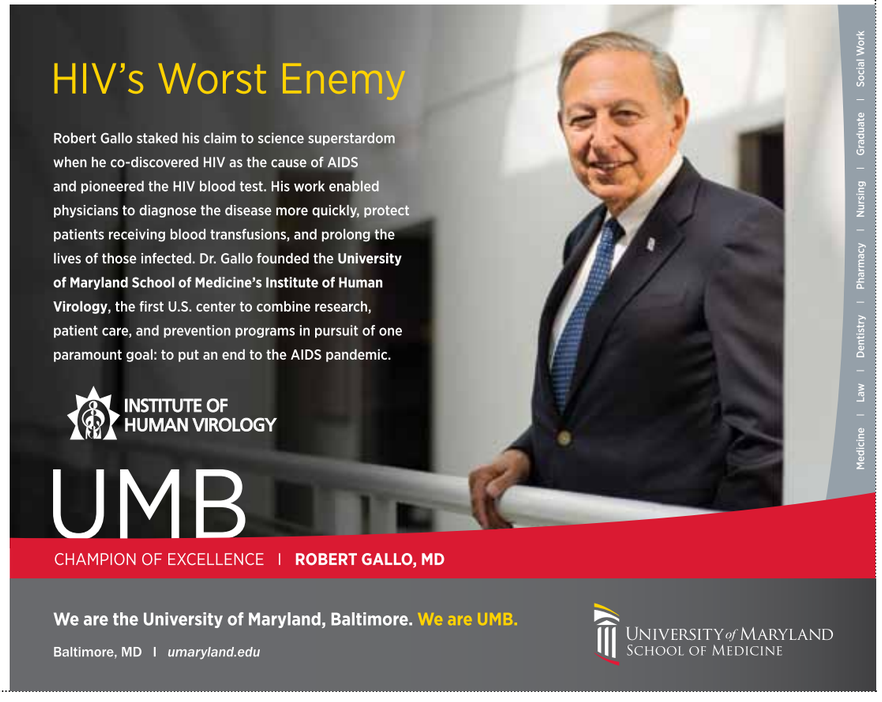
**1970: Joseph H. Cunningham Jr.**, is serving as chair of the department of medicine at Mount Carmel East Hospital in Columbus, Ohio. **1971: Jerome Aronowitz** of Boca Raton, Fla., reports that daughter Jessica and her wife Nicole recently gave birth to a baby boy. ❖ **Richard A. Bordow** lives in Berkeley, Calif., with wife Liz. He continues practicing pulmonary medicine, and recently published a seventh edition of *Clinical Problems in Pulmonary Medicine*. Their son David is finishing his third year of a master's program in engineering & design at Stanford University. ❖ **Jerald Kay** has stepped down as the Frederick A. White Distinguished Professor and chair of psychiatry at the Boonschoft School of Medicine, Wright State University, a position he has held for 25 years. He has published 20 books and 200 articles, book chapters, and abstracts, and he was founding editor of the *Journal of Psychotherapy Practice and Research*. Kay was recipient of many teaching awards and chaired the ACGME Residency Review Committee in Psychiatry. He continues teaching residents and seeing patients, as well as playing tuba and drums in a number of musical groups in Cincinnati. **1972: Roy Blank** of Fort Mill, S.C., retired from his internal medicine practice after 40 years. He is medical director of the Wingate University Physician Assistant program where he teaches full-time. In addition, he is medical director of Bless Back Worldwide and oversees medical missions to Nicaragua and Haiti. Blank also supervises free medical clinics in Charlotte, N.C. ❖ **Jerald Waldman** continues practicing orthopaedic spine surgery in Mission Viejo, Calif., and is the proud father of five daughters, two granddaughters and a new grandson. **1973: Bruce L. Beck** of Prince Frederick, Md., enjoys sleeping in, reading, cooking, exercising and traveling since retirement in December 2013. ❖ **Jeffrey C. Blum** of Cornelius, N.C., recently retired after 35 years of practice in the field of diagnostic radiology. ❖ **Gregory A. Denari** of Saratoga, Calif., is medical advisor to CrowdMed, a medical startup that uses crowdsourcing to solve difficult medical problems. **1974: Dawn Obrecht** of Steamboat Springs, Colo., continues working part-time in rural medicine. She is board certified in addiction medicine and has published three books on volunteer missions and addiction/recovery. She is married with two children and six grandchildren. **1975: Karl W. Diehn** of Baltimore reports that daughter Megan Anne is a nurse practitioner at GBMC in Texas Station, while son Karl is a chef at Parts and Labor in Baltimore. He adds that daughter **Kate, '13**, is in her second year of family practice residency training at Franklin Square, while son Kevin is a chemical engineer with two startup companies. ❖ **James H. Somerville** of Edina, Minn., is looking forward to reunion in May. **1976: Lawrence Adler** has returned to Maryland with an appointment on the geriatric psychiatry faculty.

## 1980s

**1980: Robert P. Cervenka** and wife Katherine of York, Maine, announce the delivery of their second daughter, Cora, in January. ❖ **Craig A. Dickman** of Potomac, Md., reports that son **Justin**, a second-year medical student at Maryland, is engaged to Jenna Maggin, and they are planning an October wedding. She is the niece of classmate **Robert Maggin** and his wife Mary of Rockville, Md., who are eagerly awaiting the birth of their first grandchild in June. ❖ **James P. Richardson** of Ellicott City, Md., is looking forward to the 35th reunion in May. ❖ **Robert Schiff** of Aiea, Hawaii, won first place in the male bronze category of the Hawaii Star Ball, an international ballroom dance competition. He danced in 16 different styles and a total of 89 dances over three days. **1983: George Daneker** of Atlanta is chief medical officer for the southeastern regional medical center of Cancer Treatment Centers of America. He joined the organization in 2012 as chief of staff and a surgical oncologist. ❖ **M. Steve Sniadach** and wife Jessica of Englewood Colo., saw the Rod of Asclepius while touring Ephesus, Turkey, last May. ❖ **Barbara C. Williamson** of Laurel, Md., is semi-retired. While working part-time at Ft. Meade, Md., she is checking items off her bucket list which require ample travel. **1985: Victoria A. Mossman-Van Eedenburg** of Bloomington, Min., retired in January from scheduled ER shifts. She is now doing locum tenens, working part-time as medical director of University of Minnesota Department of Emergency Management which staffs all athletic events, concerts and other campus events requiring on-site medical care and management. Both daughters have graduated from college and have jobs, while husband John plans to retire from the airlines in September. ❖ **Laura A. Tang** and **Lee A. Kleiman** of Severna Park, Md., report that daughter **Hannah Joelle Tang Kleiman** is a first-year medical student at Maryland. **1987: Michael P. Flanagan** of Port Matilda, Pa., is interim associate dean for education at the University Park Regional Campus of Penn State College of Medicine. ❖ **Stephen L. Houff** of Nashville, Tenn., reports daughter Marissa, age 11, is playing Belle in Oak Hill School's production of *Beauty and the Beast*. Wife Marci, an ovarian cancer survivor, founded a charity promoting awareness of the subtle signs and symptoms of the disease. Stephen is executive chairman of Aris Radiology, a professional radiology services business that combines expert on-site radiologists with subspecialty expertise 24/7/365 through its tele-radiology network. His former business was acquired by Fresenius Healthcare. **1989: Darryn Band** and wife Wendy of North Potomac, Md., report son Jake is attending Dickinson College, while son Austin is at the University of Maryland College Park. With daughter Elizabeth in 10th grade at Wootton High School, they are near empty nesters.

## 1990s

**1992: Elizabeth A. Scarito** of White Hall, Md., is retiring from her York, Pa.,-based private practice of internal medicine after 18 years to travel and address some family obligations. **1995: Shuchi Bhatt** of Bethesda, Md., recently



joined Johns Hopkins Community Physicians at Montgomery Grove Health Center in Rockville. ❖ **Meredith S. Josephs** of Washington, D.C., joined Privia Health as manager of clinical IT and training while continuing to practice part time at La Clinica del Pueblo. **1999:** **Elizabeth M. Brennan** of Parrish, Fla., is medical director of After Hours Pediatrics Urgent Care of Tampa Bay. ❖ **Maurice Reid** of Bel Air, Md., was named one of the top 18 urgent care management and development CEOs throughout the country in 2015 by *The Ambulatory M&A Advisor.* He currently owns and operates 16 sites in Maryland and Delaware, with a number of acquisitions and new centers opening this year. In 2013, Reid offered a minority stake in the company to LifeBridge Health.

## 2000s

**2000:** **Tammy Burgunder** of Owings Mills, Md., is looking forward to the 15th reunion in May. She and husband Tripp are hosting the private class party at their home, and they encourage everyone to attend. She reports that a recent pediatrics patient at Mount Washington Pediatrics was brought there after being saved in an ER by classmate **Morgen Bernius**. **2006:** **Elise Malecki** is a gastroenterologist at Stratton VA Medical Center in Albany, N.Y. **2007:** **Michael F. Drusano** of Miami is doing well following quarantine for treating Ebola patients in Sierra Leone during the months of January and February with Partners in Health. He was also instrumental in training French-speaking West African clinicians on how to work in an Ebola Treatment Unit with International Medical Corps in Liberia.

## Our Medical Alumni Association

**Mission:** The Medical Alumni Association of the University of Maryland, Inc., in continuous operation since 1875, is an independent charitable organization dedicated to supporting the University of Maryland School of Medicine and Davidge Hall.

**Board Structure:** The MAA is governed by a board consisting of five officers and nine board members. Each year more than 100 alumni participate on its seven standing committees and special anniversary class reunion committees.

**Membership:** Annual dues are $85. Dues are complimentary the first four years after graduation and can be extended until the graduate has completed training. Dues are waived for members reaching their 50th graduation anniversary or have turned 70 years of age. Revenues support salaries for two full-time and five part-time employees, as well as general office expenses to maintain the alumni data base, produce the quarterly B*ulletin* magazine, stage social events for alumni and students, administer a revolving student loan fund, and oversee conservation of Davidge Hall and maintain its museum.

**Annual Fund:** The association administers the annual fund on behalf of the medical school. Gift revenues support student loans and scholarships, lectureships, professorships, capital projects—including Davidge Hall conservation—plus direct support to departments for special projects and support to the dean.

**The Morton M. Krieger, MD, Medical Alumni Center** is located on the second floor of Davidge Hall, 522 W. Lombard Street, Baltimore, MD, 21201-1636, telephone 410.706.7454, fax 410.706.3658, website *www.medicalalumni.org*, and email *maa@medalumni.umaryland.edu*





**Cliff Ratliff Jr., '43M**
Nuclear Medicine
*Catonsville, Md.*
*January* 28, 2015

Dr. Ratliff interned at Maryland and received residency training at St. Agnes Hospital. From 1946 until 1948, Ratliff served as a captain in the U.S. Army Medical Corps and was the acting chief of medicine at the Army's hospital on Staten Island, N.Y. Upon discharge he received additional training for a year at the University of Pennsylvania Graduate School of Medicine. Ratliff returned to Baltimore and set up a private practice, and several years later completed training in nuclear medicine. Appointments included director of nuclear medicine at St. Agnes Hospital and staff physician at Spring Grove State Hospital. He retired in 1996. Ratliff served on the MAA Board of Directors beginning in 1970. He enjoyed playing tennis, photography and fishing. He was preceded in death by wife Helen and two sons. Survivors include one son, one daughter, five grandchildren, and two great-grandchildren.

**Harold Sterling, '43D**
Family Practice
*Bethesda, Md.*
*February* 16, 2015

Gallinger Municipal Hospital in Washington, DC, was the site of Dr. Sterling's internship and residency training in internal medicine. He practiced family medicine in the Washington area and served on the staffs of Washington Adventist Hospital, Suburban Hospital, and Holy Cross Hospital where he was chairman of the department of general practice. Sterling later served as medical council on the Board of Veteran Appeals for Washington, DC. He enjoyed photography, playing tennis, reading, and travel. Survivors include wife Gloria, two children, two grandchildren and two great-grandchildren.

**Howard H. Haynes Jr., '45**
Surgery
*Salt Lake City, Utah*
*September* 22, 2011

Upon graduation, Dr. Haynes interned in San Francisco and then moved to Cheyenne, Wyoming, where he fulfilled his military service at its VA hospital. Residency training in surgery was later performed at the Latter Day Saints Hospital where Haynes was both chief resident and chief surgical resident. He later performed a preceptorship in surgery at the University of Utah Medical School. Haynes practiced surgery for 33 years at the Latter Day Saints Hospital, Primary Children's Hospital, Holy Cross Hospital, and Cottonwood Hospital. He was a frequent guest lecturer in anatomy and surgery at the University of Utah who was board certified in abdominal surgery. For 25 years after retirement he enjoyed tennis and attended classes at the University of Utah where he served on the emeritus alumni board. Haynes also liked hiking, hunting, fishing, snow and water skiing, watercolor painting, traveling, and gardening. Survivors include wife Marjorie, four children, 12 grandchildren and one great-grandson.

**C. Burns Roehrig, '49**
Internal Medicine
*Hilton Head Island, S.C.*
*January* 17, 2015

Dr. Roehrig's undergraduate studies were interrupted when he enlisted in the U.S. Army Air Corps during World War II. Upon graduation from medical school, he interned at Boston City Hospital and received residency training at New England Deaconess Hospital. Graduate school followed at the University of Pennsylvania, and then Roehrig served as a flight surgeon and captain in the U.S. Air Force during the Korean War assigned to Alaska Command. Upon discharge, Roehrig specialized in internal medicine and endocrinology, maintaining a practice in Boston with privileges at New England Baptist Hospital and New England Deaconess Hospital where he served as chief of the medical staff and president of the medical administrative board. Appointments included president of the New England Diabetes Association and board member of the Greater Boston YMCA. He was president of the Massachusetts Society for Internal Medicine and director and member of the executive committee for Blue Shield of Massachusetts. Roehrig retired to Hilton Head Island in 1996. He was preceded in death by wife Patricia and is survived by three children and five grandchildren.

**Mary V. Barstow, '50**
Public Health
*Lancaster, Pa.*
*December* 25, 2014

Dr. Barstow's career was altered shortly after graduation as she was diagnosed with tuberculosis. Her career spanned 10 years with the Baltimore City Health Department. She was an avid reader, enjoyed playing bridge and tennis, and traveled often to Key West, Fla., for vacations. Barstow was preceded in death by three children and is survived by husband Ward, six children, 12 grandchildren and seven great-grandchildren.

**Milton R. Righetti, '50**
Family Medicine
*Castro Valley, Calif.*
*November* 28, 2014

Prior to medical school, Dr. Righetti enlisted with the U.S. Navy and served as a search and rescue pilot in the Pacific Theater. He later saw action in the battles of Guadalcanal, Coral Sea and Midway, and he was recipient of the Distinguished Flying Cross and Army Air Medal. Upon completion of medical school and training, Righetti settled in Castro Valley where he practiced family medicine for more than 30 years. Tennis was his favorite sport that he continued playing until the age of 90. Righetti was a member of Maryland's Elm Society of the John Beale Davidge Alliance, the school's society for major donors. Survivors include wife Gloria, five children including **Michael, '80**, and **Marilyn, '81**, 13 grandchildren and five great-grandchildren.

**Herbert L. Kronthal, '57**
Dermatology
*Baltimore*
*December* 19, 2014

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Baltimore, Maryland, 21201-1636,
or for more information simply call
410.706.7454.

# in memoriam

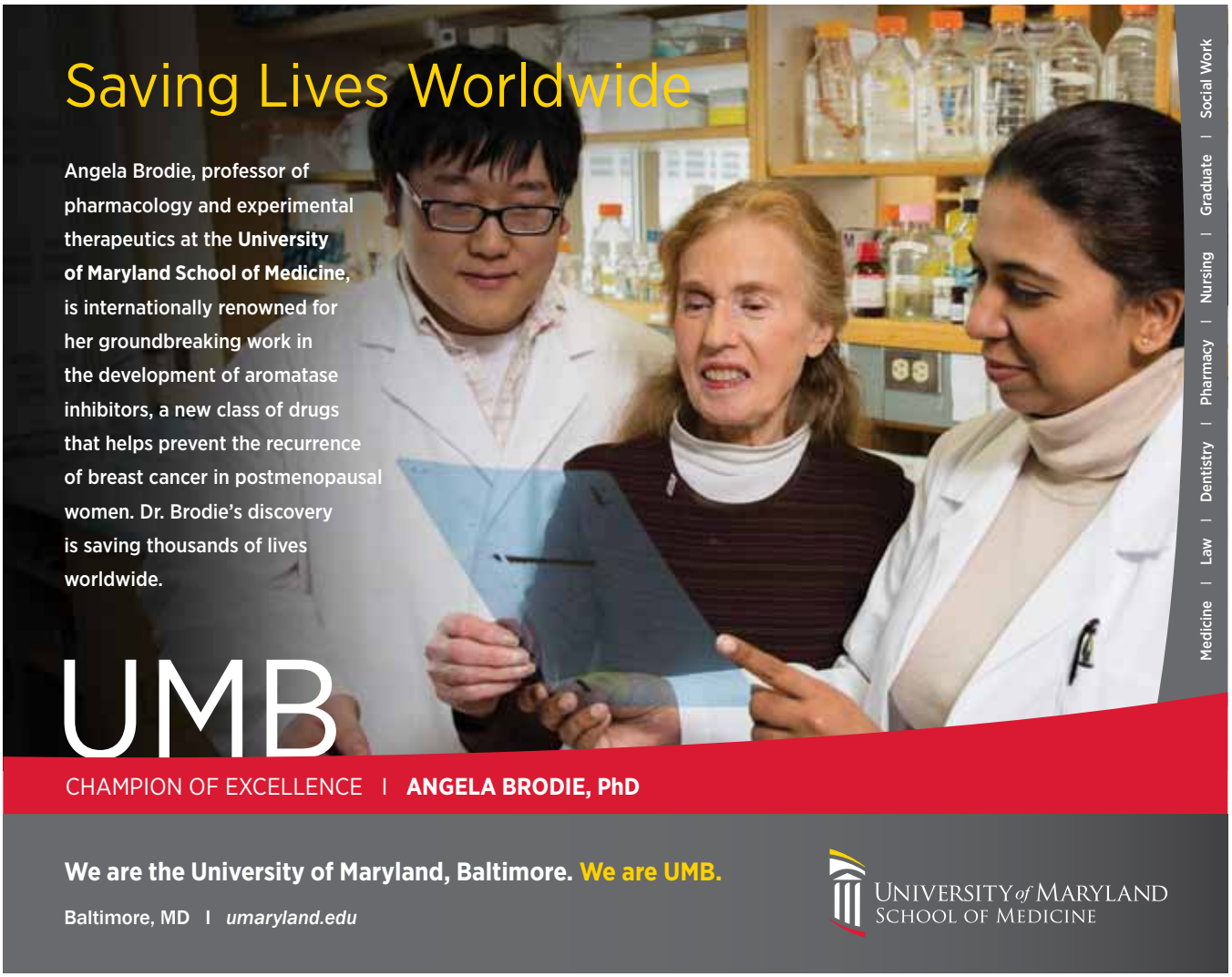
Dr. Kronthal practiced dermatology and was an assistant professor at Johns Hopkins Hospital. Survivors include wife Joyce, one daughter, one son and five grandchildren. He was preceded in death by son Adam.

**John J. Messina, '60**
Cardiovascular Disease
*Lutherville, Md.*
*December* 16, 2014

Upon completion of training, Dr. Messina practiced cardiology in Baltimore and maintained an office in the St. Joseph's Professional Building. He was an instructor in cardiology at Maryland. Survivors include wife Kathleen, two sons and two grandchildren.

**Michael A. Ellis, '66**
Orthopaedic Surgery
*Ellicott City, Md.*
*January* 10, 2015

Dr. Ellis interned at Mercy Medical Center and served as a medical officer in the U.S. Public Health Service for two years before returning to Maryland for a general surgical and orthopaedic surgery residency. He practiced privately beginning in 1974 and joined Orthopaedic Associates of Central Maryland in 1997. Ellis was an assistant professor of orthopaedic surgery at Maryland and served on the staff at St. Agnes Hospital where he later headed its orthopaedics division. He was also a staff orthopaedist at Kernan Hospital and a consultant at Anne Arundel General Hospital. He owned/operated a steeplechase racehorse farm in Howard County where he later claimed to be the country's oldest steeplechase jockey. Ellis's marriages to Patricia Rehnis and Christine Martin ended in divorce. He is survived by one daughter.

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