

Literature and the Arts in Medical Education

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Feature Editor

Editor's Note: In this column, teachers who are currently using literary and artistic materials as part of their curricula will briefly summarize specific works, delineate their purposes and goals in using these media, describe their audience and teaching strategies, discuss their methods of evaluation, and speculate about the impact of these teaching tools on learners (and teachers).

Submissions should be three to five double-spaced pages with a minimum of references. Send your submissions to me at University of California, Irvine, Department of Family Medicine, 101 City Drive South, Building 200, Room 512, Route 81, Orange, CA 92868-3298. 949-824-3748. Fax: 714-456-7984. jfshapir@uci.edu.

Reductionism Gets a Soul

Vijay Aswani, PhD

Traditionally, biochemistry as a study of life has been linked with reductionism. The question "What is life?"¹ leads to an answer quite in apposition to the answers posed by poets and philosophers. As a teacher of this subject, it comes as something of a surprise to students that a biochemistry instructor should have a feel for poetry. The stark contrast between the mechanistic subject content and the interludes of poetry interjected into the classes provides a welcome relief and surprising refreshment.

It has been my experience that students often feel "burned out" in the class following an exam. I therefore use 15 to 20 minutes of our class time to share a piece of poetry or prose with the class. This provides us a breather from the assault of new material on tired minds and a chance to reflect on exam performance and its repercussions for students' future in the course and in medical school.

The following examples are meant to illustrate how specific poems can and have been used in the classroom to encourage thought, provide encouragement and laughter, and develop sensitivity and empathy in medical students.

I often include into the first class of the course a reading of Robert Frost's "Stopping by Woods on a Snowy Evening." The last lines of this poem, one of my favorite lines of English poetry, are:

The woods are lovely, dark and deep.

But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep.

I have found that one can use the poem to discuss distraction from one's goal or objective and to encourage students to stay focused. I remind students in the medical biochemistry course, one of the earlier courses in the basic sciences, that we have "miles to go before we sleep." I comment that the phrase "But I have promises to keep" may refer to the dreams and promises we may have made to others and ourselves to become doctors. I was pleased when a semester ago, a

graduating student came to me and reminded me of Frost's lines and said how they helped to goad him the extra mile on many a night of studying.

After the first of several class exams, I often read Robert Frost's "The Road Not Taken." Aware that some students are discouraged by a dismal performance in this course that many medical students find challenging, I use this poem to remind them that in choosing a career in medicine, we have chosen to walk a road "less traveled." The poet reflects on what might have been, had he selected a different path. I liken this to the forlorn reflection of many a student wondering if they belong in medicine and whether they have chosen the right path. Such anxious reflection is natural in medical students when faced with disappointing scores on a test. I have found that the poem inspires students to continue knowing that in the end, taking the road less traveled by will make "all the difference."

Our medical school classes are blessed with a great diversity of ethnic backgrounds and races. Consequently, I seek to incorporate readings of poetry from different cul-

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tures, races, and even languages, as far as my ability permits me. An Indian mystic whose couplets are popular even today in the Indian subcontinent seemed a good choice. One of Kabir's famous couplets (Kabir's couplets can be found at www.qnest.com/kabir/dohas/) is reproduced below and my translation follows:

Pothi padh padh kar jag mua,
pandit bhayo na koye
Dhai aakhar prem ke, jo padhe so
pandit hoye

Reading many books does not a
"pundit" make,
Whosoever can read even two and
a half letters of love,
He is the true pundit.

I use this couplet to emphasize that medicine is one subject where the head and the heart must work together. I remind students that while we work at our books to master the many technical facts we need to be competent doctors, we need to keep these studies in the perspective of being healers and alleviators of suffering, pain, and disease.

At the beginning of the semester, I introduce my students to haiku. I mention how haiku was often written when the writer was moved by a scene in nature, such as the change of a season, or nightfall, or sunrise. Comparing their study of biochemistry to observing nature, I encourage them to try their hand at writing a haiku of their own. As a result, throughout the course, I receive student haikus such as this one that often pleasantly surprise me:

Chemistry is life
A universe of knowledge
Living inside us
James Ratliff

Another favorite piece I have used in class comes from John Donne's *Meditation XVII: From Devotions Upon Emergent Occasions*. This meditation upon sickness unto death and the relationship of the sick and dying to the rest of humanity reminds us of the universality of illness, death, and dying in human experience. It also reminds us to empathize with those in this position, because ultimately we share in their fate.

No man is an island, entire of itself; every man is a piece of the continent, a part of the main. If a clod be washed away by the sea, Europe is the less, as well as if a promontory were, as well as if a manor of thy friend's or of thine own were. Any man's death diminishes me, because I am involved in mankind; and therefore never send to know for whom the bell tolls; it tolls for thee.

After reading these lines, many students comment that Donne's *Meditation* has caused them to think about how they too must share in the experiences of others.

On a more cheerful note, students are amused by the poetry of biochemists. After studying oxidative phosphorylation, A. Baird Hastings' *The Heterogenous Man* brings a smile to many a student's face as they enjoy his rapture with the biochemical wonders of ATP generation.

The curious juxtaposition of scientists' (and physicians') trust that God will do the rest with their simultaneous belief that the scientists or physicians themselves must do their best is captured in "The Scientist's Prayer" in *Arrowsmith*, a novel about a fictional physician-scientist by Sinclair Lewis (Sinclair Lewis is available in public domain

from www.gutenberg.net.au/0200131.txt):

God give me unclouded eyes and freedom from haste. God give me a quiet and relentless anger against all pretense and all pretentious work and all work left slack and unfinished. God give me a restlessness whereby I may neither sleep nor accept praise till my observed results equal my calculated results or in pious glee I discover and assault my error. God give me strength not to trust to God!

While teaching the biochemistry of diabetes mellitus and describing the paradoxical starvation of cells for glucose while it is overabundantly present in blood, the lines from *The Rhyme of the Ancient Mariner* by Samuel Taylor Coleridge come to mind:

Water, water, everywhere
But not a drop to drink.

The readings of poetry and prose have often softened the atmosphere of the classroom from one of tension over the volume of information to be mastered to one conducive to learning with a higher purpose. Biochemistry is a molecular subject. It is easy to miss the forest for the trees or to lose sight of the patient in the presence of all these molecules. Poetry can put the soul back into reductionism.

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REFERENCES

1. Schrödinger E. What is life? New York: Cambridge University Press, 1944.