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Correction

We misspelled an author’s name in the Table of Contents of the Autumn 2015 issue. The author of “Sestina for a Father” is Ting Gou, not Tina. We apologize for the error.

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The medical profession and the country are in need of leadership that is inspiring, insightful, engaging, and humble—leadership that both understands and represents the needs of patients, physicians, medical educators, and trainees. Because of their unique knowledge of the practice of medicine and understanding of medicine’s core professional values, physicians are ideally suited to serve as leaders in this period of change. The integral parts of the professional life of a physician are the values affirmed in the Medical Professionalism Charter that emphasizes the principles of patient welfare, patient autonomy, and social justice.

Encouraging the development of leaders in academia and the community has been, and continues to be, one of ΩΑ’s important missions. In 2013, ΩΑ developed and implemented a Fellow in Leadership Award and selected the first group of Fellows in 2014.

The ΩΑ Fellow in Leadership Award recognizes and supports the further development of outstanding leaders exemplifying the qualities of:

- Leading from within—Leading oneself is about creating access to a broader range of ways of being, thinking, and acting to become more effective in dealing with the challenges for which the usual solutions are inadequate. Unlike most existing programs that teach leadership by imparting someone else’s knowledge (a third-person approach), this fellowship emphasizes creating leaders using a first-person “as-lived/lived-through” methodology. In working with Fellows to “unpack” their hidden beliefs and frames of reference, new contexts will emerge that give them more space and more degrees of freedom to lead effectively as their natural self-expression.

- ΩΑ’s professional values, enumerated in the society’s motto—“Be Worthy to Serve the Suffering”—and its mission statement:
  
  Alpha Omega Alpha—dedicated to the belief that in the profession of medicine we will improve care for all by
  - recognizing high educational achievement
  - honoring gifted teaching
  - encouraging the development of leaders in academia and the community
  - supporting the ideals of humanism
  - promoting service to others.

- The concepts of servant leadership—Servant leadership is based on specific core values, ideals, and ethics, in much the way that the culture of medicine is shaped. Because medicine is at its core a profession that serves others, we believe that effective, sustainable, and excellent leadership should be based on
core professional and personal values and the commitment to servant leadership, while recognizing the value of other leadership strategies and approaches.

The five essential components of the ΑΩΑ Fellow in Leadership Award are:
1. Self-examination, the “inward journey,” leading from within.
2. A structured curriculum focused on topics related to leadership, including an understanding of the relationship between leadership and management.
3. Mentors and mentoring.
4. Experiential learning to broaden the perspective and understanding of leadership as it relates to medicine and health care.
5. Team-based learning and developing communities of practice.

Fellows are mid-career physicians who provide outstanding leadership within organizations in medicine and health care, including schools of medicine, academic health centers, community hospitals, clinics, agencies, or organizations, with a high promise for future success, leadership, and future contribution.

Nominations for the ΑΩΑ Fellow in Leadership Award are made by the senior executive of the medical school, hospital, or health care organization, who also agrees to serve as a mentor for the Fellow. The nominating organization and fellow designate at least one additional mentor who, with the executive leadership mentor, supports the completion of a leadership project, serves as a role model, offers advice as needed, and connects the Fellow with key individuals in leadership positions. At least one mentor is at the senior leadership level, i.e., a Dean, Chief Executive Officer, or the President of an association or an organization that has a regional or national presence. Fellows may also choose mentors and coaches outside of their immediate organizations or work groups.

These relationships and leadership opportunities and experiences, are ongoing through and after the fellowship year. The mentors in the Fellow’s organization commit to the mentoring plan and to allocating time to support the Fellow’s ongoing leadership opportunities after completion of the fellowship. The Fellows develop and implement an action project for experiential leadership development to be completed during the course of the year. Fellows and faculty leaders in ΑΩΑ attend a leadership orientation session that is combined with the course “The Science and Practice of Leading Yourself.” Throughout the year, Fellows participate in a defined and structured curriculum with faculty leaders from the ΑΩΑ Board of Directors and others with leadership development experiences. The Fellows and faculty are expected to develop a network of leaders and a Community of Practice.

The Fellows each received a $25,000 award for further development as future leaders, and recognition as an ΑΩΑ Fellow in Leadership.

The three inaugural ΑΩΑ Fellows in Leadership—Monica Vela, MD; Nathan Goldstein, MD; and Joshua Hartzell, MD—were selected for their diverse backgrounds, and employment and educational experiences. They presented the findings, outcomes, and lessons learned from their projects to the ΑΩΑ Board of Directors during the 2016 meeting of the ΑΩΑ Board of Directors. The Fellows have now successfully completed their year of leadership development and are the first-ever alumni of the ΑΩΑ Fellows in Leadership Award program.

The Fellows have made major progress in developing as leaders, including gaining knowledge and understanding of leadership and models of leadership; understanding the “inward journey” and applying it to leadership; exhibiting knowledge and awareness about the importance of diversity in leadership; developing improved communication skills and writing effectiveness; developing a sense of social and civic responsibility and understanding of servant leadership; observing the importance of leading based on professional values; successfully implementing, pursuing, and completing a leadership project—all of which will guide them in their careers and lives.

For this issue of The Pharos, we invited the Fellows to describe, reflect, and summarize their ΑΩΑ Fellow in Leadership journeys and experiences, and tell us how they have begun to develop a community of practice and network in leadership.

The ΑΩΑ Fellow in Leadership Award
Joshua Hartzell, MD, Nathan Goldstein, MD, and Monica Vela, MD

Medicine is no longer about the lone cowboy riding in and saving the day, but rather the ability to work within teams to provide the best clinical care.1 Despite the ever-growing need for leadership in medicine, there remains a gap in the training and development of physicians as leaders. At the undergraduate level, a recent paper illustrated that leadership training is uncommon.2 Similarly, a paper related to Graduate Medical Education shows that the training of leaders is not that much better at the later stage of physicians’ careers.3 Only forty-five papers relating to leadership development were identified in more than fifty years of publications. It is evident that most physicians are not formally trained to be leaders, but rather develop through trial and error during leadership roles in what some have called “accidental leadership.”4

The obvious question is: If leadership is so important, why are we as a profession not devoting time and resources to developing more leaders? If we do not address this issue, we will find that we are ceding leadership to those who may not have the same view of medicine or the same relationship with patients that physicians do. We must act now to ensure that we are adequately preparing physicians to become the next generation of leadership in medicine.

As the three physicians who were honored to be the inaugural Fellows for this award, we reflect on our experiences and the ways that the program has enhanced our careers.
As I reflect back on the past year, I see how the AΩA Fellowship has helped me to mature as a leader. We began the year at the leadership course given by Wiley “Chip” Souba, former Dean of the Geisel School of Medicine at Dartmouth College. During the course, “The Science and Practice of Leading Yourself,” I quickly developed a better appreciation for reflection as a practice to improve as a leader. We explored the importance of context and mental maps, and the bias that these bring into our decision making and behavior. Being more aware of these elements allows me to be both more objective and conscious of what might be driving my actions or the actions of others. I have developed a much greater appreciation for the study of leadership, and how developing as a leader directly improves my ability to be a better physician, husband, father, and community member. The fellowship has given me a deeper confidence in my abilities that allows me to better advocate for those I lead.

During the past year, I have meditated on the importance of learning in leadership. In their book, The Leadership Challenge, James Kouzes and Barry Posner point out that “The best leaders are simply the best learners, and life is their laboratory.” Leadership requires that we continually develop new skills and learn new things. It requires constant reflection about our leadership experiences so that we can evolve.

During residency and early in our careers we are mainly focused on developing our clinical expertise. The larger question is: How do we learn to meet the changing demands of leadership? Much like medicine, leadership is a constant journey that never ends and requires lifelong learning. The AΩA Fellowship afforded me the opportunity to explore how we grow and learn as professionals and the importance of networking and being part of a community of learners. Throughout the year, I found myself repeatedly wishing I had previously learned many of the things I was being exposed to—they would have allowed me to be more successful as an educator and leader much sooner in my career.

Tom Aretz from Partner’s Healthcare International introduced me to a concept that I have found very useful. The fact is that we learn in many different ways, but, in general, we learn only what we need to accomplish our daily tasks. The 70-20-10 model is a useful framework for physicians as they consider how to develop the skills necessary to become leaders.

We are often faced with challenging new positions requiring us to identify and learn new skills. These stretch assignments, while initially uncomfortable, become incredibly valuable learning experiences. During these assignments,
having a coach or a mentor can be vitally important. The distinction between these two elements of career development are important, but they can, and do, overlap at times. A coach is specifically sought out to help develop a particular skill. A mentor, however, is someone with more experience in the types of challenges you face, and will provide more holistic guidance about your career or what to do, or what not to do, in certain situations. During the past year, I have been fortunate to have had multiple mentors both within and outside my institution. I would like to thank Colonel Clifton Yu, Colonel Michael Nelson, Dean Arthur Kellermann, Lieutenant General (Retired) Eric Schoomaker, and Page Morahan for their time and remarkable counsel and insights. These mentors have provided me with advice, and have challenged me to consider different perspectives or even different career paths. Each provided a different look into my professional development as a leader and educator.

In addition to the informal learning from mentors, I attended two Harvard Macy Programs: Leading Innovations in Health Care and Education, and Program for Educators in Health Professions. What I quickly learned in each program was that I had been lacking many important skills that would help me to be much more effective at my job. I have always considered myself a good teacher, but the educator course challenged many of my assumptions about teaching, and made me start to look at teaching in a much more scientific way. It is always just assumed that physicians should be good teachers despite the fact that we receive no training. The course inspired and challenged me to be more aware of how I teach and of the teaching of those with whom I work. The course director Elizabeth Armstrong consistently emphasized that we should experiment with our teaching. Since the course, I have become much more driven to experiment and to foster this in others.

The second course I took was the Leading Innovations Course. It is largely based on Clayton Christensen's disruptive innovation theory, but goes beyond that to examining how we approach change in medicine. The course challenges the way we think about doing things. So much of what we do in medicine is because we have done it that way for decades. Given the growing use and impact of technology and the many changes we face in medicine, we need to examine everything we do and ask ourselves if it can be done better, more efficiently, or more economically. One example would be how we round on patients. Is it necessary to have students present in a SOAP format now that most attending physicians already have all the data and it is readily available? Could we not just go directly to the assessment and plan? It would be obvious if a student or resident is missing data because their plan would be off. Breaking the tradition of rounds is not easily done, but rounds are not likely to be conducted the same way ten years from now as they are today. It is vital to point out that innovation in medicine is going to require leaders with the courage to risk failure.

The courses (the 10 percent of the 70-20-10) opened my eyes to many new possibilities, and have inspired me to pursue a Master's degree in Health Professions Education, which I started in September 2015. For anyone who wants to learn more about teaching and leading in academic medicine, working towards an advanced degree would be a valuable step. These degrees are designed for working physicians and help fill important gaps in our training—educating and leading. Similarly, for those who have an interest in other areas (business of medicine, technology in medicine, public policy, etc.) an advanced degree will likely allow them to be much more effective in their chosen fields. It is obvious now more than ever that being a physician does not fully prepare physicians for some of these roles.

The importance of a community of learners or networking cannot be over emphasized. We are all connected via e-mail, Facetime, Twitter, etc., yet we still spend most of our time working within our own institutions. Even within our own institutions, we work in silos and not across departments. Many of us face the same problems, but we continue to recreate the wheel on our own. My project for the AΩA Fellowship was to develop a leadership curriculum for our graduate medical education trainees. As I began to search for resources, I found many others who were working on the same idea at other institutions. We have been able to share background materials, lecture outlines, and in some cases, collaborate on giving the lectures at other institutions. The ability to collaborate or have this community of learners has been vital to keeping the project moving forward.

The challenges we face in medicine and the small amount of time that we have to devise solutions means that, more than ever, we need to be working on these issues together. Large academic organizations need to focus on these joint problems and create solutions together. A recent example is the cost conscious care curriculum that the American College of Physicians developed. Professional societies have the ability to pull people together to tackle tough problems, alleviating the stress of individuals each trying to independently solve the same problem at their home institutions. Could each professional society coordinate to develop or tackle one problem each year or create task forces within their organizations to tackle multiple problems? These organizations have thousands of physicians who would love to be part of something meaningful. We need to put this human capital to better use.

The fellowship afforded me many opportunities to grow through formal classes, mentoring, and self-reflection about leadership. It has fostered relationships that have been invaluable in my professional development. Thus, it has significantly enhanced my preparation for future leadership positions in academic medicine, and has reminded me that as I move forward in these positions I must continue to evolve to be an effective leader. The fellowship’s impact may be greatest in that I have been able to bring back all that I have learned to
AΩA Fellow in Leadership Award: An innovative program for developing physician leaders

my institution, and have challenged others to think about their own educational or leadership development.

Nathan Goldstein, MD
Chief of the Division of Palliative Medicine
Mount Sinai Beth Israel, New York, New York

I have dedicated my career to providing the highest quality of palliative care to patients and their families. Palliative care is specialized medical care for people living with serious illness. It focuses on providing relief from the symptoms and stress of a serious illness—whatever the diagnosis. The goal is to improve quality of life for both the patient and the family. Palliative care is appropriate at any age and at any stage in a serious illness and can be provided along with curative treatments. While my original proposal for the AΩA Fellowship was to explore ways to improve the integration of palliative care into the care of patients with advanced heart failure, shortly after being selected I became the Interim Director of the Palliative Care Program at Mount Sinai Beth Israel.

In September 2013, Mount Sinai Medical Center acquired several new hospitals as part of a merger of health systems in the greater New York City area. One of these hospitals, now named Mount Sinai Beth Israel, is an 856-bed teaching hospital founded in 1889 on Manhattan’s Lower East Side. Previously, the palliative care program at Beth Israel was part of the Department of Pain and Palliative Medicine; it was an independent department with a single chairman. As part of this transition, the chairman resigned and the department was split into two sections: Palliative Care, and Pain Medicine. I took the interim position in June 2014, and was charged with redesigning the organizational structure of this new, stand-alone division; revising the strategic plan and business case for the service; and improving the quality of care delivered by

Nate’s Leadership North Star.
the service to patients and their families. Many faculty and staff left in the wake of this merger, and as a result there were significant growing pains associated with the transition. At the same time there was, and continues to be, considerable and unwavering support from hospital leadership for the Division of Palliative Care at Mount Sinai Beth Israel, especially from hospital President Susan Somerville and Chief Medical Officer Barbara Barnett.

As Josh notes above, 70 percent of learning leadership on the job involves “stretch assignments,” and this new position was most definitely a growth opportunity for my leadership skills. One of the greatest advantages of my fellowship was the access to the AΩΑ leadership team, especially to my dedicated mentor from the program, Dr. John Tooker, the Emeritus Vice President and CEO of the American College of Physicians. Dr. Tooker, along with the entire faculty of the AΩΑ Fellowship, used their combined experience and knowledge of academic health care systems to help me better understand the organizational culture of my institution, and how to align both my position and requests for resources with that of the hospital and the health system to better improve care of seriously ill patients and their families. The AΩΑ leadership team, former deans and CEOs of medical centers and systems themselves, was able to provide me with valuable insights into the world of academic medicine. They also helped me to better understand the needs and viewpoints of the senior administrators of my hospital and showed me how to meet administration expectations and frame negotiations in a way that resulted in a win-win for seriously ill patients and their families, as well as for the hospital.

As both Josh and Monica note, growing into leadership involves personal transformation. One of the most important steps in this process is envisioning oneself as someone qualified to take on a senior leadership role and avoiding, or at least minimizing, the imposter syndrome. While there were many times when I sat in my office thinking, “I can’t do this” or “What happens when they find out they put the wrong person in this job . . . me?” a quick text with Josh and Monica, or a phone session with Dr. Tooker, or a conference call with the AΩΑ leadership team gave me the confidence boost that I needed, as well as the helpful advice to guide me through whatever the current struggle or challenge was. In addition to this team, I engaged a leadership coach using the funds that the fellowship provided. I worked with Dorothy Moga, a certified leadership coach with decades of experience in health care. I was particularly lucky in that Dorothy has many years of direct experience working in both hospice and palliative care. While content knowledge such as this is not required for a leadership coach, it did provide additional value to the work we did together, since she was familiar with the particular challenges associated with running a palliative care program in an academic medical center.

Dorothy and I spoke every two weeks throughout the fellowship year. We started with a series of exercises through which I developed my leadership “North Star”—the core values and traits I identified as the principles that I wanted to embody as a leader. My “North Star” is a simple blue note with my illegible handwriting on it that I keep tucked onto my bulletin board at my desk and review regularly. It reminds me that I want thoughtful listening, fairness, developing others, and curiosity to be the fundamental elements of my daily work as a leader. On calls with Dorothy, I would struggle with both the core work of leadership (e.g., how to design my organizational chart), as well as my journey to better understand the elements of my personality into which I could tap to improve the work of our division (e.g., my sense of humor). We also created a list of directed readings, which included some of the classics of leadership publications such as Michael Watkins’ The First 90 Days, Thomas Neff’s and James Citrin’s You’re in Charge—Now What? and Patrick Lencioni’s The Five Dysfunctions of a Team. Dorothy and I then applied these concepts of leadership to my daily work, allowing me to apply in real time the new skills and knowledge I was learning.

While the last year has been full of challenges and change, it was a fortuitous moment in my career to have been thrust into a leadership role at exactly the same time I received the Fellow in Leadership Award. The award not only provided support for my leadership training, but also provided me with time to reflect on exactly what kind of leader I wanted to become. Indeed, the ability to reflect on my journey to become a leader as I was actually going through the process may have been one of the most valuable aspects of the fellowship itself. I believe that I have grown both personally and as a leader, and my division has expanded and become a highly functional team. While there is still much work to be done in the coming months and years as health care changes, I believe that the advantages offered to me by this award have truly helped me forge a new career path that will ultimately improve the care of seriously ill patients and their families. In July of 2015, I was officially named Chief of the Division of Palliative Care, a testament to my success in my new role and the ways that the AΩΑ Fellow in Leadership Award has helped me grow.

Monica Vela, MD
Associate Professor of Medicine, Department of Medicine
Associate Dean of Multicultural Affairs
University of Chicago Pritzker School of Medicine,
Chicago, Illinois

Our journey began with a week-long intensive orientation designed to provide time for reflection, problem-solving, and recognition of our strengths and weaknesses. Imagine being placed in a room with some of the top leaders in the medical profession and being asked to reflect and share your perspectives on the following questions:

What did we hope to achieve for the medical profession?
Who was on “our bus” and who was missing?
What was keeping us from making a difference? Where were we in the leadership continuum?
In an effort to answer, all three of us quickly reviewed our applications for the program. We had each included an essay on our current projects and had delineated our visions for completing those projects. My mentorship team was solid, and I felt proud of the work we were accomplishing at our institution. I have a great working relationship with the dean of our medical school, the chairman of my department, and the chief of my section. I was already mentoring very successful junior faculty. I already felt valued and supported at my institution.

Each of us outlined our resources and needs, our supports and weaknesses, and explored the personal characteristics that made us successful—as well as those that kept us from moving forward. We made lists upon lists and drew up elaborate schema covered in Post-Its on a Grove Gameplan. By the end of the second day, we were exhausted; the two-day journey had taken a great deal out of us. We had expressed appreciation of our mentors; healthy cynicism over the current system of health care and education; had identified obstacles in our workdays; and, we had learned that each of us was missing the mark in some way on the opportunities to become true leaders in the profession.

Specifically, I began to see that I felt most fulfilled spending much of my time “in the trenches”—creating and teaching new curricula, caring for very ill patients, traveling to recruit students, and mentoring students and junior faculty. What I was not doing, however, was spending enough time reflecting and writing. Why had I not written and published more of my work? I struggled to answer.

Over time, and with extended discussions with the AΩA leaders, the answer came in two parts. First, I had failed to claim expertise in the fields I knew well. Despite being listed as an expert in diversity in medicine in a recent U.S. Supreme Court writ, having spent more than a decade as an Associate Vice Chair for Diversity within my department, and Associate Dean for Multicultural Affairs at my institution’s medical school for four years, I had never made the claim to be an expert in diversity.

I know the literature regarding women in medicine quite well. Women in medicine are known for their collaborative spirit. They are more likely to devote time and energy to committee work, but less likely to be the committee leaders. They are also less likely to advance to the senior ranks of medical school faculties. While much of this failure to rise in the ranks is due to bias at the workplace, some is due to women’s reluctance to claim expertise in our appointed fields. Failing to recognize our own expertise is unfortunately a common issue for women in medicine. I began to read a great deal about leadership and found great lessons in books like *The Leadership Challenge: How to Make Extraordinary Things Happen in Organizations* by James M. Kouzes and Barry Z. Posner. Sharing expertise is a common practice and commitment among most leaders.

The AΩA Fellowship provided me with time and funding to attend leadership conferences specific to my areas of interest. Much of my career has been spent building a knowledge base in diversity, health disparities, and teaching on health disparities. Attending the Society of General Medicine’s Associate of Chiefs and Leaders in Medicine conference exposed me to inspirational leaders in these fields, and provided me some confidence that I could contribute to the growing conversations surrounding diversity in medicine. Attending leadership conferences helped me to find my voice and made me realize that it was time to start sharing that knowledge base outside of my own institution through collaborations and written work.

Once I had found my voice and claimed my expertise, I was able to acknowledge that the second thing keeping me from sharing that expertise was my discomfort with writing. I had completed a graduate level writing course years ago, and this certainly improved my writing skills. Now, books like *Bird by Bird* by Anne Lamott,12 and *On Writing Well: The Classic Guide to Writing Nonfiction* by William Zinsser,13 became dog-eared through good use in my office. In the words of a fellow faculty member, “good papers are rarely written, they are re-written.” I scheduled time for writing into my day, just as I would schedule time for a meeting. I joined a writing group that meets every two weeks to edit group members’ manuscripts, and I became an avid contributor. These measures made a difference.

I am particularly proud of a recent publication in the *Journal of General Internal Medicine*, titled “National Survey
of Medical Spanish Curriculum in U.S. Medical Schools.” This was the result of collaborative work with the national Latino Medical Student Association, an organization seeking to improve the health care of Latinos, as well as to improve the representation of Latinos among U.S. medical students. Advocating for language concordant care of limited English proficient (LEP) patients to promote the quality and equity of their care is a passion of mine. The students and I had begun data collection on a national survey of U.S. medical schools and the curriculum surrounding medical Spanish. As the students graduated and began their respective internships, the project lost momentum. Leaving the data unpublished, I now felt, was not an option. The survey revealed that medical educators were making great efforts to teach the curricula but that few schools used validated instruments to measure language proficiency of the students after completion. This was particularly disturbing given that untrained or ad hoc interpreters can actually worsen the health outcomes of LEP patients.

I reached back and re-charged the group. Despite now being scattered across the country at various institutions, we managed to pull together to complete the manuscript. We concluded by calling for further research into the best practices for developing and evaluating the curriculum for medical students so that we could work together as a profession to improve the care of LEP patients. In the short time since publication, the manuscript has already been cited twice and is in the top 5 percent of all articles scored by Altmetric, a company that tracks relevant mentions from social media sites, newspapers, and policy documents.

One paper is certainly not cause for a wild celebration. However, perspective pieces, letters to editors, and other original manuscripts have begun to find their way out of my office and into the review process. The process itself has become fulfilling because I have now used writing as a possible lever for change and advocacy. I have begun to teach my mentees that claiming expertise, sharing expertise through teaching and writing, and collaborating with others outside of our own institution is a form of advocacy, as well as leadership. I wish to thank my mentors, Drs. Marshall Chin, Deborah Burnet, and Holly Humphrey for supporting my application to this fellowship and for their continued support in my development as a leader in medicine.

Conclusion

Each of our journeys were different, but we recognize the incredible opportunity we had to meet, collaborate, and learn from each other and our mentors. Each of us grew as leaders based on the experiences that we took part in during this past year. As the AΩA Fellowship moves forward, we know that future recipients will benefit from the program. Ultimately, leadership development starts simply with a motivation to become a better leader. Each of us as physicians has a responsibility to be better leaders for our patients, the health care system we work within, and our families. As members of AΩA, the expectation is that you are a leader and we hope that we have provided some ideas about how you can sharpen your skills.

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A syllabus on healing

Illustration by Laura Aitken.
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Lately I have been thinking about healing; about what doctors do; about treating and (sometimes) curing; but mostly about healing. Perhaps that’s not surprising, since I have just worked my way through Eric Cassell’s illuminating The Nature of Healing, with its emphasis on the etymological sense of “heal” (from the Old English haelan, to make whole).1 But my interest in the topic came before Cassell; it began in earnest when I came across Abraham Verghese’s finely drawn distinction between “curing” and “healing”:

we are perhaps in search of something more than a cure—call it healing. If you were robbed one day, and if by the next day the robber was caught and all your goods returned to you, you would only feel partly restored; you would be “cured” but not “healed”; your sense of psychic violation would remain. Similarly with illness, a cure is good, but we want the healing as well, we want the magic that good physicians provide with their personality, their empathy and their reassurance.2

We can distinguish “curing” (treating, ameliorating, eliminating disease) from “healing” (helping patients visualize and regain their sense of purpose and [attainable] goals in life3). But if, as Verghese and Cassell spell out, healing is the essence of what Carl Binger called the doctor’s job,4 why do we so infrequently hear the word “healing” spoken within the walls of medicine? I go almost every week to two different sets of what, in homage to our ancestors, are still called “grand rounds.” I hear a lot there about diagnosis and about treatment (especially, evidence-based treatment), but never, it seems, about healing. It makes me wonder whether we doctors really understand what we do, at least when it comes to healing. Not that this should be surprising. We really don’t know a lot about the deep work of doctoring, about what happens after the door to the examining room or consulting room closes and doctor and patient are alone. As Mark D. Altshule pointed out,4 this ignorance goes back a long way; we know more, for instance, about what Copernicus did at night when he gazed at the stars, than what he did during the day, when he saw patients.5

A treasure found

Here is something rare, an unexpected glimpse into the hidden world of healing, all the more revealing because it was recorded unselfconsciously and for a totally different purpose than we will use it for. The novelist Lee Smith poignantly documented her prolonged and unremitting grief reaction to the untimely death of her son, Josh:

I felt like I was standing with my finger stuck into an electrical outlet, all the time. I couldn’t sleep. I couldn’t read, I couldn’t eat, I couldn’t remember anything, anything at all. I cried all the time. I lost 30 pounds. . . .

Weeks passed, then months. I was wearing out my husband and my friends. But I couldn’t calm down. It was almost as if I had become addicted to these days on fire, to this intensity. I felt that if I lost it, I’d lose him even more.

Finally I went to a psychiatrist, a kind, rumpled man who formed his hands into a little tent and listened to me scream and cry and rave for several weeks.

Then came the day when he held up his hand and said, “Enough.”

“What?” I stared at him.

“I am going to give you a new prescription,” my psychiatrist said, taking out his pad and pen. He began to write.

“Oh good,” I said, wanting more drugs, anything. He ripped the prescription out and handed it to me.

“Write fiction every day,” it said in his crabbed little hand. I just looked at him.

“I have been listening to you for some time,” he said, “and it has occurred to me that you are an extremely lucky person, since you are a writer, because it is possible for you to enter into a narrative not your own, for extended periods of time. To live in someone else’s story, as it were. I want you to do this every day for two hours. I believe that it will be good for you.”

“I can’t,” I said. “I haven’t written a word since Josh died.”

“Do it,” he said.

“I can’t think straight, I can’t concentrate,” I said.

“Then just sit in the chair,” he said. “Show up for work.”6

Prescription in hand, Smith sat for three days; on the fourth, she began to write, and “My novel [On Agate Hill], which I’d planned as the diary of a young girl orphaned by the Civil War, just took off and wrote itself.”6

I hope you will agree with me that Lee Smith was healed. She thinks so (I asked her). So what did the doctor do, and how? Could the proverbial fly on the wall have known what was occurring in the psychiatrist’s head while he “formed his hands into a little tent and listened”? Could we, in his place, have known when to halt Smith’s rant with an imperious, attention-riveting “ENOUGH”? Would we have scratched “Write fiction every day” on the prescription pad? When she protested, would we have known to say, “Just sit in the chair. Show up for work,” thereby delivering an effective Ericksonian hypnotic command7 to a surely entranced Lee Smith? Would we, by listening to her “scream and cry and rave” have gently primed her to accept and respond to that hypnotic command? I am not sure that I would have known what to do, but the tangible success of the psychiatrist’s efforts makes me want to be able to do it. And perhaps even more, to be able to answer a young doctor-to-be if she should ask me (as one recently did) how one goes about learning that skill or art or sullen craft.
A syllabus for the art of healing

Books


Papers


Nurturing the healer's art

The naïve or uninitiated might think that medical schools and residency programs emphasize the teaching of health and the healing that helps restore lost capacity. But that does not occur often, if at all, I fear. Is it even reasonable to ask that all doctors be healers? Visualize, if you will, a spectrum of medical practice that ranges from the extremes of pure healing (the province of quackery, perhaps) to one of pure treatment of disembodied “disease” (the holy grail of reductionism). I suspect that most doctors do not dwell at either extreme, although many get perilously close to the treatment-only end. And one great calamity is when treatment-only doctors reach the point at which there is nothing more for them to do to the patient, they think there is nothing left to do for the patient. My hope is that even the most cure-focused of treating practitioners would want to know something of and appreciate Verghese’s distinction between curing and healing, would want to make healing always the partner and ally of treatment, would find healing possible even when treatment and cure no longer are, would never let their words or actions un-heal those they treat.

Maybe the topic of healing doesn’t come up often in teaching exercises because it is not easily amenable to teaching as we have come to know it (or because, to paraphrase Carl Rogers, little that is of value can be taught, but much that is of value can be learned). In any case, if you want to master healing, even dabble in it, you cannot expect to be taught. You will have to learn it. And how might one learn? In the ideal world, you might apprentice yourself to doctors recognized to be healers, to learn by watching and listening to what the healers themselves may not be able to articulate but know only “in the bone,” know beyond knowledge. And you could read. Because a student-correspondent of mine recently asked, I made the list that I offer here of books and papers that have enlarged my vision of healing. They do not “teach” how to heal (remember, little that is of value can be taught), but they do, I think, give glimpses into how healing happens (and sometimes into those unfortunate instances when healing is impeded or prevented from happening, and that we want to learn to avoid).

I think that I have profited from reading the books and papers on my list, but the learning is subtle. Reading and reflecting on what is read changes the unspoken mind, so healing responses arise automatically and repetitively out of what Sally Fitzgerald, alluding to Flannery O’Connor, called “the habit of being.” We should also keep in mind what Milton Erickson told his amanuensis, Sidney Rosen, “What you don't realize, Sid, is that most of your life is unconsciously determined.” Thus we realize that the goal of directed reading is to embed the constructs of healing so deeply and permanently in the unconscious mind that they come forth from the healer “automatically” because time and place are right. My guess is that Lee Smith’s psychiatrist did not ponder, “Would this be a good time to say ’Enough’?”, rather, he sensed rightly that
healing required that she be jolted into trance-like attention and moved into action. His was an automatic response, not innate but learned, part of what he had made his habit of being.

**You can’t hit the target by aiming at it**

At the end of *Being Mortal*, Atul Gawande writes,

> We’ve been wrong about what our job is in medicine. We think our job is to ensure health and survival. But really it is larger than that. It is to enable well-being. And well-being is about the reasons one wishes to be alive.”

The great paradox of healing (the restoration of well-being) is that the doctor cannot set out intending to heal. Instead, the doctor must be thinking only, “How can I help this person in trouble?” Help this patient identify, and if possible, achieve, the attainable goals that will restore a sense of purpose in life? Uncovering those goals and that purpose is the doctor’s job, but how this is done depends uniquely on the dyad of individual doctor with individual patient. The eliciting and support of a healing response is so variable and so mutable that only one common thread runs through all healing interactions: the devotion of enough time to understand well the patient and his or her predicament, and to sort through the possibilities that will help him or her realize and embrace the possibility of healing. Like Lee Smith's psychiatrist, waiting and listening, waiting and listening, then seizing on the right prescription to allow her to start healing herself, the doctor has to be willing not to be or feel rushed. Because healing, when it happens, comes not from the doctor but from within the patient. As Ambroise Paré put it nearly 500 years ago in his description of the gunshot Capitaine Le Rat, “I bandaged [the wound] and God healed it.”

I make no pretense to have constructed a comprehensive or even accurate syllabus for a curriculum on healing. Mine is an idiosyncratic and personal list, drawn from books already on my shelf and papers already in my file; the sequence listed is random, and implies no rank-ordered sense of value. I offer it in the hopes that others may find valuable these written works I have stumbled across, that have spoken to me about healing across the divide of time and distance, that resonate still.

**References**


On morning rounds
a favorite patient collapses before you
and as you struggle to catch him,
your knees buckle
and you kneel beside him on the floor.
You hold him as part of him dies,
as others who are dying there
but you walk away stronger
for having touched him.

Perhaps it is all they need from you:
to fall a bit
when they begin to fall
and to rise again with them.
Sometimes, it is what you need
to rise again
from your own despair,
to remember who you once were,
who you are.

Henry Langhorne, MD

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For my grandfather David R. Clare, 1925–2014.

He was stirred... by the ideal of a moral example.1pp52–53
—John Berger
A Fortunate Man: The Story of a Country Doctor

Because I had stopped wearing a watch as an intern, I had to steal a glance at the clock behind me. 16:46. I was rotating in cardiac catheterization, the third case had run late, and I was expected to round for call in the Pediatric Cardiac Intensive Care Unit (CICU) at 17:00. It was going to be close. As a new fellow in pediatric cardiology, I enjoyed the rhythm of training. After the exhilaration of real-time hemodynamics and helping to place a device, I was brought back to earth with the duty of holding pressure in the right groin after removing the catheters. As I recited the complications of inadequate hemostasis to myself, I trailed off into a counting game that quiets the mind. Starting with the thumb, I tapped my fingertips in sequence counting by threes (3, 6, 9, ...), following my knuckles forward then backward across my hand, the end digits counting once per turn. To 48 then back to 3, the rhythm somehow comforting. Still bleeding at 16:58. I cursed the last heparin dose, a tradition among cardiology fellows, then asked for relief and hurried to the unit.

I was late, but relieved to discover that I was the first to arrive for rounds. There were more people in the unit than usual.
and everyone was in motion, busy and unaware of the time. By necessity, ICUs have exquisite temporal resolution, which paradoxically obscures perspective: time is measured in minutes, not days; medications are titrated to effect through infusions, not doses; and vital signs are monitored continuously, not periodically. The charge nurse gave me her unadulterated assessment. There was much to do. The last room in the second pod was dark and the nurse’s stand was clean, suggesting a vacant room. But after rounding on the second to the last bed, the team continued to the last room. The checkout was terse: “She was born earlier today, got here a couple hours ago, not a surgical candidate, the family is coming, care needs to be withdrawn.” The surgeon nodded in agreement.

The room was uncluttered and the technology muted. Our CICU rooms have windows, but little sunlight was left. Aside from the monitor’s lights, the room was dark, giving me the sense that I was standing in a shadow. The baby lay motionless, sedated and intubated, drips running. The electrocardiogram marched on steadily, elegantly poised despite the sinus tachycardia. Oxygen saturation blinked 64 percent. She was “dusky,” an unsatisfying but familiar adjective. Her face was unnaturally drained, not pallid exactly, the color of her orbits and mouth an exaggerated almost regal purple, the hypoxemia akin to drowning. It wasn’t long ago that blue babies were compassionately sent home to die. Considering the clinical context of a lethal cardiovascular malformation in an earlier era, I imagine the family’s resignation and the clinician’s frustration. How was I going to explain our inability to intervene?

Before attending to my first task, placing a chest tube to relieve pleural effusion, I considered the now unusual circumstance in our specialty of not being able to offer any intervention, any hope. I pondered what to say while stitching the chest tube in place.

The family arrived. Six or seven family members gathered at the foot of the bed, the mother alone at the head, hand on her daughter’s cool arm. There is a strange perfection to the lower end of pediatric ICU beds: clean military folds and a neatly placed patchwork quilt. The quiet was conspicuous. I plainly described the anatomy and resulting physiology. I explained the lack of treatment options, the reasons surgery could not be done, and finally the natural history of the disease. What does “withdrawal of care” mean to a mother? could not be done, and finally the natural history of the disease. What does “withdrawal of care” mean to a mother? What does “withdrawal of care” mean to a mother?" The requirements for an official baptism are surprisingly straightforward: the word “baptize” must be spoken aloud and water must be applied to the initiate, preferably on the head. I wondered if the water had to be sterile, and imagined two priests arguing the merits of using either crystalloid or colloid. In the end, I found a small bottle of sterile saline, the size of my thumb, five milliliters maybe, with a stark white label. I carried it secretly in my pocket while attending to other patients, turning it over excitedly just as I had my bride’s engagement ring. When the time came, I managed the full formal sentence: “I baptize you in the name of the Father, the Son, and the Holy Spirit.” The mother’s expression was one of profound relief. I marveled at her response and reconsidered the many meanings of healing.

The infant died two hours later. After I pronounced the death, the mother said “thank you” distantly by rote, and the few of us in the room quickly and quietly departed, leaving her with time alone. She stayed thirty minutes and left without saying another word. When things slowed down, I went to rest, thoughts racing. I watched my fingers tapping, my mind circling the unit bed by bed with a mental check list, likely scenarios and contingency plans, St. Peter upside down at the end (30, 33, 36), likely scenarios and contingency plans (39, 42, 45), St. Peter now at the gate (48 and back again). Ultimately the rhythm prevailed and I slept.

At rounds the next morning, I announced the death and the baptism. Some were intrigued, others dismissive, most
Professionalism in health care delivery is defined as actions that are respectful and collaborative, responsive, ethical, and fair. Clinical judgment is an essential aspect of medical practice, affecting communication, diagnosis, and decision making. In addition to the central role of critical thinking in clinical judgment, self knowledge and reflective thinking are necessary components of effective problem solving and sound decision making, allowing the physician to maintain advocacy for the patient as the primary goal. End-of-life situations contain many complicated issues related to professionalism such as respect for patient autonomy and dignity, as well as the sanctity of human life. Cultural and religious differences often present challenges to standards of care when a patient is dying; professionalism coupled with knowledge is required to navigate the complexities. More broadly, changes to health care organization may conflict with the basic tenets of professionalism by decreasing access and delivery, as well as dramatically changing how medicine is practiced.

The importance of professionalism cannot be underestimated. In the context of health care reform and the increasing role of various third parties in health care delivery, it is paramount that physicians continue to view professionalism as a critical component of medical care. It is encouraging to know that professionalism is teachable and that national associations representing medical schools and training programs recognize its primacy in medicine. But it is discouraging to find that professionalism is not practically or rigorously taught, and—more importantly, perhaps—not something that we talk about openly. While it is critical that both those who lead and those who mentor emphasize the importance of professionalism, individual physicians setting an example is the surest way to show how crucial professionalism is to each of us.

I remember the baptism when difficult situations arise and I find myself considering first principles, conscious of the pros and cons that reflective thinking has on decision making in a complex medical situation. If thoughtful reflection is a part of all momentous personal decisions, considered judgment, the core of professionalism, should equally be applied to difficult professional decisions.

I can imagine Dr. John Sassal, the subject of John Berger’s A Fortunate Man, taking a practical approach to religion. His identity was formed by both the need to be useful and for his life to have meaning—for his actions to transcend a job and become a calling, a profession. His moral example was simple and disciplined. He was pragmatic, and he attended the dying. He balanced delivering scientific medicine with helping patients and families navigate the experience of illness. The intimacy of the bond between patient and physician reveals the self through illness, as Susan Sontag illuminated in Illness as Metaphor. Optimal medical care must be based on this universal faith in humanism.

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There is a joyous song to life
I could with passion sing.
But now I fear I’m losing voice
And melodic rendering.

I need a chorus to accompany
That knows of staves and clefs.
No longer dare I sing alone—
No pitch, no range, no breaths.

So chorus sing your hymn of joy
But let me hum along.
Some part of me in harmony
Prolongs my life in song.

Raymond C. Roy, MD, PhD

THE AGING SOLOIST
On the significance of the Circle of Tugo
Almost two hours into the neuroanatomy exam, with only a minute to spare, I turned the last page to read the final question: “Describe the location of the Circle of Tugo.” Although I had diligently memorized hundreds of structures, circuits, and pathways, I could not recall anything about this structure. I thought, however, that the fault was with me, since I reasoned that if there was a Circle of Willis, there must also be a Circle of Tugo somewhere in the central nervous system.

Time ran out, the question was left unanswered, and I left the classroom with a feeling of disappointment. Later that day, I searched for this structure in several neuroanatomy textbooks, but found nothing. When the exam solutions were posted the following week, I immediately turned to the last page to find the answer to the final question. Imagine my surprise when I saw that the location of the Circle of Tugo was given in the form of a street map. The Circle of Tugo was not an anatomical structure but a traffic circle, or roundabout. And not any random roundabout, but the one at the intersection of Louis Pasteur and Longwood avenues in Boston, directly facing the Harvard Medical School quadrangle.

My classmates and I took the answer as a joke by the professor but I remained intrigued. After class I found the Circle of Tugo—the Circle of Oscar C. Tugo, to be more precise. But who was Oscar C. Tugo, and why was he commemorated in the Longwood medical area? Was he a famous physician? A celebrated professor? The discoverer of an important molecule or principle? The answer was unexpected. Searching online and digging into the

Dedication of the Oscar C. Tugo Circle at the intersection of Longwood and Louis Pasteur Avenues in Boston, May 18, 1921.
From reference 1.
archives of the Countway Library of Medicine, I learned that Oscar C. Tugo had been a member of the American Expeditionary Force Base Hospital No. 5 during World War I, and the first member of this unit to be killed in action.1–7

The United States had maintained a cautious but observant stance towards the war in Europe since its beginning in 1914. After the sinking of the RMS Lusitania in 1915, in which 128 Americans lost their lives, pressure began to mount for President Woodrow Wilson to declare war against Germany. The president had managed to maintain official neutrality until early 1917 (even while the country was unofficially aiding the Allied effort), when an all-out German submarine offensive against all commercial ships traveling to England resulted in the sinking of several American ships. The declaration of war on April 6, 1917, activated official mechanisms to support the preparedness movement that had been in place since early 1915. In addition to fighting troops, the French and British commanders were also in urgent need of engineers and doctors.1–2,8–11

In the fall of 1915, U.S. Army Surgeon General Dr. William C. Gorgas had proposed the organization of university-sponsored base hospitals under the auspices of the American Red Cross to Dr. George W. Crile of Western Reserve University and Dr. Harvey Cushing of Peter Bent Brigham Hospital. Both men had led volunteer medical units earlier in the war.3,4 In October 1916, to assess the readiness of the unit and rehearse some of the operations to be conducted, Base Hospital No. 41, under the leadership of Dr. Crile, performed mobilization exercises at Philadelphia’s Fairmont Park. (The Base hospitals were numbered somewhat arbitrarily—Base Hospital No. 1 of Bellevue Hospital, for example, did not enter service until February of 1918.3,12) Dr. Cushing, in charge of Base Hospital No. 5, planned similar exercises for the following summer on the Boston Common.

Dr. Cushing further planned to use his mobilization exercises to deliver actual medical care to the public, with the goal of generating enthusiasm and recruiting volunteers for the unit. Once war was declared, in a May 1917 editorial, “War Obligations,” published in the Boston Medical and Surgical Journal (later the New England Journal of Medicine), the Massachusetts Medical Society exhorted physicians to “enlist in the Medical Services of the Army or the Navy” or “help organize base hospitals.” The following month, the society, at the annual meeting of its council, voted on several resolutions in support of the war efforts.1,3,11,13,14

The Boston medical community responded promptly, but there were non-medical personnel needs to be met. The Harvard unit was summoned to action and all activities focused on meeting the remaining personnel needs of the unit.1,3 The telegram ordering the unit to duty was printed in several Boston papers:

Orders have been received from the office of the Adjutant-General of the United States Army to have Base Hospital No. 5 ready for immediate service abroad. The mobilization on the Common will have to be abandoned. It is necessary to complete full equipment of enlisted personnel in the next few days. Wanted cooks, waiters, clerks, orderlies,
carpenters, electricians and other artisans for enlistment in the Medical Corps. Men who have seen service in the Army, Navy or Marine Corps preferred. Age limit 40 years. Apply at the Harvard Medical School, Tuesday between 4 and 9 in the evening.193–4

Twenty-four-year-old Oscar Tugo from the Forest Hills neighborhood of Boston promptly signed up. Born in Boston, Oscar was the eldest son of the Tugos, a family of French-Canadian origin. When he was six years old, his family moved to Chicago, where he attended the Nettlehorst Grammar School and was described as a “typical high-spirited American youth, a leader among his companions, a good student, and a clean home-loving boy.” He later attended the Chicago Business College, and after graduation was employed by various railroad companies, including the Pullman Company. After returning to Boston with his family, he was employed as a clerk by the Clyde Steamship Company.1

On Tuesday, May 1, 1917, he read the notice for enlistment in the morning paper, went directly to the medical school that
afternoon to sign up, and ten days later was aboard the RMS *Saxonia* sailing towards Falmouth, England. Unrestricted submarine warfare was still in place, with German U-boats actively trying to sink any vessels that might be transporting troops and supplies to England. Eight days into the crossing, approaching England and the exclusion zone patrolled by the Germans, everyone aboard was asked to wear life jackets constantly until arrival.  

The *Saxonia* arrived in Falmouth on the morning of May 22, 2017. The men of the unit were sent to Blackpool for training, while the nurses and officers boarded trains to London. The unit reunited seven days later in Folkstone on the English Channel in preparation for their crossing to France the following day. On the evening of May 30, under the protection of a dense fog, and with several destroyers flanking the convoy, the unit landed in Boulogne in northern France, and was sent to reinforce British Base Hospital No. 11, fifteen miles south between Dannes and Camiers.  

British Base Hospital No. 11 was an assortment of canvas tents and a few permanent wooden huts located in a low-lying area that was semi-flooded most of the time, especially during the particularly rainy summer of 1917. Also dampened was the spirit of the British doctors, nurses, and other volunteers, who had been serving there for much longer and with significantly fewer resources than had initially been anticipated. The conditions were best described in verse by one of the men of Base Hospital No. 5 (M.E.R.C. stands for Medical Reserve Corps):

In Camiers by the sea, in the 5th M.E.R.C.
In mud up to my knee, and it's mud we get for tea;
The stretchers, I found, came hard up from the ground.
You had to hustle, use all your muscle,
And the nurses wore a frown.
The initial focus of members of Base Hospital No. 5 was in helping to clean and organize the site. The transition was eased by the relatively few casualties brought in early in the summer; the wards were instead full of cases of infection. Base Hospital No. 11 had a capacity of 2,000 and was always nearly full. In contrast, the members of Base Hospital No. 5 had prepared to care for 500 patients; the need for reinforcements was obvious. The Germans conducted frequent air raids in the area, so that a sense of danger and alarm pervaded the camp.

In late July of 1917, the Allies launched an offensive against the Germans designed to retake the city of Ypres in western Belgium and interrupt the supply lines of the German Fourth Army. Known as the Third Battle of Ypres (or the Battle of Passchendale after the last town taken by Canadian forces during the campaign), the action took place only sixty miles from Dannes-Camiers. In August alone, more than 5,000 casualties were evacuated to Base Hospital No. 11. Among those fighting in this offensive was Lieutenant Revere Osler, great-great-grandson of American patriot Paul Revere and son of Sir William Osler.

Revere Osler was born in Baltimore in 1895, during his father’s tenure at Johns Hopkins. He was the Oslers’ only son. When the boy was ten years old, the family moved to England after Sir William accepted the Regius Chair of Medicine at Oxford University. At the time of the Third Battle of Ypres, Revere had reached the rank of Second Lieutenant with the Royal Field Artillery, his third tour of duty during the war, and his second with the British army. He had served his first term in 1915 with the McGill Hospital Unit, which had operated at the site of British Base Hospital No. 11 in Dannes-Camiers. The Oslers in Oxford endured each of Revere’s tours of duty with great apprehension, continually fearing the worst and being comforted only by their son’s frequent letters.

The Oslers and Harvey Cushing had known each other since the late 1890s, when Cushing was a surgery resident at Hopkins. Knowing that Cushing was in the area, on August 19 the Oslers informed him of Revere’s presence at Ypres, and asked him to check on their son. Cushing was unable to see Revere until the night of August 29, when he was summoned by telegram to care for him after he was seriously wounded in battle. Cushing traveled sixty miles in the rain to Casualty Clearing Station No. 47 in Dozinghem, Belgium, where he found the wounded Revere still conscious but with a very weak pulse. Dr. George Crile, director of Base Hospital No. 41, and Drs. George Brewer and William Darrach of Base Hospital No. 2 (New York Presbyterian) were also summoned to care for Revere. He was operated on and received two blood transfusions, appearing to initially improve, but dying suddenly five hours after the operation, in the early morning of August 30, 1917.
Revere Osler was buried later that morning in a nearby field (currently the Dozinghem Military Cemetery in West-Vlaanderen, Belgium), attended by all who had cared for him during his last hours. A telegram about Revere’s injury, sent by Cushing the night before, reached the Oslers that afternoon, and they immediately began to make arrangements to travel to France. But at 9:00 that evening they were notified by phone that their son had died. Sir William’s grief at the death of his only son was unremitting; he died fewer than two years later, in July 1919.15–18

One might imagine that if Revere Osler had continued to serve with the Hospital Unit in Dannes-Camiers, away from the enemy lines, his death could have been avoided. But on the evening of September 4, only five days later, tragedy struck Dannes-Camiers and Base Hospital No. 5. Earlier that evening, an apparently unsuccessful German air raid had taken place on the English coast. The all-clear had sounded when at 10:55 PM, without any warning, a German Gotha bomber swept over the area of Base Hospital No. 5 from the direction of the nearby town of Étaples. Five bombs hit the hospital. The first two hit one of the officers’ tents, killing Lt. William T. Fitzimmons and wounding four others, the second two hit one of the patient tents, killing Private Oscar C. Tugo and re-wounding many of the British patients in that tent. The fifth bomb hit the reception tent, usually one of the busiest places in the entire complex, killing Private Rudolph Rubino and Private Leslie A. Woods, and severely wounding Private Aubrey S. McLeod and Sergeant William E. English.1–4

The bombs dropped by the Germans were of the “daisy-cutting” variety, sending low-flying projectiles in all directions, wounding many others besides those affected by the direct impact.2–4 In the chaos that ensued, Dr. Elliot Cutler, later surgeon-in-chief at the Peter Bent Brigham Hospital, operated on many of the wounded. Three days later, the bodies of Lt. Fitzimmons and Privates Tugo, Rubino, and Woods, the first American casualties of the war, were buried at a nearby cemetery in Étaples. More casualties among the wounded followed.2–5

Base Hospital No. 5 was later transferred to nearby Boulogne and continued to care for the wounded with distinction until early February of 1919, almost seven months longer than initially intended. Cushing estimated that approximately 46,000 sick and wounded—most of them British—were treated at Base Hospital No. 5 during the unit’s service.2,3

The remains of Private Oscar C. Tugo were returned to Boston and reinterred with full military honors at the Forest
Hills Cemetery on December 26, 1920. Oscar’s father, Smith C. Tugo, like Sir William Osler, also could not bear the loss of his son and died in February 1921. He was interred next to his son. On October 19, 1921, the Oscar C. Tugo Circle, at the intersection of the Longwood and Louis Pasteur Avenues in front of Harvard Medical School, was dedicated to honor the memory of the first enlisted member of the American Expeditionary Force to be killed by the enemy.1,5,7

Besides their legacy of courage and service, the men and women of Base Hospital No. 5 also made important contributions to modern medicine. Cushing pioneered many new methods for the treatment of penetrating head injuries, including suction and magnetic extraction of debris, that enabled significant improvements in mortality.19 Harvard Medical School’s Walter B. Cannon performed important studies on hemodynamics and shock, initially at the Casualty Clearing Station No. 33 in Bethune, France, and later in England.3,20 Elliot Cutler credited much of his ability to handle a large volume of difficult cases to his experience in the war, and went on to pass along this skill to many generations of surgery residents.21

Others in the same circle of Harvard Medical School include Dr. Paul Dudley White at Base Hospital No. 6 (Massachusetts General Hospital) and Dr. Samuel Levine at the British Heart Hospital in Colchester, England, who accurately characterized the condition of neurocirculatory asthenia (a condition related to panic disorder) based on their experiences with war patients.20–24

Very much like the Circle of Willis, which provides alternate blood flow paths at the base of the brain, today the Circle of Tugo provides alternate paths for drivers at a busy intersection in the Longwood medical area. However, just as the Circle of Willis functionally represents much more than a simple anastomotic group of arteries, the Circle of Oscar C. Tugo is also much more than a roundabout at the intersection of Longwood and Louis Pasteur Avenues—it is a memorial of selflessness, valor, and achievement that connects the stories of some of the greatest names in the history of American medicine. During this centennial commemoration of World War I, as the country continues its struggles to provide adequate care to the wounded men and women of recent wars, it is fitting to remember the story of Private Oscar C. Tugo and of all the men and women who were part of the same cause.

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A recruit enters the Epidemic Intelligence Service
Monday, July 6, 1981. Every new Epidemic Intelligence Service (EIS) officer reports to CDC headquarters in Atlanta to attend a mandatory three-week course consisting of a series of lectures, interactive case studies, a primer on biostatistics, and participation in a field study. My EIS class consisted of sixty-five new officers: fifty-five physicians, four nurses, three academic epidemiologists, two veterinarians, and an anthropologist. Nine of the physicians were international trainees.

Each year, incoming EIS officers conduct a household survey on an assigned topic to get “hands-on”—or “shoe-leather”—experience collecting data on a contemporary public health topic. Performing the survey introduced us to “field” epidemiology and taught us about systematic or probability sampling. Our field study on July 15 was a household survey of injuries and violence in Atlanta. Our class designed a questionnaire and assigned groups of two officers to randomly selected house addresses to conduct the survey.

In the classroom, we studied the well-known 1940 Oswego, New York, church supper outbreak of gastroenteritis. Out of eighty people attending the picnic, seventy-five were interviewed, and forty-six had significant diarrheal disease within twenty-four hours. The source of the outbreak was identified as vanilla ice cream contaminated by one of its preparers. The exercise introduced us to the steps in the investigation of an outbreak:

1. Identify potential investigation team and resources and prepare for field work (e.g., administration, clearance, travel, contacts, designation of lead investigator).
2. Establish the existence of an epidemic.
3. Verify the diagnosis.
4. Construct a working case definition.
5. Find cases systematically, develop line listing of cases.
6. Perform descriptive epidemiology (i.e., orient the data by time, place, and person).
7. Develop hypotheses that explain the specific exposures that may cause disease.
8. Evaluate these hypotheses by appropriate statistical methods using data collected.
9. As necessary, reconsider/refine hypotheses and execute additional studies.
10. Implement control and prevention measures as early as possible.
11. Communicate findings.
12. Maintain surveillance to monitor trends and evaluate control/prevention measures.

Before my first class on Monday, I checked into the

Since its founding in 1951 by Alexander Langmuir as a service/training program, the Epidemic Intelligence Service, working out of the CDC in Atlanta, Georgia, has sent out more than three thousand officers to combat every imaginable human (and sometimes animal) ailment.

These young people—doctors, veterinarians, dentists, statisticians, nurses, microbiologists, academic epidemiologists, sociologists, anthropologists, and now even lawyers—call themselves “shoe leather epidemiologists.” EIS officers have ventured over the globe in search of diseases, sometimes in airplanes or jeeps, on bicycles, aboard fragile boats, on dogsleds, atop elephants and camels.

—Mark Pendergrast, 2010

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Epidemiology component of Parasitology, my assignment as an EIS officer. My supervisor, Dr. Dennis Juranek, a veterinarian and staff parasitologist, asked me to meet with Dr. James Curran of the Venereal Diseases division on Tuesday to discuss a new project.

When I met with Dr. Curran, he told me that he and others had been working on a number of new diseases among gay men in New York and California. CDC’s pathologists had already confirmed the diagnoses of Kaposi’s sarcoma (KS) and Pneumocystis carinii pneumonia (PCP) in several patients from biopsy materials. They had confirmed (steps 2 and 3) that those few cases represented an epidemic. Curran asked me if I had heard anything about it. I told him I knew nothing about KS, but that I had seen a few patients with PCP (including one gay male) in Pittsburgh during my infectious diseases fellowship. I told him about my work on open lung biopsies among organ transplant recipients and cancer patients, and mentioned that I had read the June 5 Morbidity and Mortality Weekly Report (MMWR) detailing five cases of PCP among gay men in Los Angeles. Curran said that he would interview a few of my classmates before making a final decision about staffing a new team. If I was selected to join the task force, I had to be willing to work with gay men and make a commitment of at least six months.

On Wednesday, Curran called and offered me a position with the new investigation team. I accepted. My job was to set up a surveillance system for those new diseases, steps 4, 5, and 6. Early in the second week of class, he called again to ask how I was coming along with my project; I was unprepared and he was unhappy with me. He told me I had to develop and present a case definition and plan to my EIS classmates by the end of the third week of class, when we would all disperse on our field assignments. Later that day he called yet again, this time with welcome news: he had arranged for me to skip classes so I would have the necessary time to complete the assignment.

I reported to Curran’s office first thing Monday. He told me to develop a case definition. He suggested that I review the case reports collected in the spring, read about the diseases being reported, review files on requests for the drug pentamidine, and talk with Dr. Kathy Shands, who had developed a surveillance system for toxic shock syndrome (TSS) two years earlier.

From my class notes, I knew that surveillance was “information for action,” the ongoing systematic collection, analysis, and interpretation of outcome-specific data essential to the planning, implementation, and evaluation of public health practice. I spent Monday and Tuesday in the CDC library reading about KS and other opportunistic infections (OIs), including PCP, toxoplasmosis, disseminated herpes virus infections, tuberculosis, and cryptococcosis.

By the end of the week I proposed the following three-part definition:

1. Biopsy-proven Kaposi’s sarcoma and/or culture or biopsy-confirmed life-threatening OIs at least moderately predictive of immunosuppression.
2. Persons between the ages of fifteen and sixty years.
3. No prior evidence of underlying immunosuppression, i.e., cancer diagnosis, organ transplant recipients, or use of steroids or other immunosuppressant agents.

We defined OIs as those in which at least 50 percent of cases reported in the medical literature had occurred in immunocompromised patients. For PCP, essentially every adult case occurred in an immunosuppressed person. A former EIS officer assigned to Parasitology had reviewed all cases of PCP reported to CDC between 1967 and 1970, and 191 of the 194 cases he reviewed were clearly linked to immunosuppression. The three outliers were infants.4

Other OIs were not as clear cut. By my calculations, cryptococcal meningitis occurred in immunocompromised patients in 50 percent of the reports, and in healthy hosts 50 percent of the time, so it barely met the criterion for inclusion. Tuberculosis, on the other hand, occurred predominantly in otherwise healthy individuals and less so (about 15 to 20 percent) in immunocompromised patients, so it was excluded. The initial list of OIs included PCP, esophageal candidiasis, cryptococcal meningitis, disseminated infection with Mycobacteria, and extensive mucocutaneous Herpes simplex virus infections.

I had never heard of KS, much less seen a case during my clinical training, so I had to do more digging. I learned that dermatologists from New York City and California reported twenty-six cases of KS among young gay men between January 1979 and June 1981, including five fatalities.5 Prior to 1980, approximately 300 new cases of biopsy-proven KS occurred annually in the United States, predominantly among men aged sixty or older and renal transplant recipients. In elderly patients, KS appeared as persistent skin lesions and rarely proved fatal. Those twenty-six gay men had skin lesions of KS by biopsy, but their disease followed a more fulminant course, with spread to the lungs, stomach, and intestines. Seven gay men with KS also had PCP—especially striking since concomitant KS and PCP had never been reported before!

In 1872, Moricz Kaposi, a Hungarian-born dermatologist at the University of Vienna, described three fatal cases of hemangiosarcoma in elderly men. Since then the disease has borne his name. In the early 1900s, KS was described in sub-Saharan Africa in adults, mainly young men, and in children—the male to female ratio of cases in Africa was five to one. Italian oncologist Gaetano Giraldo, studying KS in Uganda, linked the sarcoma to cytomegalovirus (CMV) infection, using electron microscopy and blood tests. Another form of KS was reported among organ transplant recipients in the United States in the 1960s.4

Step 5 is to find cases systematically and develop a line listing. I discussed the passive surveillance system for TSS with Dr. Shands. In retrospect, she regretted that she had not conducted active surveillance. After TSS was linked to a specific brand of tampons (Rely tampons) and the link was reported widely in the press, physicians stopped reporting cases. It appeared that TSS had disappeared. Fortunately, active surveillance was conducted in Minnesota and Wisconsin, and showed that cases continued to occur.

Passive surveillance refers to data supplied to the health department by the source of the data, often based on a known set of rules or regulations stipulating reportable conditions. A review of death certificates, for example, constitutes passive surveillance. Shands had conducted passive surveillance: she developed a case definition for TSS, published a series of cases occurring in menstruating women in MMWR, and asked individuals to call her if they knew of any additional cases matching her definition. She received calls, as anticipated, from physicians and nurses, but also from patients, their relatives, and their neighbors. Given these criteria, undercounting of cases occurs often with passive surveillance systems.

Active surveillance, on the other hand, is initiated by the data collector and involves proactive solicitation of reports, typically from selected health care providers, generally in addition to requests for passive reporting. Active surveillance systems are more costly, both economically and in time and effort expended. The data generated, however, are usually more reliable. During the TSS investigation, epidemiologists in the Wisconsin and Minnesota state health departments identified chiefs of medicine at selected large hospitals and called them regularly to solicit information on potential new cases. These chiefs continued to report new TSS cases, even

Dr. Moricz Kaposi.
National Library of Medicine/Science Photo Library
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after Rely tampons were taken off the market. Indeed, it was subsequently determined that TSS was caused by an exotoxin F subsequent to staphylococcal infection and not specifically by the Rely tampon, although the design of the tampon increased the risk of infection.

My conversation with Dr. Shands convinced me that we needed an active system to supplement passive reporting. I proposed that each EIS officer assigned to a field position identify the largest hospitals in their cities and call on chiefs of infectious diseases, oncology, medicine, and dermatology to tell them about our cases of PCP and KS, and find out if they had heard of any similar cases at their institutions. They would be contacted at regular intervals, and any cases would be reported to me. Curran approved this plan.

We selected six EIS officers from my class and six cities in which to conduct active surveillance: two cities considered by reputation to have a high percentage of gay men—New York City and Los Angeles; two cities with a moderate percentage of gay men—Albany and Rochester, New York; and two cities with a low percentage of gay men—Tallahassee, Florida, and Oklahoma City. Curran contacted another twelve EIS officers, assigned them to other cities, and encouraged them to look for new cases. He also sent a letter to all state health departments asking them to report any potential cases to CDC and giving my telephone number as the point of contact (passive surveillance).

I developed a two-page case report form that included the patient’s name, age, self-reported sexual orientation, diagnosis, how the diagnosis was made (biopsy or culture), and contact information for the reporting physician. EIS officers completed the forms when referring physicians reported cases. We avoided collecting information from patients or family members, partly because that approach had created problems during the TSS investigation and partly because our case definition required a more advanced understanding of pathology and microbiology. I made the report form as easy to complete as possible—mainly a series of check boxes—to keep the phone calls with clinicians as short as possible.

I continued reviewing the case reports that others at CDC had collected, including the five cases reported by Dr. Michael Gottlieb in the June 5 MMWR. One of Dr. Gottlieb’s patients had had a prior lymphoma and was excluded. The four other men were previously healthy gay men who had PCP, extensive mucosal candidiasis, and multiple viral infections, including CMV; one had KS. Three of the four patients had prolonged and unexplained febrile episodes. An immunologist at UCLA, Gottlieb had conducted extensive immunologic studies on his patients. The underlying defect, he suggested, was a low or inverted ratio of T-helper lymphocytes to T-suppressor lymphocytes.

While I was setting up active and passive surveillance, Dr. Curran charged Dr. Harold Jaffe with listing hypotheses of causation and designing a study to test them (steps 7 and 8). Dr. Jaffe listed his leading hypotheses:

1. Cytomegalovirus
2. An environmental toxin, most likely nitrite inhalants
3. Immune overload caused by exposure to multiple infectious agents
4. A “new” infection agent, most likely related to herpes or hepatitis viruses

Cytomegalovirus was on the top of everyone’s list. Gottlieb had found evidence of CMV infection in his initial five cases. Giraldo, working with KS patients in Africa, had found evidence of herpes virus infection in KS tissues, and suggested CMV as the causative agent. But why would CMV be causing an epidemic now? Could it be a new or mutated strain now circulating among gay men? And what was its relationship to immunosuppression: was it causing immunosuppression or taking advantage of another immunosuppressive cause—was CMV the chicken or the egg?

Inhalants containing alkyl nitrites, commonly known as “poppers,” were discussed as a possible toxic cause of
Case-control studies, however, have their own drawbacks. They are often beset by selection, interviewer, and recall biases. How does one determine an appropriate control group? The investigator must always be concerned about information bias and the obscuring effect of confounding variables. Having weighed the pros and cons of each study design, Jaffe chose to conduct a case-control study.7

As a starting point, he defined a case as a gay male with KS and/or PCP, fifteen to sixty years of age, and with no prior evidence of immune suppression. He decided to recruit all patients meeting his case definition in New York City, San Francisco, Los Angeles, and Atlanta.

Defining the ideal control group presented a greater challenge. The use of controls who were very similar to the cases could result in overmatching and could obscure important risk factors. On the other hand, the use of controls very different from cases could make comparison difficult, so that differences between cases and controls could not be interpreted. Jaffe decided to recruit multiple controls for each case, ranging from persons relatively similar to the case (friend controls) to persons relatively different from the case (heterosexual male controls). Since obtaining a true random sample of gay men to serve as controls did not appear feasible, he asked health departments, private clinics, private physicians, and individual patients, to help recruit controls. Each control was a man of the same race/ethnicity, age (plus or minus two years), and metropolitan residence as the patient to whom he was matched. Jaffe sought five matched controls per case: one friend control, a gay male identified by the patient as a friend who had never been a sexual partner; two venereal disease clinic controls, homosexual men who were patients of the venereal disease clinic; one private practice gay control, a homosexual patient of a local private practice physician seen for an acute illness and selected randomly from the referring physician's rolodex or log book; and one private practice straight control, an exclusively heterosexual patient of a local private physician selected randomly from the physician's rolodex.

Jaffe developed a questionnaire and decided who would conduct the interviews. One of the greatest strengths of his study was the front-end work he invested in developing the questionnaire, which ensured back-end data that was less likely to be contaminated by information bias. Task force members and other EIS officers—all physicians—conducted the interviews. The same officer who interviewed a case interviewed all the controls matched to that case.

All of us were trained to conduct the interviews in a consistent, non-judgmental fashion. At the training, during which Jaffe mock interviewed Curran, I asked if we should be concerned about participants misrepresenting their sexual activity—exaggerating exploits, perhaps, or minimizing certain behaviors. Curran acknowledged the difficulty in collecting such private information, but was emphatic about the importance of the interview data. He pointed out that we were not
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looking for the truth per se, but for differences between cases and controls. Importantly, we would also collect blood samples and mouth and anal swabs from all participants for a more objective investigation of immunologic and infectious markers at our Atlanta lab. Training now complete, we were prepared to enter the field in October.

On Sunday October 4, Curran and I flew to New York City. On Monday morning we met others at the New York City Health Department to get our marching orders. Local health officers cleared Jaffe’s protocol through the Health Department’s sanctioning process and arranged for us to begin our study. We conducted interviews of cases in hospital rooms, physician offices, or at patients’ homes. We interviewed controls at the venereal disease clinics, physician offices, and even in our hotel room. After an interview of about forty-five minutes, we drew blood and collected the swabs. Following standard practice of that era, we did not wear gloves to draw blood.

During my month in New York City, I conducted about sixty interviews. The participants seemed impressed that CDC physicians from Atlanta had traveled to New York to engage face-to-face with them in any and every setting. By attempting to answer all of their questions, we seemed to gain rapport with the subjects and the gay community, demonstrating that CDC was serious about this problem. In turn, I recall being impressed with how open and apparently honest the participants were in describing the most intimate details of their lives.

When we returned to Atlanta at the end of October, I transitioned from field work to phone work. I spent up to eight hours each day on the phone talking with physicians, the press, anyone who called the number. I filled out the surveillance form for each patient while on the phone with the reporting physician. This was before speaker phones were invented, and I remember the heat generated by holding a phone to my ear for extended periods of time—I would transfer the phone from ear to ear over and over again.

While logging calls about patients with KS and life-threatening OIs, I noticed that clinicians were spontaneously reporting a growing number of gay men with unusual clinical complaints, such as intermittent and prolonged fever, generalized lymphadenopathy, weight loss, and blood dyscrasias that remained unexplained after extensive workups. I filled out case reports for each of those patients and placed them in a separate file cabinet in my office.

In September 1982, CDC coined the term AIDS (acquired immune deficiency syndrome) to capture this constellation of OIs and malignancies. Our case-control study among homosexual men, which identified the two leading risk factors for infections as the lifetime number of sexual partners and meeting partners in bathhouses, suggested a novel sexually transmitted agent. As surveillance continued, however, it soon became apparent that AIDS was not confined to homosexual men. Over time, the demographic pattern widened to include injection drug users, heterosexual women, Haitian-Americans, Caribbean islanders, hemophiliacs, blood transfusion recipients, heterosexual men, infants and children, health care workers, women who have sex with women, and transgenders. Patients were reported from Europe, then Africa, South America, Australia, and Asia.

In 1983, a French team led by Luc Montagnier isolated a new retrovirus from the lymph nodes of patients in Paris. Called the human immunodeficiency virus, it is widely known as HIV. Two years later, the U.S. Food and Drug Administration (FDA) approved the first diagnostic test for the virus, an antibody test, designed with the goal of screening donated blood.

In 1987, the FDA approved the first medication for the virus, the antiretroviral azidothymidine, or AZT. Tremendous progress in the treatment of HIV infection has occurred in the intervening years. Twenty-six antiretroviral agents—drugs from multiple classes, such as reverse transcriptase, protease, and integrase inhibitors—have been approved by the FDA. It has been found, moreover, that combination treatments reduce viral loads, enhance CD4 counts, and prolong survival times. Pre- and post-exposure prophylactic regimens have

AZT: anti-AIDS drug.
Credit: Will & Deni McIntyre / Science Source
also been tested, demonstrating about 50 percent effectiveness. Nonetheless, concerns regarding those antiviral medications abound: they are toxic and expensive; treatment is lifelong; and improper usage may lead to drug resistance.

In 2002, President George W. Bush developed the President’s Emergency Plan for AIDS Relief (PEPFAR) and committed $15 billion over five years to provide antiretroviral therapies to two million infected persons in resource-limited settings, with the goal of preventing seven million infections by 2010. PEPFAR has reportedly prevented more than one million deaths per year in Africa.

Less progress has been realized in changing behaviors to prevent new infections. CDC initially encouraged persons to reduce the numbers of sexual partners, and enlisted health departments to close bathhouses. Behavior change strategies evolved to recommend use of condoms, and avoid needle sharing. Newer approaches include male circumcision, pre-exposure prophylaxis, and preventive antiviral therapy. A vaccine, unfortunately, remains elusive.

Despite these advances in addressing HIV/AIDS, more than 39 million lives have been lost. Furthermore, WHO estimates that 35 million people worldwide are HIV-infected, and 2.1 million new infections occurred in 2013. If we are to control this disease, we must redouble our efforts. We need more strategic use of antiretrovirals for HIV treatment and prevention. We must eliminate new HIV infections in children and expand access to pediatric treatments. We must expand and improve health care coverage for HIV among key populations worldwide, and develop further innovations in prevention.

Regardless of all the challenges ahead, this fact stands out in the fight against HIV/AIDS: today, the life expectancy of an HIV-infected person receiving antiretroviral treatments approaches that of a person without HIV.

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Bosch and Bruegel
Disability in sixteenth-century art

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The Italian Renaissance reflected a best of all possible worlds, an Elysian existence peopled by gods, angels, and men and women only a step below the angels.\(^1\) The Flemish school of art of the same period—ignored for centuries—depicted less pleasant realities. Its paintings were peopled by peasants and beggars. Originating in the Spanish Netherlands, it was a culture soon to be embroiled in a bloody religious war set in motion by the Reformation and Philip II of Spain. The war would result in the division of the region into Catholic and Protestant countries.\(^1\) The school of the Northern Renaissance presented an earthier perspective of the human condition, bereft of angels or gods.

Sadly, the snobbery of the time elevated Italian Renaissance high art while belittling primitive Flemish peasant art, an enduring bias against the Flemish masters that resulted in the delay of the first international showing of their works until 1902 in Bruges.\(^1\)

Pieter Bruegel the Elder (1525–1569) is representative of the Flemish genre. Influenced by Hieronymus Bosch (1450–1516), Bruegel connected himself to Bosch by copying his predecessor’s paintings.\(^2\)

The Flemish painters did not go completely unappreciated. In 1574, after Bruegel’s death, Abraham Ortelius, cartographer and the father of the modern atlas, “wrote that Pieter Bruegel was the most perfect painter of his century” with an “ability to depict ‘many things that cannot be depicted.'”\(^3\)

In 1958, French physician Tony-Michel Torrillhon based his doctoral thesis on the assertion that Bruegel’s accuracy in painting eye disease indicated that he was a physician,\(^4\) an inference that has never been proven. Torrillhon’s thesis showed extensive examples of Bruegel’s uncanny anatomical fidelity. That expertise also appears in both Bruegel’s and Bosch’s depictions of other physical infirmities, illustrating the artists’ sophisticated knowledge of anatomy.\(^5\) Further, their work shows us in their details and settings how their subjects were treated in the sixteenth century. Thus, the subjects of Bosch’s and Bruegel’s paintings—the poor, the infirm, and the sightless—warrant reflection from a medical-humanistic perspective.

Parable of the Blind Leading the Blind (1568)

In 1568, Bruegel painted the *Parable of the Blind Leading the Blind*. It is based on the Biblical narrative in the gospel of Matthew (Matthew 15:14): “and if the blind lead the blind, both shall fall in a ditch.” Bosch had previously painted the parable, including only two subjects, but Bruegel chose to depict six blind men, with a sightless leader in the act of falling into a brook. In Bruegel’s painting, the eyes of the first blind man cannot be seen, but those of his followers are visible in the painting. Some have suggested that the painting shows a verifiable cause for sightlessness for each man whose eye can be seen. Writers including Jean Martin Charcot, Paul Richer, and Torillhon have posited the following potential diagnoses (counting from right to left): 59–58.
Parable of the Blind Leading the Blind. Pieter Bruegel the Elder (c. 1525-1569).
Museo Nazionale di Capodimonte, Naples, Italy. Photo credit: Scala/Ministero per i beni e le Attività culturali/Art Resource, NY.
Bosch and Bruegel

The Adoration of the Kings. 1564. Oil on oak, 111.1 x 83.2 cm. Bought with contributions from The Art Fund and Arthur Serena through The Art Fund, 1920 (NG3556). Pieter Bruegel the Elder (c. 1525–1569).

- Blind man 2: Enucleation.
- Blind man 3: Corneal leukemia.
- Blind man 4: Atrophy of the globes.
- Blind man 5: Total blindness with the visor misplaced as a result of photophobia with the visor askew to protect the eyes from light.
- Blind man 6: Pemphigus.

Ophthalmologist Zeynel Karcioglu, in his survey of the pathologies illustrated in the painting, asserts:

It seems that the second man’s eyes have been surgically removed, but the cause of the removal is not known. I am not sure if we can say that he had a straightforward enucleation because the eyelids are missing on both sides as well as the globes. If the eyelids were removed, it was not really an enucleation but exenteration, which raises the question what could be the cause of bilateral exenteration that left the man blind but still alive? 5pp58–59
Karıoğlu is so confident of Bruegel’s accuracy that he goes on,

A different possibility is the eyelids that were left behind sealed the anophthalmic sockets. If this were the case, I would have expected to see horizontal scars possibly with embedded eyelashes centrally; Bruegel wouldn’t have overlooked such detail.

Karcioglu also researched the history of enucleation, verifying that the procedure was performed during Bruegel’s lifetime. It was initially performed in the 1500s by Batisch. He concludes that this man lost his vision to cauterization, possibly to relieve pain or to resolve a persistent infection.

The third man has large corneal opacities identified as corneal leukomas. Corneal opacities can be a consequence of many corneal pathologies. If the end stage of corneal disease, as in this man, is a large, white, disfiguring scar, it is identified as a leukoma, as opposed to smaller lesions called either nebulas (ill-defined) or maculas (localized and smaller). A colleague of mine also felt that they could be cataracts.

The fourth man has a clinical combination of atrophic eyes, a large irregular scar on his right upper cheek, and a disfigured face. The diagnosis proposed is phthisis bulbi. His lower face lesions could be two vertical keloids, and he has lost his eyebrows and eyelashes. The combination of injuries may have been the result of a chemical or thermal burn leading to eye infections that resulted in blindness.

The next sightless man is thought to have lost his vision to pemphigus. Karcioglu writes that he has thickened lower eyelids and conjunctival scarring with obliteration of the palpebral fissure medially and scarring of
corneas. His lips also reveal old mucosal lesions. . . . Most likely, the diagnosis for the last blind member of the group is bullous pemphigoid. The king in a red cape on the left of the painting has right upper eyelid ptosis, suggesting a seventh nerve palsy. In another painting, The Yawner, Bruegel's subject is considered to be the first documented example of blepharospasm and lower facial dystonia. The eponymous name for this disorder is Bruegel Syndrome!

Other contemporary ophthalmologists support Dr. Torrillhon's and Dr. Karcgiolu's conclusions. A Spanish group agrees with their diagnoses for The Blind Leading the Blind, and have added a diagnosis of exophthalmos for one subject in the the Adoration, as well as in the subject in Head of a Lansquenet. This group agrees with the diagnosis of Bruegel's Syndrome in The Yawner.

Disability in Bosch and Bruegel's art and times

Bosch and Bruegel each created works depicting people with amputations, in particular Bosch's drawing, The Procession of the Cripples, and Bruegel's The Beggars. The works are notable for their attention to anatomical detail, accurate enough to allow for a tentative retrospective diagnosis of the infirmities illustrated. As well, they may also reflect the attitude of the prevailing culture toward those with such infirmities.

A joint analysis of The Procession of the Cripples by rheumatologist Jan Dequeker, orthopedist Guy Fabry, and neurologist Ludo Vanopdenbosch at the University Hospital in Leuven, Belgium, offers a reliable methodology for retrospective diagnosis. First, what are the main changes suggesting a

Graphische Sammlung Albertina, Vienna Austria/Bridgeman Images.
primary cause for the disability? Second, are there associated features independent of amputation and prosthetics? The working diagnosis combines these deductions with historical information about the pathologies and the prevailing culture.

The cases in the Bosch drawing are numbered starting from the top left and proceeding left to right to the bottom. In Case 4, the authors note the following:

- Gender: Male; Age >30.
- Main changes—Recent high amputation of right distal femur, loss of left toes.
- Associated features—Weakness left limb? Leper’s clothing, mouth-nose mask.
- Working diagnosis—1) Leprosy with post-infectious gangrene; 2) Neural weakness.  

Cases 8 and 27 are also presumed to be lepers because their associated features—a prominent nose and a facial deformity, respectively—accompany amputations. Leprosy was endemic in Northern Europe during the lives of Bosch and Bruegel,
affecting as many as 25 percent of Northern Europeans of that time.10

Another retrospective diagnosis for cases 2, 14, and 26 is of historical interest. A scourge common in Bosch and Bruegel’s time, it is almost unknown today. These men are suspected to have experienced ergotism. They show amputations at various anatomical sites and wear pilgrim’s capes.9

Ergotism results from ingestion of rye or wheat contaminated with the fungus *Claviceps purpurea*. The condition resulted in the deaths and crippling of many thousands of people throughout Europe during the Middle Ages.11 The fungus produces alkaloids, including ergotamine, that cause vasoconstriction that can lead to dry gangrene and convulsions, with characteristic burning sensations and central nervous system effects including mania or psychosis. Ergotism in Europe was primarily caused by rye bread, and a popular religious pilgrimage of the time was the Way of St. James to Santiago de Compostela in northern Spain,12 with rye bread a staple food on pilgrimage. The lay fraternity of the Hospital Brothers of Saint Anthony was founded in 1095 to care for pilgrims and the sick, and particularly for those suffering from ergotism—they grew their own rye for bread in carefully cultivated fields.12 Their therapeutic expertise for easing the symptoms of St. Anthony’s fire was legendary. Pilgrims claimed that the relics of their order’s patron, St. Anthony, cured ergotism.9

Ergot-induced vascular injury was illustrated by other artists of the period, including Johannes Wechtlin and Matthias Grunewald (who painted a triptych for the Isenheim Monastery). In *The Temptation of Saint Anthony*, Grunewald not only depicts dry gangrene of the fingers and feet, but also livedo, skin gangrene, and typical ergot-induced vasculitic lesions.9,13

Other maladies have been proposed for the remaining disabled persons in Bosch’s drawing. Although polio may also have been endemic then, it probably would not have been distinguished from leprosy.9 The subjects portrayed in Bruegel’s *The Beggars* are therefore presumed to have had either leprosy or polio. Potts Disease is a possible diagnosis for cases 2, 12, and 30 in the Bosch drawing. They show marked dorsal hyperkyphosis in older individuals. A post-traumatic amputation in an otherwise healthy appearing man in Case 10 is also plausible.9

On the other hand, cases 1, 6, 9, and 29 in *The Procession of the Cripples* appear to be fakes. Case 6 is shown kneeling, with a drawing showing an amputated leg before him. He is potbellied and holds a wine jar, implying alcoholism as his sole impairment. Case 29 has a flexed knee but a healthy surrounding leg, presumably another fraud. But in Bruegel’s painting *The Beggars*, most of the men, even though they have what are clearly real disabilities, have foxtails on their clothing, the mark of a hypocrite.9 Why should actual cripples be lumped in with obvious fakes?

There were many beggars in Bosch and Bruegel’s society. Destitute cripples and fakers alike were treated as petty criminals and were incarcerated in workhouses, of which it has been said, “the modern sanction of imprisonment for serious crime traces back to the workhouse for the poor more than any other source.”14

The noblemen of the Dutch Revolt, rebelling against the Inquisition, were called beggars as an insult, but turned the tables and gleefully took the epithet to themselves.

The Leaguers rode into Brussels, and, crowding into the council-chamber, laid their petition for a removal of the Inquisition before the council. They demanded that a deputation to press the object of their petition be sent to the king, and declared themselves no longer responsible for riots and tumults which might arise from neglect of their prayer. The duchess was very much alarmed at the crowd. Tears of distress rolled down her cheeks as their petition was read. One of the counsellors, Count Berlaymont, to relieve her fears, uttered the sneer which, like the name “Christian,” given by their enemies to the disciples at Antioch, was immediately adopted by the Leaguers, and became the name by which they were known for generations—a name of terror to their foes and a rallying-cry to all the friends of liberty in the land. “Beggars” was the contemptuous term used by the count: “What, madam!” said the proud lord, “is it possible your highness can entertain fears of these Beggars?” At once the word was caught up by the party, who had long wanted a distinctive name, and at the banquet held immediately after the interview in the palace, the hall re-sounded with cries of “Long live the Beggars!”15pp215–16

After the Protestant Reformation and its religious wars, the nation of Holland emerged from the former Spanish Netherlands and embraced Reformed Theology. Cripples were considered examples of the wages of sin. As Dequeker, Fabry, and Vanopdenbosch note, “In many sixteenth century paintings of ‘The temptation of St. Anthony’, the ‘diabolic beggars’ (le diable boîteux) are often the physically disabled.”9

**Bosch and Bruegel in the medical humanities**

With so little knowledge of Bruegel at our disposal, we may conclude that we are never likely to understand his mind fully or be certain of the meanings of a number of his works. My own view is that he was in large part a moralist and ironist with a deep vein of humanity and humor who perceived the grotesquerie and comedy in the endless spectacle of life, a penetrating observer who had a poor opinion and small expectations of mankind but found a compensation for this pessimistic vision in his contemplation of the
Bosch and Bruegel

majestic, impersonal order of nature. Art scholars and historians of ideas, the northern Renaissance, and related fields will of course continue to study his creations, but it should be kept in view that what we don't know of him is perhaps not very important when we consider the universal appeal of his art and its incomparable inventiveness and transfiguring realism, which have provided us with great and unique images of his world and time.

—Perez Zagorin, "Looking for Pieter Bruegel" ¹⁶

The world of Bruegel and Bosch was cruel. The tragedies of life were considered to be evidence of sin. But amid the tragedy, Bosch and Bruegel steadfastly committed themselves to artistic realism in chronicling universal suffering. They meticulously reproduced the ravages of disease with an accuracy that permits plausible diagnoses in the twenty-first century.

Bruegel and Bosch also remind those in the healing professions that a culture's response to the most vulnerable speaks volumes about that society's values. Are the homeless and disabled today still singled out for contempt? Studies remind us that contemporary attitudes towards people with physical disabilities retain remnants of prejudice.¹⁷ The compelling images of Bosch and Bruegel can serve as a powerful introduction to the vulnerable among us and an invitation to the better angels of our natures. In the words of Steven E. Brown, cofounder of the Institute on Disability Culture:

People with disabilities have forged a group identity. We share a common history of oppression and a common bond of resilience. We generate art, music, literature, and other expressions of our lives and our culture, infused from our experience of disability. Most importantly, we are proud of ourselves as people with disabilities. We claim our disabilities with pride as part of our identity.¹⁸

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References


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Each year since 1988, Alpha Omega Alpha, in cooperation with the Association of American Medical Colleges (AAMC), presents four AΩA Distinguished Teacher Awards to faculty members in American medical schools. Two awards are for accomplishments in teaching the basic sciences, and two are for inspired teaching in the clinical sciences. In 1997, AΩA named the award to honor its retiring executive secretary Robert J. Glaser, MD. Nominations for the award are submitted to the AAMC each spring by the deans of medical schools.

This year’s nominations were reviewed by a committee chosen by AΩA and the AAMC. This year’s committee members were Peter Anderson, DVM, PhD; Charles L. Bardes, MD; J. John Cohen, MD, PhD; James M. Crawford, MD, PhD; Ruth-Marie Fincher, MD; Bernard Karnath, MD; Randall King, MD, PhD; Kelley Skeff, MD, PhD; Emma Meagher, MBBCh, BAO; LuAnn Wilkerson, EdD.

Winners of the award receive $10,000, their schools receive $2,500, and active AΩA chapters at those schools receive $1,000. Schools nominating candidates for the award receive a plaque with the name of the nominee.

Richard L. Byyny, MD
Executive Director

Top, the 2015 Robert J. Glaser Distinguished Teachers. Left to right: 2014–2015 Chair of the AAMC Board of Directors Dr. Peter L. Slavin, AΩA Executive Director Dr. Richard L. Byyny, Distinguished Teachers Dr. Thomas Kwastigroch, Dr. Gurpreet Dhaliwal, and Dr. David Muller, and AAMC President and CEO Darrell G. Kirch. Missing is Distinguished Teacher Dr. Jonathan Kibble.

Left, Dr. Gurpreet Dhaliwal. Photos courtesy of the AAMC.
Dr. Dhalliwal received his MD from Northwestern University in 1998, completed his residency in Internal Medicine at the University of California, San Francisco (UCSF) in 2002, and joined UCSF as an Assistant Professor the same year. He was appointed the Site Director of Internal Medicine Student Clerkships in 2005, a position he continues to hold, and in 2014 became Professor of Clinical Medicine in the Department of Medicine at UCSF.

Dr. Dhalliwal has received more than a dozen awards and recognitions during his tenure at UCSF, including the Henry J. Kaiser Award for Excellence in Inpatient Teaching in 2005 and 2011; membership in the Haile T. Debas UCSF Academy of Medical Educators in 2005; the UCSF Department of Medicine Calvin L. Chou PRIME Teaching Award in 2006; the UCSF Medical School Class of 2015 Essential Core Teaching Award for Outstanding Lecture; and appointment to the Council of Master Clinicians in the UCSF Department of Medicine in 2013.

Dean Bruce Wintroub writes of Dr. Dhalliwal, “Dr. Gurpreet Dhalliwal is an extraordinary educator and master clinician who has made unparalleled contributions to medical student education through his direct teaching and by teaching other medical educators—locally, nationally, and internationally—to more effectively teach the difficult skills of clinical problem solving and patient-centered clinical decision making.

“What is Dr. Dhalliwal’s secret recipe for effectiveness in direct teaching? Those of us who have heard him speak know that he can engage any audience with his erudite style. But, for medical students, his truest gift lies in his ability to deconstruct the complex process of context-specific clinical reasoning and problem solving into a set of tools that early learners can effectively apply. Students report that the majority of their clinical teachers do clinical reasoning as naturally as they ride a bicycle, yet they often have difficulty making explicit the steps they automatically go through as they solve clinical problems. Dr. Dhalliwal is tremendously successful at making explicit the metacognition of clinical problem solving—modeling his own clinical reasoning and helping students think about their thinking processes. Learners are riveted as he walks through his stepwise approach to even the most puzzling cases with clarity, organization, and ease.”

Dr. Thomas Kwong and his wife, Dr. Christine L. Kwong. Photos courtesy of the AAMC.

Jonathan Kibble, PhD (Basic)
Professor and Assistant Dean for Medical Education, University of Central Florida College of Medicine

Dr. Kibble received his PhD in Renal Physiology at the University of Manchester, United Kingdom, in 1994. He joined the University of Central Florida (UCF) as an Associate Professor of Physiology and Medical Education in 2008, was appointed Assistant Dean for Undergraduate Medical Education in 2010, and Professor of Physiology and Medical Education in 2014.

As Chair for the Program Evaluation Subcommittee of the Curriculum Committee, Dr. Kibble led the development of a program that has been recognized with commendation by the Liaison Committee on Medical Education. He was influential in setting the direction of the overall curriculum at UCF, as well as establishing policies and processes, while also mentoring faculty. He was also instrumental in facilitating the curricular shift from passive to active learning strategies.

Recognition for Dr. Kibble’s teaching skills have resulted in numerous awards at the University of Central Florida, including the Most Effective Teacher Student Choice Award in 2010; awards for Excellence in Teaching in 2011 and 2012; and the UCF College of Medicine Student Choice Award in 2012.

Dean Deborah German writes, “Dr. Kibble is an evidence-based teacher who utilizes what we know about learning to improve the student experience and student learning. His research supports his teaching practices and impacts those whom he mentors. While Jonathan may not admit to mentoring most of the faculty, his colleagues will tell you that he constantly models and challenges them to consider best practices. In this way, Dr. Kibble is a highly influential teacher as he plays a role in how other faculty deliver the curriculum.”

Thomas Kwong, PhD (Basic)
(AΩA, James H. Quillen College of Medicine of East Tennessee State University, 1988, Faculty)
Professor in Biomedical Sciences/Anatomy, James H. Quillen College of Medicine at East Tennessee State University

Dr. Kwong received his PhD in Anatomy/Embryology at the University of Virginia in 1976. He joined the Quillen...
College of Medicine at East Tennessee State University (Quillen) in 1979 as an Assistant Professor of Anatomy, becoming Professor in the Department of Anatomy and Cell Biology in 1992, Assistant Dean for Medical School Curriculum in 2000, and Associate Dean for Student Affairs in 2005.

Dr. Kwasirogroch introduced the idea of a flipped classroom to Quillen in 2013, following his attendance at an AAMC conference at which Salman Khan presented his ideas for the Khan Academy. In 2012, he obtained iPad technology at each dissection table, and pushed the use of educational apps in gross anatomy lab. Under Dr. Kwasirogroch, the anatomy department has received the most awards from students in the history of the school. Dr. Kwasirogroch continues to teach and provides leadership for the Department of Anatomy, and serves on multiple committees and in administrative positions at Quillen, evidence of his focus on improving medical education.

Dr. Kwasirogroch is the most awarded professor in the history of Quillen. He received the Dean’s Award for Excellence in Teaching all eight years the award was offered; received the Lee Brashear’s Memorial for Excellence in Teaching and Student Support twice; and was one of four recipients of the national Joy McCann Scholar Award in 2005. He has been awarded Professor of the Year thirteen times, and the Gross Anatomy course has won Course of the Year thirteen times.

Dean Robert T. Means writes, “Dr. Kwasirogroch excels in medical education by not only improving clinical and scientific learning experience, but by promoting medical student health. Clearly, even after thirty-five years of teaching, Dr. Kwasirogroch is improving himself, his classroom and his students. Without question Dr. Kwasirogroch has diligently and faithfully served this school, this community and his country.”

David Muller, MD (Clinical) (AQA, Mount Sinai School of Medicine, 1995, Resident)
Professor and Dean for Medical Education, the Icahn School of Medicine at Mount Sinai

Dr. Muller received his MD at New York University School of Medicine in 1991, and completed his residency in Internal Medicine at Mount Sinai Medical Center in 1994. He held the position of Clinical Instructor at Mount Sinai in 1995, and in 2005 became the Chair of the Department of Medical Education. He has been Dean for Medical Education at Mount Sinai since 2005.

Dr. Muller continues to teach, and serves each year as a small group preceptor for eight to twelve students who learn physical examination skills and study topics including palliative care, substance abuse, disparities in health care, cultural competency, bioethics, and domestic violence. He teaches in the Longitudinal Clinical Experience, a two-year immersion that allows incoming medical students to join a clinical practice and follow patients. Dr. Muller is also a clinical preceptor in Mount Sinai’s Inter-Clerkship Ambulatory Care track.

Dr. Muller’s teaching has earned him, among many other honors and awards, the Jacobi Medallion in 2011, the highest honor awarded to alumni of Mount Sinai; the AMA Foundation Pride in the Profession Award in 2009; the Alexander Richman Commemorative Award for Humanism in Medicine in 2005; the Leonard Tow Humanism in Medicine Faculty Award in 2004; the Housestaff Teaching Award in 2001; and the Mount Sinai School of Medicine Humanism in Medicine Award in 1999.

Dean Dennis Charney says of Dr. Muller, “From his appointment as Chief Resident until today as Dean for Medical Education, [Dr. Muller] has been an outstanding teacher. His initial focus in teaching was our Internal Medicine housestaff, but even as junior faculty he was increasingly turning his attention to medical student education and was receiving overwhelmingly positive feedback. Dr. Muller’s early teaching roles for medical students included traditional Ward Attending Student Preceptor for Third Year Internal Medicine Clerks, developing and teaching elective courses in professionalism and the Humanities, and delivering a curriculum on Reflection and Idealism for trainees rotating through the Mount Sinai Visiting Doctors Program. Dr. Muller also served as a small group preceptor in a course called Art and Science of Medicine (ASM) from its inception in 2003. He was asked to take on the role of interim Course Director for one year and continues to teach in ASM today. These activities earned him high praise from our students and actually led to his being recognized as an outstanding candidate for the role of Dean for Medical Education. In fact, despite the many highly qualified candidates who applied for the position during our national search a decade ago, the Medical Student Council Executive Steering Committee advocated strongly that Dr. Muller be offered the position because of his track record as an outstanding teacher, role model, and advocate for students.

“The consistency of [Dr. Muller’s] teaching over so much time, by so many different levels of students, and across so many different teaching roles is likely to be unmatched by any of the teaching faculty at our institution. In written comments he is cited as an outstanding educator, role model, advocate, and mentor. Students remark on his unique ability to make learning fun, exciting, intellectually stimulating, and rewarding, while always keeping the focus on the needs of patients and their communities.”

The Pharos/Winter 2016
Reviews and reflections

David A. Bennahum, MD, and Jack Coulehan, MD, Book Review Editors

The Worm at the Core: On the Role of Death in Life

Sheldon Solomon, Jeff Greenberg, and Tom Pyszczynski
Random House, New York, 2015, 274 pages
Reviewed by John L. Wright, MD (AΩA, Drexel University College of Medicine, 1956)

Teach me to live, that I may dread
The Grave as little as my Bed;

—Thomas Ken

These lines are taken from the seventeenth-century prayer-poem, “All Praise to Thee, My God, This Night,” by the clergyman Thomas Ken. And although the authors of The Worm at the Core don’t advocate for prayer as a solution to man’s dread, they don’t discount it either. In fact, the main intent of the book is to teach just that—how to live with dread. In the introduction, they state, “our overarching goals are to reveal the many ways the knowledge that we are mortal underlies both the noblest and most unsavory of human pursuits, and to consider how these insights can lead to personal growth and social progress.”

Experimental social psychologists Solomon, Greenberg, and Pyszczynski collaborated for over twenty-five years. In the 1970s, as young researchers, they discovered that they shared an interest in understanding the fundamental motivations that direct human behavior. Their studies led them to focus on two basic human drives: “First, . . . to protect our self-esteem. Second, . . . to assert the superiority of our own group over other groups.”

In the early 1980s they discovered the writings of Ernest Becker, who by synthesizing insights from anthropology, sociology, psychology, philosophy, religion, literature, and popular culture, provided a conceptual framework for answering the question, “What makes people behave the way they do?” Becker’s answer, largely spelled out in his 1974 Pulitzer Prize winning book, The Denial of Death, was the existential fear of death—the worm at the core—that every human being carries within him or her. Furthermore, he and others argue that Homo sapiens is the only animal that experiences such fear. To illustrate this claim, the authors present the first verse of W. H. Auden’s poem, “The Cultural Presupposition.”

Happy the hare at morning, for she cannot read
The Hunter’s waking thoughts, lucky the leaf
Unable to predict the fall, lucky indeed
The rampant suffering suffocating jelly
Burgeoing in pools, lapping the grits of the desert,
But what shall man do, who can whistle tunes by heart,
Knows to the bar when death shall cut him short like the
cry of the shearwater,
What can he do but defend himself from his knowledge? \(p^{37}\)

So what’s the big deal? The authors claim it is this fear that causes man to “so desperately crave self-esteem,” and explains “why we fear, loathe, and sometimes seek to obliterate people who are different from ourselves.” Further, they contend, “Over the course of human history, the terror of death has guided the development of art, religion, language, economics, and science. It raised the pyramids in Egypt and razed the Twin Towers in Manhattan.” They also go on to list the many ways this fear contributes to man’s senseless and destructive behavior. In fact, given the twenty-first century’s lethal weapons, they write, “And because nation-states will use whatever military technology they possess to defend their secular or religious ideologies—whether to ‘keep the world safe for democracy’ or ‘to rid the world of evil’—there is a very real danger that we humans will be the first form of life to be responsible for our own extinction.”

In the early pages, and for me the most satisfying pages of The Worm at the Core, the authors consider human development starting with infancy, emphasizing ingredients crucial for growing self-esteem, and the importance of self-esteem to becoming a convinced and successful participant in one’s inherited culture. “Our beliefs in literal and symbolic immortality,” the authors assert, “help us manage the potential for terror that comes from knowing that our physical death is inevitable.” Much of their understanding falls under what Becker called the twin ontological motives—human striving for meaning in life and the escape from loneliness through heroic living, or immersing oneself under one banner or another.

Over the past thirty years, the authors of The Worm at the Core and many other social psychologists have conducted a broad program of research developing a field they call Terror Management Theory. In such investigations, researchers select a cohort of persons who have the same roles and typically carry out a specific behavior; for example, a cohort of judges whose job often entails setting bail for arrested prostitutes. They then assign participants either to an intervention (a brief imaging exercise that requires them to imagine their own deaths) or to a control group without such a reminder. Then both groups are subjected to situational tests and their responses evaluated—for example, how does intervention...
influence a judge’s bail setting behavior? In this particular case, judges exposed to the intervention tended to set higher bail ($500 instead of the usual $50, say) than they had set previously, while the control judges continue their usual pattern. The authors conclude that, “after being reminded of death, we react generously to anyone or anything that reinforces our cherished beliefs, and reject anyone or anything that calls those beliefs into question.”

In the case of prostitutes, the judges feel more negative and set higher bail. Alternatively, reminders of death lead people to hold more firmly to cherished beliefs. The authors hope that such revelations cause us to, “First, . . . become more aware and accepting of the reality of our mortality. Second, we can strengthen our sense of death transcendence in non-destructive ways.”

I find the last section of the book the least satisfying. Here, the authors discuss how the fear of death is an under-appreciated contributing factor in psychological disorders. That neglect may well be the case, but they tend to portray terror of death as a core feature of almost all significant mental disorders (e.g., schizophrenia, depression, substance abuse, post-traumatic stress disorder), while ignoring other biological and psychological factors. Thus, I do not think this section contributes significantly to an otherwise authoritative and comprehensive look at how the knowledge of our demise impacts our behavior.

Finally, having begun this review with a quote from a prayer-poem, I want to end it just so. In his excellent study, Poetry as Survival, Gregory Orr uses, as the epigraph to the chapter entitled “Convulsive Transformation of the Overculture,” this less than optimistic quote from Sara Hutchinson, a Cherokee woman:

I pray for many things, things the Overculture may never pray for.

References


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**p53: The Gene That Cracked the Cancer Code**

Sue Armstrong

London, Bloomsbury Sigma, 2014, 287 pages

Reviewed by Thoru Pederson, PhD

Readers of *The Pharos* who were in training or embarking on their medical careers in the 1960s and 1970s may recall being aware of the oncology community’s passionate belief that most human cancer was caused by either viruses or chemicals. These two ideas about the causation of cancer were so widely accepted that the National Cancer Institute launched major intramural programs on both viral and chemical carcinogenesis, and also began to increase its extramural funding on projects based on these two ideas. The data at hand were limited and someday a historian of science will capture this wobble in America’s well-intentioned effort to “cure cancer,” a goal that former President Richard Nixon told his interviewer Barbara Walters years later that he regarded as his greatest accomplishment (in signing the National Cancer Act of 1971).

There can be no doubt, from many compelling epidemiological studies, that some human cancer is initiated by exposure to chemicals that mutate DNA (as we now recognize, in hindsight, from Percivall Pott’s famously prescient 1775 report of an increased incidence of scrotal tumors in young men whose profession was evicting the residue of London chimney soot). And we also know that some human cancer is indeed caused by viruses, of which adult T-cell leukemia (HTLV-I) and cervical cancer (human papillomavirus) are the two most notable examples.*

Then the 1980s arrived, and Harold Varmus and Michael Bishop developed the remarkable insight that most human cancer is indeed caused by viruses, but not as an infecting agent. Rather, these viruses silently sneak their DNA into human chromosomes, where it lies dormant and can incite tumor formation later.1–3 This made scientists realize that much human cancer comes from within the genome. The gifted writer Sue Armstrong takes up the next phase of cancer research in this engaging book: what keeps these endogenous cancer-causing genomic invaders in check?

The author has previously written on broad issues of science and health, but in this book dives in deeply, interviewing all the leading characters in the story and making it come to

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* As a historical point, it is worth noting that Peyton Rous’ 1911 discovery of a viral agent causing soft tissue cancer in chickens was not recognized with a Nobel Prize in Physiology and Medicine until 1951.
life. First, a specific protein was identified in a few cell biology research laboratories, and because the molecular weight of this protein was found to be 53,000, it was dubbed p53. At first, this protein, which appeared to be involved in cell growth, captured little attention. But then the story quickens.

The author then describes the pioneering work demonstrating that human cells have genes that can suppress cancer.7 Nothing about p53 seemed to make sense until scientists began to think that perhaps it functions as a tumor suppression gene. If such a gene mutates and can no longer perform its job, cancer cells can proliferate unchecked. It is now known that such “loss of function” mutations in the normal gene for p53 are responsible for half of all human cancer. The book closes on how “p53-ology” informs current cancer chemotherapy design, where I found the author to be very au courant, although there are other equally compelling recent accounts for the general audience.4–7

Having praised the book, I cannot resist conveying one minor point on which I also torture all my biochemistry students. The author states that p53 was named on the basis of its “molecular weight of 53 kilodaltons.” However, molecular weight is a dimensionless parameter, so the correct term is either a molecular mass of 53 kilodaltons, or a molecular weight of 53,000 (no units). The fact that Sue Armstrong is not a scientist and this is the only quibble I have demonstrates the fine job she has done.

I recommend this book to all physicians because it is a spellbinding story of biomedical research sleuthing. I suspect even nononcologists will find it of interest. The author also conveys a back story about the culture of science, viz., how tenaciously certain shibboleths can be adopted by a guild, its members locked in a mutually agreed upon canon, and how it tenaciously certain shibboleths can be adopted by a guild, its members locked in a mutually agreed upon canon, and how it is usually a few intrepid scientists with open minds that bring about a revolution.

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†That work, by Henry Harris, George Klein, and Alfred Knudson, has been an annual Nobel Prize candidate for many years, and despite Harris’ death last year this discovery is likely still under consideration.


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Doctors of Another Calling: Physicians Who Are Best Known in Fields Other than Medicine
David K. C. Cooper
University of Delaware Press, Newark, Delaware, 2014

Reviewed by Jack Coulehan, MD (ΩΑ, University of Pittsburgh, 1969)

In 1795 the Scottish explorer Mungo Park (1771–1806) set out to discover the source of the Niger River. During this first expedition, he encountered bouts of tropical disease, hostile natives, and imprisonment for several months by an Arab chieftain. Nevertheless, he managed to reach the Niger close to its source and follow its course several hundred miles downstream. The American military officer William Minor (1834–1920) received a medical discharge in 1868 because of bizarre and violent behavior. He later moved to London, where he murdered a brewery worker in 1872. Minor was found not guilty by reason of insanity and was incarcerated for the next thirty years in Broadmoor Asylum for the Criminally Insane. While there, Minor learned about James Murray’s gargantuan project of compiling the Oxford English Dictionary, and he became the dictionary’s most prolific contributor, providing definitions for about 8,000 words. American businessman Jules Stein (1896–1981) began his career representing musicians, including Guy Lombardo, in the mid-1920s. Starting with very little capital, he founded Music Corporation of America (MCA), which grew into one of the largest and most profitable entertainment companies in history.

What do these three men with such disparate careers have in common? They were all physicians, although only Minor (the insane lexicographer) practiced medicine for a substantial period of time, first as a field surgeon in the Union Army during the Civil War and later at an Army base on Governor’s Island, New York, where his violent behavior might have been
a symptom of shell shock or PTSD. Mungo Park’s only practice experience was a year-long stint as assistant ship’s surgeon on a voyage to Sumatra, while Jules Stein practiced very little after his chief residency in ophthalmology at Cook County Hospital in Chicago, although he was a lifetime supporter of eye research and helped found the National Eye Institute.

The three men also share inclusion in David K. C. Cooper’s *Doctors of Another Calling*, an interesting collection of brief biographies of physicians (and medical students) whom the editor categorizes as “physicians who are best known in fields other than medicine.” This multi-authored collection is unique, I think, for the broad range of non-medical fields it covers and the depth of attention it gives to each of its thirty-eight physician characters. The biographies themselves range from a few that are merely competent to several engaging and incisive portraits.

Aside from Park, Minor, and Stein, who are these famous doctors of another calling? First, they include many of the writers you would expect: John Keats, Oliver Wendell Holmes, Sir Arthur Conan Doyle, Anton Chekhov, and W. Somerset Maugham. This list raises an obvious question: what about Rabelais, Oliver Goldsmith, William Carlos Williams, or Walker Percy? As the editor says, his is a personal choice, so we need not debate his judgment that Abraham Verghese and A. J. Cronin (both included) are, in fact, better novelists than Walker Percy (not included). Other unsurprising entrants are: philosopher John Locke, composer Alexander Borodin, explorer David Livingstone, revolutionaries Sun Yat-sen and Che Guevara, entrepreneur Armand Hammer, and theologian-humanitarian Albert Schweitzer.

What were the biggest surprises? One was the presence of Dante Alighieri, whom I had never associated with medicine. James E. Bailey’s chapter on Dante argues that “several lines of indirect evidence suggest that Dante’s interest in medicine was more than passing.” In fact, Dante did at one point join the Guild of Physicians and Apothecaries in Florence, and several contemporary images portray him in the typical guise of a physician, i.e., red gown with white fur on the hood. However, there is no evidence that the great poet and political theorist ever practiced medicine.

Another surprise was T. Jock Murray’s lead-off chapter on St. Luke. There is an ancient tradition in Christianity that the author of Luke’s gospel was a physician, although an almost equally respected tradition holds that the gospel writer was an artist, to whom several early icons were attributed. In fact, St. Luke is now the patron saint of physicians and painters. In any case, if Luke was indeed a medical man, he is surely the most widely read physician writer of all time.

I met several new characters in *Doctors of Another Calling* and learned fascinating details about more familiar figures. For example, I became acquainted with Hans Sloane (1660–1753), who studied medicine in London under Thomas Sydenham, practiced in Bloomsbury, served as president of the Royal College of Physicians, and eventually became physician to Queen Anne and her Hanoverian successors. Sloane’s passion for natural history, antiquities, books, coins, and manuscripts led him to amass a great collection of specimens and artifacts that he bequeathed to the nation. This became the nucleus of the British Museum, which opened in 1759, six years after Sloane’s death. I was aware that in 1954 Roger Bannister (1929–) became the first runner to break the four-minute mile, but had not remembered that Dr. Bannister went on to have a distinguished career as a neurologist. Likewise, I had read that Edward Wilson (1872–1912) was among the men who perished with Robert Falcon Scott on his return from the South Pole, but had not realized that he was the expedition’s physician, as well as its naturalist.

The selection of such a small number of winners in a competition for “best known” is bound to be controversial. I couldn’t help second guessing Dr. Cooper from time to time. If he reaches back to the Middle Ages (e.g., Dante), then why not include the great Jewish physician-philosopher-theologian Moses Maimonides? Or what about the French World War I prime minister George Clemenceau? Among medical students, why didn’t the famous (or notorious) twentieth-century poet Gertrude Stein, who left Johns Hopkins medical school during her fourth year, make the cut? Her case raises the more interesting question: Why are there no women among the select thirty-eight? Yes, it’s true, historical circumstances have restricted the pool of women, both in medicine itself and in various arts and occupations. But it’s strange that Dr. Cooper, who has strive[n] to present such a broad range of “best knowns,” was not able to find a single woman to include in this book. There are, however, two appendices in which he lists numerous writers, entertainers, explorers, political leaders, scholars, and others who reasonably “might have been chosen,” but didn’t make the cut.

*Doctors of Another Calling* is an enjoyable book, full of interesting detail and surprise. It’s neither an authoritative reference work, nor a book that many readers will want to sit down and read from stem to stern. Rather, its short chapters allow the reader to take small doses of “physicians best known for their contributions to other fields” on a PRN basis.

Dr. Coulehan is a member of the Editorial Board of *The Pharos* and one of its book review editors. His address is:

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Minutes of the 2015 Board of Directors Meeting

The annual meeting of the Board of Directors of Alpha Omega Alpha was held in Boulder, Colorado, on October 3, 2015. President Douglas Paauw opened the meeting. The following members attended:

- Robert G. Atnip, MD, Member at Large and President-Elect
- Second Lieutenant Jeremy Bolin, MSIV, new Student Director representing the Uniformed Services University of the Health Sciences F. Edward Hébert School of Medicine
- Richard L. Byyny, MD, Executive Director
- Christopher M. Clark, MD, Student Director representing the University of Mississippi School of Medicine
- Lynn M. Cleary, MD, Councilor Director representing the State University of New York Upstate Medical University
- Candice Cutler, Programs Administrator
- Regina Gandour-Edwards, MD, new Councilor Director representing the University of California, Davis, School of Medicine
- Charles Griffith III, MD, MSPH, Councilor Director representing the University of Kentucky College of Medicine
- Richard B. Gunderman, MD, PhD, Member at Large
- Eve J. Higginbotham, SM, MD, Member at Large
- Holly J. Humphrey, MD, Member at Large
- Jane Kimball, Membership Administrator and Editorial Assistant
- Debbie Lancaster, Managing Editor, The Pharos, and Chief Technology Officer
- Richard Latuska, MD, Student Director representing Vanderbilt University School of Medicine
- Mark J. Mendelsohn, MD, Councilor Director representing the University of Virginia School of Medicine
- William F. Nichols, CPA, Assistant Treasurer
- Douglas S. Paauw, MD, Member at Large and President
- Suzann Pershing, MD, Coordinator, Residency Initiatives
- Sheryl Pfeil, MD, Member at Large
- Barbara Prince, CPA, Controller
- Alan G. Robinson, MD, Member at Large
- Griffin Rodgers, MD, MBA, Medical Organization Director representing the National Institutes of Health
- Wiley Souba, Jr., MD, DSc, MBA, Member at Large
- Joseph W. Stubbs, MD, Member at Large and Secretary Treasurer
- Laura Tisch, MD, Student Director representing the Medical College of Wisconsin
- John Tooker, MD, MBA, Member at Large and Immediate Past President

Absent was:
- Steven A. Wartman, MD, PhD, Member at Large

Guests attending were:
- Cynthia Arndell, MD, RN, 2015 AΩA Fellow in Leadership
- Jennifer Ellison, CFA, Bingham, Osborn & Scarbororough
- Nathan Goldstein, MD, 2014 AΩA Fellow in Leadership (via teleconference)
Dr. Paauw presented the Executive Director’s Report. He recognized the outgoing and incoming members, new officers, and expressed his appreciation for Dr. Paauw’s service as President. He summarized the national office team and organization, reviewed communication with members, national programs, and dues solicitations and finances. He discussed plans for the transition to new Managing Editor of The Pharos, Dee Martinez, who will succeed Debbie Lancaster after Debbie’s retirement in 2016. The Chapter Handbook will be updated in time for the Councilor Meeting to be held in 2016. He referred to new chapters and potential new chapters, including the plans for a chapter at the University of Connecticut School of Medicine. A discussion followed among the board members regarding election criteria and procedures, and schools that lack AΩΑ chapters.

Dr. Stubbs presented the 2015 financial report, 2016 budget, and the audit of the 2014 financial year. Mr. Nichols explained details about the finances and budget.

Dr. Byyny presented the report on The Pharos, which included an overview of the process of review and publication of manuscripts. There was discussion about the role of clear writing in communication, and the possible use of social media. It was noted that The Pharos is a peer-reviewed journal and its articles are listed in PubMed.

Dr. Pershing presented the report on the residency initiative and the Postgraduate Award. She noted that a major challenge is the lack of engagement once the member becomes a resident. This is due to many factors, including a lack of time, the difficulty of connecting residents with chapters, and the number of residents that can be elected annually at any given chapter.

Dr. Higginbotham and Dr. Byyny presented the report on the Fellow in Leadership Award. They were followed by the reports of the 2014 Fellows on their year’s experiences. The 2014 Fellows presenting were:

- Monica Vela, MD, Associate Dean of Multicultural Affairs at the Pritzker School of Medicine at the University of Chicago, and Associate Vice Chair for Diversity in the Department of Medicine at University of Chicago Medicine
- Lieutenant Colonel Joshua D. Hartzell, MD, Associate Program Director in Internal Medicine, Assistant Chief of GME, and Army Intern Director at Walter Reed National Military Medical Center; Associate Professor of Medicine, Uniformed Services University of the Health Sciences F. Edward Hébert School of Medicine
- Nathan Goldstein, MD, Associate Professor, Gerald J. and Dorothy R. Friedman Chair in Palliative Care and Chief of the Division of Palliative Care at Mount Sinai Beth Israel; Director of Research and Quality, Hertzberg Palliative Care Institute, Brookdale Department of Geriatrics and Palliative Care, Mount Sinai Medical Center

Dr. Paauw presented the report on the Edward D. Harris Professionalism Award. He summarized the reasons for the change in focus of the award in 2015, including the results of the think tank meetings and the publication of the professionalism monograph. Dr. Byyny summarized the results of this year’s program, mentioning the very positive reception for the monograph.

The 2016 budget was approved unanimously.

Dr. Paauw and the board thanked and recognized retiring members Dr. Lynn Cleary and Dr. Christopher Clark.

The 2016 board meeting will be held in Chicago, September 30–October 1, 2016.

Respectfully submitted,
Richard L. Byyny, MD, Executive Director
Alpha Omega Alpha elects new officers and directors

Alpha Omega Alpha Honor Medical Society is pleased to announce the election of its new officers and directors for the 2015/2016 year.

Officers

President—Dr. Robert G. Atnip (AΩA, University of Alabama at Birmingham School of Medicine, 1976) begins his term as President of the Board. He has served on the Board since 2006, first as a Councilor Director and most recently as a Member at Large. Dr. Atnip has been the Councilor at the Eta Pennsylvania Chapter at the Pennsylvania State University Milton S. Hershey Medical Center since 2002 and is Professor of Surgery and Radiology. He is American Board of Surgery certified in surgery, vascular surgery, and surgical critical care. He specializes in vascular surgery, vascular ultrasound, wound care, and hyperbaric medicine.

Immediate Past President—Dr. Douglas S. Paauw (AΩA, University of Michigan, 1983) completed his term as the President of the Board with this year’s meeting. He joined the Board in 2005 as a Councilor Director for the University of Washington. Dr. Paauw has been Councilor at the Alpha Washington Chapter at the University of Washington since 1992. He is Director of Medicine Student Programs, Professor of Medicine, and the Rathmann Family Foundation Endowed Chair in Patient-Centered Clinical Education. Dr. Paauw has received many teaching awards, including the AΩA Robert J. Glaser Distinguished Teacher Award in 2001. Dr. Paauw is also co-chair on the AΩA professionalism committee. His specialty is internal medicine.

President-Elect—Dr. Joseph W. Stubbs (AΩA, Emory University, 1978) joined the Board in 2008 as a Member at Large. From 2011 to 2015 he served as AΩA's Secretary-Treasurer. Dr. Stubbs is in private practice in Albany, Georgia. He is past president of the American College of Physicians (2009–2010), and currently the medical director of South Georgia Accountable Care Organization. His specialty is internal medicine/geriatrics.

Secretary-Treasurer—Dr. Wiley “Chip” Souba (AΩA, University of Texas Medical School at Houston, 1978) joined the Board as a Member at Large in 2013. He is taking over the role of Secretary-Treasurer from Dr. Stubbs. Dr. Souba has most recently served as Vice-President for Health Affairs and Dean of the Geisel School of Medicine at Dartmouth, where he maintains a faculty appointment as Professor in the Department of Surgery. He is nationally known for his innovative approaches to developing leaders and leadership. His specialty is surgical oncology.

Directors

Councilor Director—Dr. Regina Gandour-Edwards (AΩA, University of California, Davis, 1984) is joining the Board as a Councilor Director. She has served as the Councilor for the Eta California Chapter at University of California, Davis since 2011. Dr. Gandour-Edwards began her career as a public health nurse with a BSN from Georgetown University. She received an MS in Nursing from the University of California, San Francisco (UCSF), and a MHS from the University of California, Davis (UC Davis), and taught community nursing at California State University Hayward (now Cal State East Bay). She was a family nurse practitioner, which inspired her to become a physician. She graduated from UC Davis School of Medicine in 1985, and continued at UC Davis for her residency training in Anatomic and Clinical Pathology. She has been a faculty member, educator, and active chapter member since 1990. She is currently the Vice Chair of Education at the UC Davis Department of Pathology and Laboratory Medicine. She is leader of the Cancer Center Biorepository and Clinical Laboratory Director for the Jackson Laboratories. Her specialty is surgical pathology.

Student Director—Second Lieutenant Jeremy Bolin (AΩA, Uniformed Services University, 2015) is joining the Board as a Student Director. Mr. Bolin is beginning his final year at the Uniformed Services University and serves as the President of his chapter. He hopes to match into a general surgery residency program later this year. He served over nine years as an active duty Air Force engineering officer with a background in mechanical engineering. He is married and has a son.
We map the enemy’s location with as much foresight and planning as a general going into battle; but this is a civil war against cells that have become too aggressive and are trying to stage a coup.

There will be a three-phase attack. First by land, with the scalpel leading the charge and swiftly removing the intruders’ command station in one fell swoop with a border of safety around the target.

Next by air, we send invisible radioactive bombs aimed directly at ground zero for a month straight. No reprieve or rest for those combatants who have infiltrated the area.

Finally through the sea of veins, receptor-seeking chemicals find the invading cells even if they have scattered and tried to camouflage themselves in distant locations.

All this conflict will unfortunately not be without collateral damage; however, the means will be justified when, at the end of this five-year war, there is a survivor standing strong.
Pharos Art Director Jim M’Guinness created A Pictorial History of Medical Care for The Pharos in 1973, when it was published as a black and white drawing on the Spring 1973 cover. We recently republished the art in color on the Winter 2015 cover of The Pharos, and we are now offering it in three formats for purchase.

The 18 x 24” print is available on our online store as a poster or giclee art print on fine art acid-free paper.

Poster ~ $15
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Shipping and handling included
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Purchase may also be made using Paypal: jf@mguinness.com

A pictorial history of medical care

By artist Jim M’Guinness

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