

THE MARGINS OF THE HUMANITIES

The Charles D. LaFollette Lectures, 1977-1984



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THE MARGINS OF KNOWLEDGE

Robert O. Petty
February 24, 1982

Not long after I accepted the honor of the invitation to give this lecture, I was struck by the quaint fact that accepting such honors is really quite delightful; composing a suitable lecture for the occasion is something altogether different. I remembered Samuel Johnson's remark that "The prospect of being hanged in public concentrates the mind wonderfully." And I prayed he was right. In any case, the problem of "the right" lecture is not uncommon. The twist for me is an almost perversely deep and cultivated intellectual schizophrenia which, as a professing scientist, I found especially haunting when presuming to give a distinguished lecture sponsored in the humanities. It is now, too, a memorial lecture for Mr. LaFollette. Would that the lecture were worthy of the man, and worthy too of Mary Johnson's splendid posters.

The ambivalence in my preamble refers to this: That always in the mind there seems to loom the reality of the "two cultures" and the gulf between "science and all those fuzzy subjects that are not science," (alas, a near quote from a recent comprehensive oral). I hesitate to tread off across those old reflections of C. P. Snow in what has become almost a field in itself, or two fields laid out on either side of the yawning abyss. I do not really want to replot Snow's field and risk provoking new yawning. And besides, snow does not plow easily. And mostly the once-

barren field has already been so plowed, disked, and sown by Lord Snow himself, and by Jacob Bronowski and a myriad others. And while as yet, little seems to be growing there, I realize that plowing up seeds to check on viability or sprouting is not the hallmark of botanical wisdom; so I won't, exactly . . . except here and there down some winding Sunday furrow of this lecture. Something of the conflict may churn up, like dark fractured flint of an old arrowhead or, perhaps, even, God forbid, some unexploded bomb. For you see, I do sense and continue to hear evidence that there is still a two-culture dichotomy and, thus, seemingly an inherent, fundamental conflict between science and the humanities or, more specifically, between our need for measuring the tangles as opposed to evaluating the intangibles.

The dilemma, in part, grows then from our real biological need to give intangible meanings to both tangible objects and abstract processes. It is a dilemma certainly older than Lord Snow, or the reckoning of our own century. Part of the fracture in our knowing began at the outset of the 13th century when Leonardo Fibonacci, a Persian merchant of considerable intellect and with all the boldness of Islam, set about teaching Europeans how to calculate — I mean really calculate, using Indic arithmetic, Arabic mathematics, and Sanskrit trigonometry. Since then, we acknowledge that there has arisen in the western world a growing distinction between what is a quantitative versus a qualitative mindset. This distinction clearly potentiates our belief in two cultures, two world views — two habits of mind.

In his fine essay, *Science and the Sense of Self*, historian Lynn White, Jr. has pointed to this 600-year growth of two cultures. White picks up the dilemma once again in the 13th century with an accomplishment of the brilliant French intellectual Nicole Oresme, a physicist. According to White, it was Oresme who invented the graph. This mathematical tool or technique is so taken for granted today that we scarcely wonder at its origin. Having plotted an elegant set of measurements, Oresme, like any good Renaissance thinker, broadened his approach, testing the latitudes of application. He attempted to graph Beauty. He reported that it did not graph well. I would love to have seen that graph. I have a hunch it was a "bell-shaped" curve. Well, in a way, there it ended. Or perhaps I mean, began.

What seemed evident then and does so to this day, is that we do inherit culturally two ways of knowing. In its simplest and perhaps extreme form, it is the difference between what the head knows and what the heart knows. And, perhaps, for a time approaching always (for the human species), there has been this conflict — always the need, as Edith Hamilton described it, wherein "each generation in turn is constrained to try to reconcile the truth the spirit knows with the truth the mind knows, to make the inner world fit into the ever-changing frame of the outer world." And to each generation in turn, the task appears impossible. Two cultures, two ways of knowing: To the extent that we accept this — this existence of two cultures — it follows that the liberally educated person (whatever his field of interest) must live somehow, somewhere in or along the margins of these two cultures. We wander in and out of regions of overlap — a kind of deliberate life in the margin, deliberately inbetween. In a sense, we become an academic, if not a spiritual refugee. Depending on which way we look and from where we have come, a large part of the real news from the universe, which we receive each day, is alien.

Ecologists call margins of transition "ecotones," and the species which live there are said to be "ecotonal." Though not intended, surely the terms have a certain musical ring. And poets might easily see reasons in such margins for a music metaphor. The poetic mind would allow for such play on words and for such meanings to collide. A poetic mind often inhabits the very wreckage of such collisions.

Since I am straying rather dangerously close to a final point I wish to make, let me digress and approach my topic from a wholly different direction.

If there are two cultures and two world views, if scientists and poets somehow inhabit separate worlds, how do they get that way? In no small part, "getting there" comes clearly from our learned habits of language. We set out to learn or possess a particular language or nomenclature. We wind up being possessed by it, or living in it. We come to inhabit a language and, in effect, it constructs frames, windows through which we perceive the world, or our part of it — our frame in space and time. Given enough time, we cannot even imagine another view. It becomes

like the view of our yard or street from the kitchen window. At most, we see it through the seasons—our only dream of change. We all know how this collimation of vision happens academically. We know because of our almost excruciating familiarity with the process, having called it “education.”

Consider, for example: It has been said that the descriptive language of science quite properly should be divested of all “connotative vigor.” In mechanistic science, in our search for causal perception, precision is accomplished by using a descriptive language that is, by design, as neutral and unbiased as possible. This need leads science to a natural affinity for the language of mathematics and the value of numbers. Consider the end of the visible spectrum: the electromagnetic wavelength of 790.3 millimicrons or nanometers does not “rage against the dying of the light.” Yet, poets and scientists alike perceive in color and light waves something common and eternal—the same here as across the universe and to the end of time. But in poetry and art, “connotative vigor” is the very stuff that does matter. For when light or sound is hurled back at us from paintings, symphonies, or poems, a different part of our being is informed.

In the language of science, data provide their own persuasion of “the truth.” In science, truth lives within the margin of standard error and probability. But in other modes of human knowing and communication, truth must emanate from, and find authority in, language—the many expressions of the fine arts and the humanities *are* just such languages, seeking to translate facts, facts that are new or old, but facts vitalized by the vigor of their meaning. Certainly such facts can also be scientific. It comes, then, to the language we use for truth. And that depends upon whatever meaning seems to matter most at any given moment of our lives.

Clearly, the evolutionary strategy of the human species demands *both* languages. They are both imperative to our survival. Neither alone can possibly suffice. As individuals, we *can* be illiterate in either or both, but for the species (*Homo sapiens*), literacy lost in either language would soon become the monologue of extinction.

It is probably not profound to point this out, nor to follow it by suggesting that people seeking education generally must truly

enjoy ideas, and perhaps even more, they must enjoy the words and the language that ideas inhabit. Think for a moment of how we latch onto words. Our penchant for language is our hallmark as a species. We have again essentially the two choices: the language of science or precision, where we can know far more than we can understand, or the language of fine arts and the humanities, where we can understand much more than we may ever know.

For some time now, I have been intrigued by both the particularity and the useful ambiguity of the word “margins.” Everyone who has ever tried to use language in a creative way knows the joy of discovering a special word, a very “right” word, an almost perfect word for throwing at a fast-flying idea or mood. The mind grips such words as the hand might hold a fine tool—the fit, the precision, the heft of it held in the “palm of the mind” like a hunter might fondle a keen-edged knife—tempered steel and a wooden handle, say of burnished tiger maple polished smooth.

There are many anecdotes about well-known writers relating how they came upon a special word. Hart Crane, for example, once wandered all night in the rain repeating the word “spindrift, spindrift,” which he had serendipitously found while looking up some other word. Such a discovery might even be an occasion for a drink or two or three. Dylan Thomas was always finding such words, and they thunder and crash from his poems like breakers over the rocky coast of Wales.

There are exactly right words in science as well—elegant words of precise meaning. Again, their beauty lies, *not* in connotative vigor, but in their rigor of precision. Roll these around in your mouth and mind: adenosine triphosphate, deoxyribonucleic acid, ribosomal endoplasmic reticulum, polymorphic gynodioecious introgressive hybridization. Precise—and in their own way—exquisite.

Language, Biology, and Dylan Thomas. . . . I remember years and years ago, when I was a boy, when there were wolves in Indiana, and creatures unknown, unnamed roamed or flew over the hills and valleys of the Midwest—all that I beheld—all of life seemed to be a grand and imposing invitation. As it happened, I was invited and did attend a liberal arts college. There, like most

freshmen, I listened often half attentively to the hum of academe. There was an important noise about the place—living voices speaking ideas. Now and then it would buzz and crackle with excitement and with life. And I with it. But mostly, it hummed or droned. In a way it was disappointing. I wasn't expecting an anthem or a hymn, but what was this curious chatter or hum of them or a hymn, visiting scholars, poets, speakers of all talk, lectures, seminars, eavesdropping on someone else's conversations? It seemed like I was eavesdropping on someone else's conversations, and to me it was, mostly, all of it, some foreign language—unknown terminology, alien ideas, big words.

I remember one very quick-minded professor with piercing eyes and dancing eyebrows who turned to me suddenly one day in a philosophy class and asked if I agreed with his opinion of Spinoza's concept of God. Later I would conclude that what he had wanted was some explanation of a god of process. For the professor it was no doubt some oldtime philosophy or religion or, you know, "It was good enough for Einstein, and it's good enough for me." All I managed to say was something like, "I sure don't disagree"—having no notion of what he wanted for an answer. It brought a chuckle and eventually, as I recall, through grace, a C at midterm. I was not yet into ideas—at least not of that caliber. I was still struggling with language. In time I would come to see how much they are the same—ideas and language—but that would be later.

"What is that tree?" I once asked an upperclassman who knew everything. He answered loudly enough for the professor to hear ten yards away. "Why, that's Jack Oak, *Quercus ellipsoidalis*; no let's look at that acorn. No, see here, it's *Quercus ellipsoidalis* var. *depressa*. See those little punctate dots around the turbicicle?" It's a hybrid, kid." He opened a book and showed me the name. "Oh, oh yes. Thanks a lot." It was a sincere thanks because I really did want to know. And somehow by knowing I began to own something that no one could ever take away. It is as if by naming we possess, or think we do. It's more complicated than that, I would learn much later. Hundreds of species would follow, but for me, then, as a botanist, it was like looking into Chapman's *Homer*, except it was Charles Deam's *Flora of Indiana*.

Speaking of Chapman's *Homer*, my best friend then was an English major. To him, trees, as he told me, were like very tall

grass you didn't have to mow. He was making his own discoveries. He could recite Swinburne at the least provocation. With the first hint of winter thaw: "The hounds of the spring are on winter's traces / the mother of months in meadow and plain / fills the hollows and windy places / with lips of leaves and ripples of rain. / For winter's rains and ruins are over / and all the seasons of snows and sins / the days dividing lover and lover / the light that loses, the night that wins. / And time remembered is grief forgotten and frosts are slain and flowers begotten / and in green underwood and cover—blossom by blossom the Spring begins!" You see, I heard it many times. He would later move up or on to Gerard Manley Hopkins' "great gray drey horse's bright battering sandals!" But, by heavens, I thought, here was language too! Here was a hint of what words might do, words to which the heart, unfettered and untethered by the critical mind, was compelled to listen.

We went our own ways after graduation (though kept in touch); he further and further (or was it farther and farther?) into grammar and the language of literature, and I into the language of objective reality and mechanism. What we were doing, without knowing it, was building a world out of language. We learn what we are taught—or rather, we learn how we are taught to learn. I was taught a kind of mid-century, now poor man's "strong inference," a not fully understood "scientific method" and a language for it, and a mathematics that mixed numbers with letters and, worse yet, two kinds of letters!

And when all the tree species and the trees themselves were counted, and the diversity indices were decided, and importance values and continuum plots were made—it all had so fine and elegant a look to it. It was calculable, exquisite fact—those graphs seemed to be the very shape of truth. And it was fun. "Doing science," as it has come to be called, is fun to do, indoors or out. It can be very difficult fun. I suppose, in one sense, the real difference between disciplines is how difficult the fun is for any particular person.

I was now approaching the dangerous stage—the point where you have seen your half truth almost fully twice, and arise each day and greet the Universe as if to say, "Are there any questions?" My friend in English, still my friend, was deep into an

analysis of the poem, *Jerusalem*, and was, it seemed to me, dissecting it as though it were some rare unknown exotic flower. He introduced me to the incredible world of William Blake. We argued a lot at that time. He told me I was a victim of too many facts or factoids! Well, knowing a little Keats, I reminded him that poets tend to get their facts wrong—you know, the story how it wasn't Cortez who stood on that peak in Darien gazing eagle-eyed at the Pacific, but somehow "Balboa" just didn't have the same ring to it. Keats had a "good ear," even if history doesn't. My friend told me I was a victim of both logical positivism and naive realism, and that I'd wind up botanizing on my mother's grave. (It took me years to discover that line in Wordsworth.) Naturally, I began to worry. More seriously, I began to wonder. And I'm still at it. But, speaking of a "good ear" and "good words," and "right words" . . . my "word for today" (you perhaps have forgotten) is "margins." At the margin, in the margin, marginal. Think of all it means. The word has a kind of edge to it. For me it has a deep existential truth.

Recently in Division I, we put into language our ideal for a faculty member, recognizing the rich differences and strengths of a diversity of types. Still we said that a prospective tenurable member of the Science Division ought to have, among other attributes, ". . . evidence of a healthy research program, and that this research be at the frontier of one's discipline." "Frontier." Now there's a word for you—full of distance. I think of wind howl, something calling or moaning in the wilderness. In fact, the Division I statement caused a few moans of its own. I thought (but did not say, of course), what if we had said instead, "research at the margins of one's discipline?" Like Balboa, something gets lost. And after all, should we encourage *marginal* scientists or *marginal* research programs? Obviously not, and yet I want to speak of and for margins at the edge of a discipline, as opposed to and distinct from frontiers. By definition, margins can't be at the center of things—of course, neither can frontiers. By definition, too, these are both low density, low frequency regions, and, no doubt, with reason.

I do want to insist that there be a recognition of the difference and a validity of the difference between the frontier of a field or discipline and the margins of that discipline. What do I mean? Simply this: Frontiers are at the edge of the unknown. Those

who work at the frontiers of their disciplines are necessarily preoccupied with what is not yet known in specialized areas and they must be concerned about how to find out. Margins, by contrast, are at the edge of the already known, and, again, what is known poses its own question: After we know, then what? Indeed, after we know it all, then what? The problem for the person at the margin is in coping with many untranslated ambiguities and the potential impacts—the fallout of the already known, where one moves with care as among landmines or UXB's, in otherwise familiar landscape—an *old* frontier or even a home country, an old conquest.

The margins which I mean are where fields join and overlap. And they are a kind of no-man's-land. They are places where the possibility exists for something diverse, or diversely known, to become unified—a place where one may still find that "unexpected universe," as Loren Eiseley called it. If one thinks on the concept of the university, it is apparent that it has long since been replaced by a multiversity of frontiers, quite like Don Quixote who, you recall, jumped to his horse and galloped off in all directions. Even within a single college it can happen. It may well be that most serious attempts to unify diverse knowledge fail, but in so doing, they do become something else than failure. Somehow, it is in the failed union that magic happens. That is what's compelling. And, lest you think we are right now mired in just such a failure, let me be more specific or concrete.

Think for a moment of a particular real margin—for example, the edge of a lake, where land is not yet water, or water, land. The margin of a lake is generally the richest, most productive part of a lake, the most diverse, and in many ways the most interesting. You all know the place—where redwing blackbirds nest in cattails and where dragonflies test the reality of slender bending reeds or the tips of fishing rods; where sunlight dazzles and, from the dragonflies and blackbirds, we, as children, learned some secret of the air. It is where water striders and whirly-gig beetles make us believe without knowing the how—that water (H_2O) is a cohesive bipolar molecule that can create a surface tension—just as its asymmetrical charge makes life possible in mechanistic ways that are fully appreciated perhaps only by those who know well the margin between physics and chemistry and life.

There are so many meanings: There is the margin for error (the margin for variation), the margin of safety. In biology we have all kinds of literal margins — of leaves and wings and cells; fields and forests, streams and lakes. Marginal land — where ecology and economics collide; soils of marginal productivity; and, of course, any marginal business enterprise.

And, finally, there is that wondrous repository of wisdom called marginalia — those often cryptic or profane notes along the borders of a printed page. One I recall especially is an encircled passage and scrawled in the margin: "This fills a much needed gap!" Students were either less literate or more witty back then.

Margins. And all the synonyms alluded to — edges and borders, rims, verges, fringes, and . . . "frontiers."

My chief scientific research interest has been in forest ecology and, more specifically, the differential performance of species at the margins of their geographic range and where conditions are often unpredictable. I have studied how the relationship between species changes at the margins of a given species' range of tolerance. We are only some thirty miles from the western border of the American beech tree. The life strategy of many other species begins to fail in that same interval where the eastern deciduous forest encounters the prairie soils of Illinois.

There are many surprises in the study of the interface between two types of vegetation — a forest becoming a prairie, or even a meadow or old field adjoining a forest. In these so-called ecotones or ecoclines, one or two types of situations or conditions occurs. Either there is an abrupt transition or there is a gradual blending, a continuum. In either case, there is evidence of a tension zone where the performance of species and the ground rules for competition between species are altered. For the species involved (the species under stress), the very shape of nature is changing due to external as well as internal conditions, changes in soil and topography, climate (especially rainfall and evaporation), and the recent history of disturbance — all of these and more.

It is of some interest, scientifically, that there are a few current predictive models, mathematical models, which forecast the

ecological performance of species near the center of that species' range. Mathematically, these are the *modal* populations — the mean, the average tree, under the dome of the bell-shaped curve. The models can predict the performance or behavior of trees growing at the center of a single forest stand. But the same models that predict these modal behaviors invariably fail to predict well both the behavior of tree species surviving at the center and those surviving at the margins of their range. They fail, even though the taxonomic mix of tree species of floristically the same.

What we do know is this: That when a forest is badly disrupted, by say wind or fire, the rates of recovery or repair following catastrophic disturbance depend to a large degree on the proximity of the marginal species population and the uniqueness of their local or regional population genetics. Initially, for example, a plant which some might call a marginal weed, is, for a brief while, the tenant of the ruined field. Thoreau saw all of this intuitively, even coined the word "succession" for the healing process. Richard Wilbur saw it in his poem, *What The Milkweed Says*: "What was I before I learned to yield / Shatter me great wind / I shall possess the field." Slowly, as conditions for each species' optimal growth are altered, better adapted species invade until, in time, a thrifty, highly productive forest returns. We are amazed at the predictive generality of this resilience of nature. Yet, we are still uncertain about what is going on within these individual species — in their unique evolutionary life histories and population genetics. A biotic species fills an ecological niche, but, in a very real sense, the niche must exist before the species that fills it. An empty niche invites a species into being, to invade or evolve. It seems clear, as Alfred North Whitehead told us, that we live in a preferential, invitational universe. Actually, if you want to know some pretty nifty theoretical ecology, read Whitehead and Thoreau. You could do worse.

It was right here that I began to write an even less interesting lecture than this one — all about species distribution and plant population dynamics — stuff that is utterly fascinating to me, but which puts all but a few of the people I know into a kind of polite, but glazed, trance. So let me tell you instead my favorite margin story, and I shall then hasten to let you think of other things in greater comfort.

My favorite margin story is about the South American potato. It takes place in the Andes Mountains of Bolivia, Peru, and Colombia, where the potato evolved and was first selected for use as a crop by the Indians. The ancestral plant species still grows there to this day. These are not what you and I think of when we hear the word potato. The tubers are far smaller than our temperate zone Irish or Idaho potatoes, or the Kennebecs from Maine. But they are also much richer in protein, from three to five times richer. We have agro-engineered the potato into a very large, high weight-yield of watery starch with diminished protein. And still, analysis shows at least traces of all essential amino acids in these potatoes and three kilograms a day of even the poorest potatoes will keep an otherwise healthy human body going. Potatoes are even rich in vitamin C, a fact that is seldom mentioned, except by the medical historians who noted the first symptoms of the European potato famines were outbreaks of scurvy.

But the interesting thing about the Andean potatoes is their great variation in shape and size and color, their obvious genetic heterogeneity or polymorphism — they are odd-looking really — or let's say the governor of Idaho might have problems bragging about them.

The problem with growing potatoes, or any single-species crop in the tropics is the prevalence of disease, disease which can quickly wipe out a monoculture crop, leaving nothing behind but a ruined harvest. Dampness and warmth and the absence of killing frost promote a continual evolution and propagation of disease organisms. The Indians have grown potatoes successfully for centuries. How have they done this?

The answer lies again in the local population genetics of potatoes but also in what the Indians themselves allowed to happen. They allowed the nurture of rich diversity, the nurture of variation, which included genes for disease resistance. It works like this: The genetics of resistance to the evolving pathogenic fungi and wilt-diseases is spread by intermediate hybrids — relatives whose parental plants, in turn, are still growing wild along margins — margins which create a quiltwork, with semi-wild borders, forests around small harvest fields (small diamond-shaped fields having a minimum of erosion). These marginal plants hybridize introgressively with both the crop potato plants and the ancestral varieties growing in damp disease-rich forests. Introgressive hybridization (which is gene flow through back-cross-

ing with parental forms) is continually creating and transferring new genetic combinations for resistance, relaying genes from disease-resistant plants in the forest to the marginal plants, and then on to the crop fields. In this way, rarely can disease take out an entire field. If some tubers rot, others, from rot-resistant strains, get selected for propagation in the temporarily abandoned fields. The Indians obviously harvest and replant only tubers which are constantly and naturally being selected for resistance to the evolving diseases. Yields are low by temperate zone standards of weight. But their costs do not include herbicides. And native potatoes have proven nutritionally adequate for the Indian populations of those regions. Now enters Progress.

In 1961, the Charter of Punte del Este established the "Alliance for Progress" which was a major program of American aid during the Kennedy Administration and later. It was "to bring a better life to all the peoples of the continent." An important part of the agreement for U.S. financial help required the South American governments to introduce new agricultural techniques and thus increase their productivity! More yield — it was essentially solely an economic concept. Our watery potatoes died quickly of tropical diseases. But the real disease, of course, was our own cultural arrogance, tragically coupled to good intentions. And by the time we realized what was wrong, much of the forest margins were cut and plowed. The genetic resources and the fragile soil fertility of the once small marginal fields had been mostly lost, eroded away. By isolating the idea of productivity in our thinking, by separating it, isolating it from any authentic precept or idea of fertility, creativity, or of the organic wholeness of evolution, we single-mindedly laid waste millions of acres of once-useful mountain land, and a whole way of life. Agricultural engineers rarely read Virgil, Homer, or the Odyssey, where such tragedy is foretold.

Well, either we have, at last, learned the lesson of cultural humility, or we haven't. And if we haven't, it is probably too late. There are many reasons at present to believe that we haven't. It goes far beyond potato rot.

Let me end this collage of marginalia with observations on a different kind of margin. And a recollection — one perhaps closest to the arrogant good intentions of this talk. The setting is here, again, at Wabash.

There is an almost inherent danger at a liberal arts college for us to become too fascinated with the margins of knowledge: other people's knowledge, the regions of overlap between disciplines. It is imperative, for example, that a good biology department teach good biology, not some fuzzy hybridized biology wanting to be something else. And as I think and talk about margins, poetry, and language, I become especially nervous about all of this, and I recall Eric Dean recalling Plato's whimsical society: an economy which relied solely on people earning their living by doing each other's laundry. Or, perhaps, "I'll bring a little bio and you bring your specialty, and we'll go for an academic picnic." Actually, that sounds rather nice to me, though perhaps it is pedagogically unsound.

And yet, still the spirit demands that the mind unify its knowledge. So where in our curriculum should we allow this to happen? How do we overtly encourage it? I hear fine things about the Cultures and Traditions course. Perhaps it is the model. Perhaps it is enough. But in what other forms can we invite the unifying of knowledge to occur? Or should we? Surely we all realize that whatever our discipline, it, in isolation, is ultimately destitute of meaning. We know that complete absorption in our discipline can become quite like the man who journeyed so far within himself as never to return. But at what point does straining for a subject's relevance and reciprocities render the subject itself irrelevant? That seems to be the difficulty—the transgression that we fear and need and want to avoid.

But saying that, still it is an old fault of mine to suppose that all courses having to do with the behavior of *Homo sapiens* must be a sub-discipline of biology, which is, after all, the study of life. (As though it alone were!) I'm getting a little better, sort of (although E. O. Wilson and Sociobiology aren't helping much in that regard). Whatever the explanation, I still recall how, with much hope and expectation and perhaps a not so hidden personal need, I have joined others in exploring the margins of knowledge and the implications of shared knowledge. Often our hope may have exceeded, in the strict sense, academic responsibility and challenged the assumption for calling one's subject a *discipline*. I recall a succession of semesters and a succession of students; of teaching Bio-politics with George Lipsky and Tom Cole; of a Bio-religion semester seminar with Eric Dean; of

joining Steve Schmutte in several rounds of Environmental Economics; and, last spring, taking away far more than I brought, participating in Bert Stern's course, which (though probably it defied classification) was called Romanticism Comes of Age.

I am rather certain that none of these courses accomplished all that we instructors had first envisioned. At the margins of knowledge there is much uncertainty and imperfect vision, many promising paths that lead nowhere—quite like a frontier in that respect. Yet, in each of these courses there were exhilarating moments in the discovery of common ground; in sharing the vantage points and perspectives of more than one field of interest; indeed, more than one whole landscape of language; of learning an old truth as though for the first time because it is seen from another angle. Often it was like trying to match up two world views—the way Alfred Wegener once tried to match the edges of drifting continents separated long ago. Where the knowledge seemed to connect and currents of thought made contact, it was at times electric. And, amid all the confusing static, the noise of nonsense, occasionally—often enough to keep promise and faith with our intentions—there was shared light and sound and a kind of music we dared to take for meaning.

I have heard from some of those same daring students over the years. Wabash students are not quick to praise or criticize—well, many aren't. In the language of their letters I think I find a certain extra literacy of knowledge. I take undeserved pride and an often needed solace in the wider latitude of their perspectives, and I take their continued correspondence to suggest that here at Wabash many kinds of meaning are remitted and exchanged.

Both teaching and learning are ultimately tacit activities. What professors profess and what students hear and learn are so often separate and so different. Yet, like it or not, death does whisper and inform our biologies, insisting that life be a relay race of generations. It requires that things, which in themselves are insignificant, are passed, at times rather desperately, from one generation to the next. At the least, it is the transfer of a tool, a skill, a craft; at its grandest and most dangerous because most vulnerable, it is a way of seeing the world—a world that goes over and on, seen from a life that is once and only.