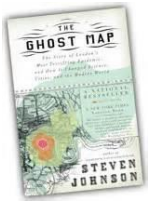


About the Summer Reading Program at the University of Vermont

The Summer Reading Program is a new student's first introduction to the academic life of the university. "The Ghost Map" by Steve Johnson is the 2013 first-year summer reading book selection. The book offers unique insights on issues of social justice throughout the lenses of public health, scientific error, and urban planning. "The Ghost Map" is a medical detective story based on the London cholera epidemic of 1854. It examines the interconnected systems from social to microbial that shape our greatest cities and govern our fates.

The role of the book selection in campus-wide discourse

"The Ghost Map" is already serving as a beacon and a guidepost for discussions across our university, and as a backdrop to intellectual discourse among our faculty, staff, and students. The book is also informing conversations about our academic programs and how we prepare and inspire our students, vision and re-envision our curricula and degree offerings, and even how we posit the University of Vermont as a distinctive and impactful land grant university.



Looking Within, Across, and Beyond: "The Ghost Map" as a Road Map for Students

by D. Rosowsky

Steven Johnson's book "The Ghost Map" was selected this year for reading by all incoming first-year students at the University of Vermont. This was a wonderful selection, for which I congratulate and thank the first-year book selection committee. I enjoyed this book on many levels. It spoke to my interests in the history of science, the role of science in informing policy, disruptive technologies and disruptive thinking, communication and presentation of information, engineering and public health. I also love a great mystery. As I reflected on the book, the messages it contained, and the author's way of telling this remarkable story, it occurred to me that "The Ghost Map" can serve remarkably well as "a road map" for our students during their time at the University of Vermont.

"The Ghost Map"—part detective novel, part history of science, part social theory, and part futurist—beautifully describes the unraveling of the mystery of the deadly cholera outbreaks in London in the mid-1800's. It is also the story of a remarkable time in human history, the foundation of the world's public health systems, the conflict between emerging scientific and prevailing social theories, and even the underpinnings of today's broad-based liberal education models.

You are commencing your university education at another remarkable time in human history, a time when our world and our planet are facing problems of enormous magnitude and unprecedented complexity. These are what the National Academies have called the *Grand Challenges* of our time.

The themes that emerge in the book—the importance of critical and integrative thinking, the nature of complexity and interconnectivity, the nexus between social theory and scientific advancement, and the essential role of making information and knowledge accessible—may be more relevant today than ever before. These ideas should inform your choices—serve as your road map—during your critically important years at UVM.

A Diversity of Experiences: Collect Perspectives

Solutions to the grand challenges will require increasing integration of professions, expertise, viewpoints, and capabilities. It is critically important that you be able to not only communicate effectively, but communicate effectively across disciplines. This means making informed, smart choices about which classes you will take. While some majors may provide less flexibility, all programs of study do allow for some degree of choice.

Make choices that will broaden your perspective. Know that every course at the University of Vermont is carefully designed to facilitate learning along multiple dimensions and each course, no matter how far outside your major, will serve to broaden you as a thinker, foster a deeper understanding and appreciation for others, and prepare you for success as a professional and a citizen in a complex world.

Where will you learn about science, technology, economics, human behavior, human health, languages and cultures, politics, public policy, business, history, statistics, communications, and ethics? Where else but the university are all of these subjects (and many, many more) available to you at no extra charge, with access limited only by how you choose to manage your time and your effort?

As students at the University of Vermont, you have access to scholars across many disciplines. Moreover, you have the opportunity to weave your own tapestry of curriculum and experiences while here. Think about each of these – major(s), minor, co-op or internship, summer jobs, international experiences, graduate study – and think about how *together* they will prepare you for what comes next. These are *your* choices. And they are critically important. You should be very purposeful in your selection of courses and in how you will manage and use your time outside the classroom.

Integrative Thinking: Make Connections

Snow's work, and ultimately his success, was predicated on building bridges between different disciplines and *"using data on one scale of investigation to make predictions about behavior on other scales."* Snow came to realize and fully embraced the value of cause and effect, jumping across disciplines as easily as he crossed the street, using all of his training and social skills to do so. He was a scientist and a sociologist. He was a detective and a neighbor. He was a scholar of his time and a citizen of his place.

"Snow was not interested in individual, isolated phenomena; he was interested in chains and networks, in the movement from scale to scale. His mind tripped happily from molecules to cells to brains to machines..."

In walking us through the work of Snow and Whitehead, as they unraveled the cholera mystery in and around Broad Street, Johnson speaks to the role of envisioning information in discovery, inference, communication, and public health. While our abilities to map data, interpolate and extrapolate, and find statistical and causal relationships all have advanced – and indeed new technologies are making even more possible today (massively parallel computing, immersive environments, remote sensing, and GPS tracking to name just a few) – Johnson reminds us there is something "profoundly enlightening about seeing these patterns of life and death laid out in cartographic form."

"The bird's-eye view remains as essential as it was back in 1854. When the next great epidemic does come, maps will be as crucial as vaccines in our fight against the disease. But then, the scale of the observation will have broadened considerably: from a neighborhood to an entire planet."

Graduates of our nation's great universities will be called upon to solve problems that are grand in scale, critical in importance, and complex in nature. They must be viewed from on high. This will require you to be capable of critical *and* integrative thinking – skills built upon a breadth of coursework and experiential learning – and to be able to demonstrate those skills to employers.

How has your history class informed your engineering class? How has your political science class enriched your business administration degree program? How has writing enabled you to succeed as a student leader? How

has your engagement with a student organization prepared you to lead a team? How have the arts enriched your time as a student at UVM? What great authors have you read and how have they shaped your thinking? How have your problem identification and problem solving skills been honed during your time at UVM? And how have you grown as a student at a great public university?

Critical Thinking: Question Everything

Snow was confounded by society's willingness to cling to the miasma theory of disease despite substantial evidence to the contrary. Why was this so? Johnson answers, *"Some of those forces were ideological in nature, matters of social prejudice and convention. Some revolved around conceptual limitations, failures of imagination and analysis. Some involve the basic wiring of the human brain itself."*

One of my favorite passages (the "clash of three brains") offers an explanation for why our genetic predispositions, forged millions of years ago, result in decisions and actions that defy logic today, or at the very least are suboptimal. This passage describes the clash between our inner brains, separated by epochs, which may help place into context much of human history:

"The trouble is that survival strategies optimized for a hunter-gatherer lifestyle play out differently in a modern city of two million people. (...) When Mayhew describes his repulsion at the smell of hydrogen sulfide on the streets of Bermondsey, you can see in the passage a clash between three distinct epochs somehow struggling to share the same space: an industrial-era city with an Elizabethan-era waste-removal system as perceived by a Pleistocene-era brain."

The author concurs with the environmental scholar Toby Hemenway who wrote: "Virtually any service system – electricity, fuel, food – follows the same brutal mathematics of scale. A dispersed population requires more resources to serve it – and to connect it together – than a concentrated one." He then goes on to suggest the best chance our planet has to survive without destroying the complex balance of our natural ecosystems is to "crowd as many of those humans into metropolitan spaces and return the rest of the planet to Mother Nature." Whether or not you come to agree with this, the realities of urbanization globally and of population shifts in the US toward warmer climates and the coasts, present challenges we will have to address in the coming years, not decades or centuries.

Johnson goes on to make what might be a surprising case that cities (in the developed world) are environmentally responsible communities because their energy footprints are so much smaller than other forms of human settlement.

"City dwellers spend less money heating and cooling their homes; they have fewer children; they recycle their waste more economically; and most important, they consume less energy moving around day to day, thanks to the shorter commutes and mass transit that density enables."

"By the most significant measures, New York is the greenest community in the United States, and one of the greenest in the world," The New Yorker's David Owen writes. (...) "The average Manhattanite consumes gasoline at a rate that the country hasn't matched since the mid-nineteen-twenties (...)"

All of which is to say that we have to be scrupulously disciplined in our thinking – richly informed and evidence-based. We must engage in thoughtful and rigorous discourse and we must be aware that our perspectives, our peers, and indeed our brains have the potential to bias our views. We must be willing to challenge and substantiate notions, ideas and theories.

Closing Thoughts

Snow had a remarkable ability to *integrate* knowledge, *synthesize* new information and make new inferences, and *communicate* findings, ideas, and solutions to a broad audience. Snow's work was not glamorous. It was not quick. It was not easy. To be certain, his was a great mind, but equally important was his unwavering dedication and his dogged determination to solve a problem, to make a difference, to change the world.

As I told our first-year students at Convocation this fall, "This is what the Grand Challenges will require of you: an ability to grasp complexity, think critically, integrate, synthesize, communicate and work very, very hard. Fortunately for you – and for us – you have come to the right place for that."

As Steven Johnson urges in the last line of the book, "let's get on with it."

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