

RECONSIDERATIONS

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INFORMATION OVERLOAD AND THE NEED FOR WISDOM: A MEDICAL PERSPECTIVE

James W. Lynch

In 1999, C. John Sommerville published an insightful book entitled, *How the News Makes Us Dumb* (InterVarsity). In it, he asserts that when print news became corporate and adopted daily publication, information became "news product," a commodity that had to be sold. In order to sustain demand for the daily paper, information was no longer framed with deep thought, but rather with the intention of making the reader buy the next day's paper. Sommerville identifies the chief casualty of this transformation in the book's subtitle: *The Death of Wisdom in an Information Society*. As our culture moves toward an even greater reliance on minute-by-minute updates with things like Twitter and Facebook status updates, Sommerville's conclusion that an overflow of information leads to wisdom's demise should be even more unsettling. Indeed, the trend is not limited to news and social networking; at the same time that I was reading Sommerville's book, I began to notice that a similar increase in information was crippling the development of wisdom among medical students.

Paradoxically, this trend has its beginnings in one of the most significant and medically valuable reforms in the education of physicians. In 1910, Abraham Flexner, a research scholar at the Carnegie Foundation for the Advancement of Teaching, issued his comprehensive report to the public about the state of medical education in the United States and Canada. In it, he criticized the mediocre quality, profit motive, unscientific approach, inadequate facilities, and lax standards and goals for medical students. He advocated emulating the German uni-

versity system, which provided strong training in biomedical sciences and hands-on training in clinical medicine. His vision was to see clinical teaching combined with research arising from questions grounded in direct patient care. The force of his critiques led to unprecedented reforms in our educational system and we are still reaping the fruit of his reforms as well as struggling to promote and protect his ideals almost 100 years later.

In the wake of these reforms, increases in funding for biomedical research have fueled scientific inquiry, which, coupled with the establishment of programs to pay for expensive technologies (Medicare and insurance, for example), has yielded a previously unimaginable array of technically sophisticated strategies to treat and prevent disease. However, the rapidly increasing body of scientific information and knowledge that underlies all these "modern marvels," as well as the instruction in their safe and appropriate use, presents a unique challenge in medical education as wisdom takes a back seat to memorization and standardized testing.

In order to understand and respond to the problems we face, it is helpful to conceptualize the medical learning process within a framework of increasingly complex levels of understanding and application, leading to the ability to expertly and compassionately care for patients. This four-component framework, which consists of information, knowledge, praxis, and wisdom, while developed for *medical* education, holds value for teachers in many, if not all, disciplines. Each level of understanding

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lends itself to different settings, modes, and media for ideal teaching and learning. Therefore, educators who understand their disciplines within this framework can more effectively develop strategies to facilitate learning.

Within this framework, the first level of human understanding is information. Information consists of the facts or rules that one needs to master in order to *enter* the discussion of a topic. As an illustration, consider the problem of trying to learn how to play baseball. Information about the game would include such things as the definition of a strike, ball or foul, the dimensions of the playing field, the size and weight of the ball or bat, and basic strategy. In medical education, information makes up the bulk of the first two years of the traditional curriculum and is often called the “basic sciences.” Courses such as anatomy, biochemistry, physiology, histology, pathology, microbiology, pharmacology, and physical diagnosis are all part of the necessary intellectual substrate for the creation of medical knowledge.

Knowledge, the second component, is distinguished from information in that the learner acquires knowledge when he or she is able to understand the integrated relationships between the various bits of information. As it develops, *knowledge becomes the intellectual matrix students use to predict outcomes in theoretical patient cases and offer suggestions for interventions.* In baseball, knowledge would refer to more sophisticated strategy such as what pitch to throw in specific situations, when to attempt to steal a base, and when to walk a batter or change pitchers. Returning to medical education, if one considers, for example, a cancer of the lymph nodes (lymphoma), a student knows information such as the immunology of normal lymphocytes, that there are such things as oncogenes, a cell cycle, and cytokines that produce an inflammatory reaction. Furthermore, the student may be aware that the diagnosis of a malignancy requires a tissue biopsy, that radiographs are needed for staging, and that treatment requires chemotherapy or radiotherapy. In order for a student to have *knowledge* in our sense of the word, however, they would have to recognize that when a patient is complaining of fevers, night sweats, and a lump in their neck, lymphoma is a likely possibility. They would then integrate the various facts above to conclude that the cytokines from the lymphoma have produced the fevers and night sweats, and they would know to refer the patient to the appropriate specialist for a biopsy and treatment.

The third component of our framework is praxis.

This term is used in neurology and by educators to refer to the complex task of translating ideas into what is done in real life. In the case of baseball, it would involve actually playing the game and learning how to pitch, bat, or play the field. This particular dimension of human understanding frequently requires years of “practice” to master, a term used both in sports and medicine. In the case of lymphoma, the medical student would talk to a real patient and find the lump during a physical exam and know that it is a lymph node. This translational aspect of knowledge requires the incorporation of multiple real-life factors: awareness of the patient’s social circumstances, appropriate communication with the patient and family, and certainty that the patient understands the purpose of the biopsy and the potential treatment options. The surgeon would have to skillfully remove the node, and the pathologist would need to appropriately handle the specimen to produce the correct diagnosis. Finally, the oncologist would explain the disease to the patient and family as well as administer the chemotherapy needed to put the disease in remission.

Wisdom, the final component in our framework, has arguably been the preeminent subject of thoughtful discourse throughout most of human history. Wisdom is often used in medical practice to refer to the sorts of insights that can only be acquired by experience. When I speak of wisdom in education, however, I am referring to the subjects with which philosophers and theologians have grappled for centuries: life’s “big questions.” The answers to these questions allow us to assign moral meaning and purpose to the smaller pieces of our lives. Wisdom governs or makes sense of information, knowledge, and praxis, and hence is the highest form of human understanding. The answers to wisdom questions are at the heart of the formation of what has been called the “moral imagination,” the faculty through which we decide what is right and wrong.

After enjoying centuries of respect in higher education, wisdom has fallen on hard times as the scientific revolution has reshaped the American university. As a result, questions of this kind are largely ignored by undergraduate programs preparing students for medical school. Since I have had the chance to design curricula for medical students at a number of levels, I try to focus their attention on more enduring wisdom questions. Questions of this sort always probe and are informed by one’s worldview and include:

- What is truth and can we know it?

- Is there any such thing as right/wrong and how can we know it?
- Are human beings nothing more than complex biological machines or is there more to our essence?
- Why do codes of professionalism exist and on what are they based?
- Why shouldn't I practice medicine simply for personal gain?
- Is there a spiritual world and if so, can I know about it?
- Am I part of a larger story that gives significance to my life or is the only meaning created by me through my choices?
- What is a healthy human being? Is this fundamentally a mechanical notion of health and if so, how well does the machine need to be working?
- Can a human being dying of cancer still be fundamentally healthy?
- What is a good physician and how can I become one?

Clearly these questions are most relevant to understanding the care of those who are sick and vulnerable, but I would submit that a similar set of questions could be developed for almost any discipline or profession.

As such, within this framework, wisdom is the governing component of all levels of human understanding. Information is about acquisition, knowledge depends upon integration, praxis requires translation, and wisdom involves reflection. In other words, information is integrated into knowledge, which leads to praxis, and the entire process is unified under wisdom.

The challenge of instilling wisdom throughout medical education and practice has been made more difficult as a consequence of the successes of the medical research establishment and the subsequent proliferation of information that is considered to be important in the basic and clinical sciences. Informal estimates suggest that there is at least ten times the volume of information for students to master now than when I entered medical school in 1981, and the volume is increasing each year. Since students start their medical education with about the same initial knowledge base, each new class of students has a larger

mountain of information to acquire within the first two years of medical school. It is also worth noting that over the last decade there has been a growing call for students and residents to work fewer hours and spend less time in the classroom, a move that I applaud. The dark side of this transition, however, is that there is fundamentally *less* time to learn a growing body of data. Admittedly, some of this difference can be overcome by the use of technology, but it remains inevitable that there is a finite rate at which the human mind can assimilate information and integrate the pieces to create knowledge. Our current evaluation system also fuels the problem since both institutions and students are "graded" by their scores on standardized tests, staking future success on the ability to memorize large volumes of information with little or no means to test actual knowledge, wisdom, or praxis. Consequently, even the brightest and most gifted students find that successfully integrating, translating, and understanding the significance of their profession is like being asked to walk on water.

The result is predictable. Students commonly learn the material well enough to answer multiple-choice questions, but they rarely integrate the pieces well enough to create genuine knowledge and forget it quickly after their tests. In addition, since they do not have an intellectual matrix that is sufficiently robust to facilitate making rational clinical decisions at the bedside, they struggle when they begin caring for patients. Finally, few students seriously reflect upon the kinds of wisdom questions I have posed. Even students who would otherwise love to reflect on and discuss wisdom questions find that

this desire gets drowned in the sea of information; it feels like just one more thing to learn in addition to the coursework.

In response to these trends, a great deal is being done to reconnect information, knowledge, and praxis at the University of Florida and other centers by specific instruction in clinical reasoning skills in the classroom, small groups, and at the bedside. The success of such efforts is inherently difficult to measure, but they appear to be making progress based on our best estimates. Unfortunately, the loss of wisdom presents a special problem that is not so easily remedied.

I do not want to suggest that students enter medical school without having thought much about wisdom questions, such as their motives for becoming

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ing a physician. In fact, surveys of matriculating medical school freshmen show that these young physicians tend to endorse a deep commitment to compassion, integrity, and a desire to put the interests of their patients above self-interest. These virtues are at the heart of what educators have referred to as “professionalism,” which has received more attention in the last 15 years than at any time since the original Flexner reforms. But even with this renewed emphasis on professionalism, it appears that as physicians move through their training, these ideals tend to degenerate towards cynicism. Phrased another way, our training of physicians seems to undermine the kinds of values that most of us would want to be motivating our own doctors. The causes of this are complex but include fatigue, a dysfunctional health system, poor role models, and similar trends in our culture at large. In my view, the erosion of *wisdom* as a priority in education and the subsequent loss of the “moral imagination” are at the heart of this trend.

Within the field of medicine, there are several strategies that can help reverse our abandonment of wisdom. First, admissions committees can do a better job of sorting out the reasons why students are pursuing a medical career; committees should commit to selecting applicants who have altruistic motives rooted deeply in who they are as human beings. It is my belief that students holding such convictions have the best chance to endure a broken and painful healthcare system where it seems everything works against the desire to put the patient first. Second, those of us who are practicing academic teachers can strive to be transparent role models, admitting our failures to ourselves as well as to our students, while working together to allow truth and grace to correct and sustain us. Finally, we can attempt to reinforce genuine virtue in young physicians and ask them to replace their naive idealism, not with cynicism, but rather with realistic idealism, helping them create a moral imagination that is strong enough to withstand the realities of modern medical practice.

Beyond providing guidance for medical education, this framework has great practical use for thoughtful Christian reflection and engagement in all areas of life. Let me first observe that nearly everyone in the modern world feels the weight of information overload. The tide of information has overwhelmed most aspects of life and is not limited

to journalism and medical education. We are all struggling to make sense out of the continuous streams of information pouring from every form of media, which range in importance from the trivial (the latest exploits of a celebrity) to the life-altering (a phone call carrying the news of a cancer diagnosis). Knowing the tendency of excessive information to fragment knowledge, praxis, and wisdom should lead each of us to make some intentional adjustments in our daily lives.

The first and most obvious adjustment is to regularly disconnect from information sources to allow time for thoughtful reflection; absent these times of contemplation, wisdom will slowly fade into a distant memory. As a result of these sabbaticals from information, we should begin to see how this framework is useful in almost any setting, from teaching our children how to drive (where clearly both parent and child need wisdom) to learning a new discipline or skill. In each case there will be information to synthesize into knowledge, which will then be applied through praxis. Through wisdom we can then order the information, knowledge, and praxis so as to understand their purpose and meaning within the broader contexts of life. I use this model to think about almost everything I do and teach, both inside and outside the university. Finally, understanding the relationship between these components of understanding will help protect us from merely acquiring “head knowledge” when studying the Scriptures. Seeing the Biblical union of information, knowledge, and praxis should make us more willing to do the hard work of *living* the Scriptures, making us wiser and more deliberate disciples over time.

It is no coincidence that wisdom, the natural home for a Christian understanding of life, is presented as governing or framing all of understanding and practice, as opposed to simply being a subset of knowledge. This framework not only reflects the belief that all truth is God’s truth, but also, for the Christian, clearly places all of life under the lordship of Christ. In this way, the framework presupposes an inherent unity and moral link between knowledge and practice. The necessity for wisdom to find its efficacy in practice is described by James in the New Testament:

Who is wise and understanding among you?
Let him show it by his good life, by deeds

We can attempt to reinforce
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physicians..., helping them
create a moral imagination.

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CAROL FOR ADVENT REFLECTION

This traditional carol first appeared in the early 17th century in England. The entire work consists of twenty-eight verses, following the life of Christ from his birth and ministry to death and resurrection. Here we have reprinted a selection of the verses from an 1852 publication of the carol in The Garland of Good-Will; the original author is unknown.

"The Sinners' Redemption"

All you that are to mirth inclin'd,
Consider well, and bear in mind
What our good God for us hath done,
In sending his beloved Son.

Let all our songs and praises be
Unto his heavenly majesty;
And evermore amongst our mirth,
Remember Christ our Saviour's birth.

The night before that happy tide,
The spotless Virgin and her guide
Were long time seeking up and down,
To find them lodging in the town.

And mark how all things came to pass;
The inns and lodgings so fill'd was,
That they could have no room at all,
But in a silly ox's stall.

This night the Virgin Mary mild,
Was safe deliver'd of a child;
According unto heaven's decree,
Man's sweet salvation for to be.

See how the Lord of heaven and earth,
Shew'd himself lowly in his birth;
A sweet example for mankind
To learn to bear an humble mind.

No costly robes, nor rich attire,
Did Jesus Christ our Lord desire;
No musick, nor sweet harmony,
Till glorious angels from on high,

Did in melodious manner sing
Praises unto our heavenly king;
All honour, glory, might, and power,
Be unto Christ our Saviour.

If choirs of angels did rejoyce,
Well may mankind with heart and voice
Sing praises to the God of heaven,
That unto us a son hath given.

Moreover, let us every one
Call unto mind, and think upon
His righteous life, and how he dy'd,
To have poor sinners justified.

Your Year-End Contribution Will Make Next Year's Program a Reality

As we come to the end of another year, we would like to thank all of you who have been participants and partners with the Christian Study Center. We once again enjoyed a good semester; through speakers, reading groups, and classes, the Christian Study Center continues to be a gathering place for people and ideas.

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GENESIS THREE IN LITERATURE

Richard V. Horner

We include a review essay in each issue of *Reconsiderations* in order to suggest a worthwhile book or two for our readers, and this time I want to offer the books that we have been discussing in our class on "Genesis Three in Literature and Life." The books that we have considered this semester are definitely worth reading not only for the students but for all of us, so allow me to give you at least part of the reading list from this semester's class.

We started with the story of the Fall from Genesis three itself, of course, and after studying it carefully for a few weeks we worked our way outward in a series of concentric circles. First, we looked at the Hebrew Scriptures by considering Ecclesiastes as a meditation on life in a fallen world. Second, we considered the temptations of Christ in the gospel narratives and reflected on the ways that these episodes of intense temptation for Christ are both like and unlike the temptation episode in Genesis three. Third, we looked at Christian authors, particularly John Milton and C. S. Lewis. Finally, we looked briefly at other authors who grapple with these themes including the Romantic poet William Blake, the feminist writer Mary Daly, and the French Existentialist Albert Camus. For now, let me encourage you to have a look at Milton, Blake, and Lewis.

If you have never had occasion to read John Milton's *Paradise Lost* (Penguin Classics, 2003), I want to encourage you to do so. Yes, you will have to hang in there through the sections that rely on Milton's remarkable knowledge of ancient myth and history, but you will be rewarded with many sections that imaginatively explore the spiritual realities that surrounded not only Adam and Eve but all of us.

Give *Paradise Lost* a chance either by reading at least the first four of the twelve books or by purchasing an audiobook edition (several are available at Audible.com). J. Stephen Addcox, the editor of *Reconsiderations*, did this and commented that it was by far his best encounter with Milton. After all, *Paradise Lost* is a poem, and it is meant to be heard. In fact, the original version was spoken rather than written. Milton, who was blind by the time he gave us *Paradise Lost*, dictated it to others who wrote it down. This is yet one more reason why this remarkable book deserves the effort that it takes to read.

One cannot overestimate the importance of *Paradise Lost* in the world of modern Western literature. To this day it continues to challenge its interpreters and generate controversy. In our class we considered two of these responses. First, we looked at the way that the Romantic writers of the late eighteenth and early nineteenth centuries turned the poem on its head. William Blake, for instance, argues that the true hero of Milton's *Paradise Lost* is not the Son of God or Messiah but rather Satan. In Blake's view the vanquished, agonized figure of Satan serves as the far more compelling romantic hero. In *The Marriage of Heaven and Hell* (Dover, 1994), therefore, Blake makes the tempter out to be a hero, and he also "marries" heaven and hell. He turns both into states of mind, and in doing so he makes hell the far more compelling of the two destinations.

With both Milton and Blake in view, we turned our attention to three books by C. S. Lewis. These include his *Preface to Paradise Lost* (Oxford University Press, 1961), *Perelandra* (Scribner, 2003), and *The Great Divorce* (HarperOne, 2001). Though called a "preface," Lewis's *Preface to Paradise Lost* is actually a dense one hundred fifty-page argument about literary criticism, and unless you have a special interest in literary criticism, you might want to skip it and move on to Lewis's fiction. First, spend an evening with *The Great Divorce*, a brief tale about a bus ride from hell to heaven, and then spend several evenings with *Perelandra*, the second of Lewis's space trilogy (and yes, you would do best to start with book one of the trilogy, *Out of the Silent Planet*).

In both of these imaginative tales Lewis works off both Blake and Milton, and you do well to keep them both in view as you read Lewis. As the titles suggest, Lewis writes *The Great Divorce* in order to correct Blake's wrong-headed and dangerous notion of the *Marriage of Heaven and Hell*. Lewis refuses to allow Blake to reduce heaven to a state of mind and makes it clear that heaven and hell cannot be married. Similarly, what Lewis argues in the *Preface to Paradise Lost* he portrays in *Perelandra*. In the *Preface* Lewis points out that Milton's ability to portray Satan magnificently does not make Satan magnificent, and in *Perelandra* Lewis counters Blake once again by portraying Satan not as a magnificent and winsome romantic hero but as a despicable, boring scoundrel with whom no one would actually want to spend time.

While *Perelandra* counters Blake, more importantly, it pays tribute to Milton. *Perelandra* tells the story of a temptation scene much like that portrayed in Genesis

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three, and like Milton, Lewis imagines a larger context and a lot of detail that fills out the story. If you want to get the most out of Lewis's space trilogy, read Milton first. Then you will be able to appreciate Lewis's portrayal of the reality of spiritual warfare, his rehabilitation of Eve, and his portrayal of Ransom as a Raphael-like figure, who represents the love and grace of God but also demonstrates that God uses human means to accomplish his purposes.

The first time I read *Perelandra* I did not care for the way that Lewis presented the spiritual battle that surrounded the temptation. As I re-read the book this semester, however, I found the tale far more compelling—and challenging and inspiring. In this book once again Lewis shows that a redeemed imagination can often help more than analysis when it comes to going deeper into the most important truths about the ways of God and the human condition. At least that is what I think, but read these books yourself, and let me know if you agree.

Richard V. Horner is the Executive Director of the Christian Study Center.

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done in the humility that comes from wisdom...the wisdom that comes from heaven is first of all pure; then peace-loving, considerate, submissive, full of mercy and good fruit, impartial and sincere. Peacemakers who sow in peace raise a harvest of righteousness. (James 3:13-18, NIV)

Because wisdom needs the unity of knowledge and practice, the erosion of this unity by excess information corrupts the way God intended us to think and live. During the Sermon on the Mount, Christ himself explicitly expresses this need for unity when he tells the story about the wise and foolish builders. The foolish builder was not foolish because he had less information and knowledge, but because he chose to build on the sand in spite of the knowledge he was given. A wise builder, therefore, is not in possession of greater knowledge; a wise builder receives the same knowledge as the foolish builder, but the wise person recognizes the wisdom of Jesus' words and trusts him enough to put those words into practice.

James W. Lynch is a Professor of Medicine in the Division of Hematology/Oncology at the University of Florida; he is also the Section Chief in Hematology/Oncology at the VA Medical Center in Gainesville. Dr. Lynch serves as the President of the Christian Study Center's Board of Directors.

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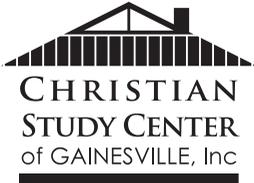
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INSIDE THIS EDITION

Essay: "Information Overload and the Need for Wisdom: A Medical Perspective"
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phone: 352-379-7375
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Dr. Richard V. Horner
Executive Director

J. Stephen Addcox
Editor