

4. Writing to Learn

I regretted my decision to go back to Gustavus Adolphus College in January when the pilot of my plane announced that the temperature in Minneapolis was twenty-five degrees below zero. We were over Lake Michigan and I didn't see any easy way of turning back. Twenty-five below! I could *die* if my rented car broke down while I was driving across the frozen tundra of Minnesota. I was a city boy from New York; I didn't have any of the survival knowledge that Minnesotans are born with, or any of the special equipment they carry in their cars—Sterno stoves and heavy blankets and dried foods—to keep from perishing along the highway. I would just have to take my chances, and I did, hunched against the unbelievable cold, squinting at the snow-blown landscape through the icy windows of my car and guessing at the whereabouts of the road. When I finally got to Gustavus Adolphus the woman who greeted me said, "I hope you at least had a rope in your car. A few years ago six people died not far from here when a sudden blizzard came up and they got out and couldn't find their way back. You should always have a rope that you can tie to your steering column."

I had of course been ropeless, but that didn't matter now. I had survived, and the Gustavus Adolphus faculty quickly warmed me up. For two days professors from every corner of

the curriculum came and talked to me. Quite a few were men and women I had met on my previous visit. I asked them how they had taught their "W" courses during the fall term and what they had discovered. Their accounts varied in detail, but on one point they all agreed: Far more learning had been achieved by the addition of a writing requirement.

Many teachers included themselves among the learners. Barbara Simpson, professor of psychology, said: "I wanted to teach a 'W' course because I write very badly myself—in high school I was terrorized by writing. One thing I did last term was to ask students to write a paper in the last five minutes of class, summarizing what I had said in my lecture. It helps them to find out whether they understood what I was talking about. Psychology is a deceptively difficult subject: It sounds like material you've known all your life, but actually it's based on extensive research. And the writing has become far more concrete. In the '60s psychology was still a probabilistic science, so it developed a hedging language. You can't get away with that today."

Fuzzy thinking turned up repeatedly as the main enemy. "Students don't know how to be precise," said Norman Walbek, associate professor of political science. "In my first assignment I asked them to write a paper on 'What are the most important goals of United States policy?' It was a values statement—something nobody had ever asked them to write before; usually students are only asked to describe or to analyze: 'Write an essay on the Declaration of Independence.' Well, their papers were a disaster. They rambled all over. They couldn't formulate a goal or a policy except in the most generalized way—'better communications,' 'world peace'—and in almost every case the comment I found myself making was: 'I don't understand this.' As the term went on I tried to get them to use writing to focus their thoughts on specific ideas and issues. I told them I'd be grading their papers for clarity, common sense, logic, plausibility and precision, not for the content of their views. At the end

of the term I gave them the same assignment on goals and policies. This time their papers were clear and explicit. Their problems were in thinking, not in the mechanics of writing."

Professor Clair McRostie, who teaches International Economics and Management, didn't wait to discover this dismal fact; he knew it already. The prospectus that he handed out to his students left them in no doubt about his priorities—it said that their three required papers would be graded for "quality of writing, grammar, spelling, organization and content." His first three lectures, in fact, were devoted entirely to writing and reasoning.

"Back when some of us were concerned about why Johnny can't write," Professor McRostie told me, "a psychologist put it to us that Johnny can't reason, and I've been preoccupied with that thought ever since. The first two books I assigned last term were *The Art of Thinking*, by Vincent Ruggiero, and *Reasoning*, by Michael Scriven. This is a generation that has spent fifteen thousand hours watching television, and its attention span is short. I'm challenging my students to find their powers of reasoning. I tell them, 'If you don't write reasonably and well on your exam I'll give you a lower grade. But I'll also give you extra time if you need it.' At the end of the term, when they were asked to evaluate the course, they said that the writing component had been an important part of their learning."

I liked the audacity of a professor devoting his first three lectures to subjects that weren't the ones he was supposedly there to teach. It was a way of seizing his students' attention with a radical piece of news: Economics and management are important, but they're not as important as clear reasoning and writing; without them, all the economic theory in the world won't take you far. Professor McRostie had me beat as a logic nut, and his credentials were better. I had merely learned by experience that thinking is the foundation of writing. But I had never thought about thinking as a process. How does it work?

Why do some people think straighter than others? What are the factors that prevent us from thinking clearly? Can it be taught? I made a note to buy *The Art of Thinking* when I got back home. I suspected that it would help me to see how so much fuzz gets into the writing machinery and how some of it might be kept out.

"Reading, writing and thinking are all integrated," said Kevin Byrne, associate professor of history. "An idea can have value in itself, but its usefulness diminishes to the extent that you can't articulate it to someone else. What the writing program made *me* realize is that I have to take much more time in class to talk about writing. Teachers have a tremendous tendency to just give writing assignments and let their students sink or swim—which assumes that they've learned to write somewhere else. Very often they haven't. In history we've paid great lip service to the need to write, but we haven't taken the time in our classes to tell students how it's done. We need to rob time from the study of history to do that. It takes a commitment, and I found it very painful because the term is too short anyway to cover all the historical issues I'd like to discuss."

Early in the term Professor Byrne told his students to bring in a historical passage that they considered well written and to explain why. "It forces them to think about the elements that go into good writing," he said, "and it shows them that there are many different kinds of good writing, not just one. I was amazed at what happened when students questioned each other about the *writing* in a historical account. Their ideas became much more focused when the whole class discussed a passage in terms of how it was written."

In all these accounts I heard a pleasant sense of discovery: Writing could get into corners that other teaching tools couldn't reach. But it was a professor of chemistry, Lawrence W. Potts, who took me to the heart of what I had come to find out. During the fall, he said, he had taught a "W" course called "Instrument-

tal Methods of Analysis" for juniors and seniors who hoped to go into chemistry as a profession.

"I've been grading my students' lab reports both for their scientific merit," Professor Potts said, "and for the language in which they tell me what they did, what their results were and how they interpret those results. If they don't write well they lose a full grade. Like all writing, it's an exercise in thinking. The easy way for a chemistry professor to evaluate lab work is just to have students turn in index cards with the numbers they got. But students don't get much out of that—there's an important link they miss.

"I want them to go first to the literature, so they know how the experiment has been done before and what to expect in the lab and how to plan their work. Having to plan their work helps them to write it up as they go along, so that writing becomes woven through the entire class and lab experience. If they fall into a pitfall they can explain how they got there, and that's education. The process also enables *me* to see how their mind worked. By having them describe how they arrived at a result I can comment on it, and they can make use of my comment when they go back to the experiment. There's a feedback that isn't possible when the teacher just grades from numerical answers. Revising helps the students to rethink."

I don't remember whether I cried "Eureka!" when I heard that. Not being Greek, I probably didn't. But I do remember thinking I would probably never get a more concise statement of what writing across the curriculum is all about, or a better illustration of how the act of writing gives the teacher a window into the brain of his student. See Johnny reason! Watch him make a wrong turn! Follow his cogitations as he wonders what to do next!

I thought of all the subjects where the teacher never gets this inside look, where students are graded solely on the basis of a right or a wrong answer. I don't only mean hard sciences, like physics, that deal in numerical answers. The humanities and the

social sciences also rely heavily on tests that measure a student's learning by what he knows, not by how he got to know it: multiple-choice exams and "short-answer questions." Economics, for example, is a discipline that rests finally on numbers and projections and probabilities—"answers," as they might be loosely called. But the future economist should be as accountable as the future chemist for describing the steps that took him to his numerical result, and the economics teacher should be no less eager to read about the trip.

Eagerness to read and correct student writing, however, is not a commodity that grows on trees; it's far easier to just check right and wrong answers. Unfortunately, there's no quick and easy way to teach writing. When I first did it I assumed that a good part of the job could be accomplished by explaining in class the elements that constitute good writing. Surely if I assailed my students with my sacred principles of clarity and simplicity and brevity, if I exhorted them to use active verbs and short words and short sentences, if I pointed out the pitfalls that await the writer of a travel piece or a sports piece or an interview, they would go and do what I had told them to do.

No such transfer takes place. Writing teachers are lucky if 10 percent of what they said in class is remembered and applied. The bad habits are just too habitual. They can be cured only by that most painful of surgical procedures: operating on what the writer has actually written. Only there, where a writer is at his most vulnerable, having put some part of himself on paper, does he make the connection between principle and practice. The operation is almost as hard on the teacher. Like the parent who tells the spanked child that "this hurts me more than it hurts you," the writing teacher wants nothing so much as a paper that's well written—one that won't mire him in endless repairs and emotional debris. I sometimes find myself emitting small moans as I start to read a paper and realize the magnitude of the problems ahead.

Why, then, would anyone in his right mind want to be a

writing teacher? The answer is that writing teachers aren't altogether in their right mind. They are in one of the caring professions, no more sane in the allotment of their time and energy than the social worker or the day care worker or the nurse. Whenever I hear them talk about their work, I feel that few forms of teaching are so sacramental; the writing teacher's ministry is not just to the words but to the person who wrote the words. One of my hopes for writing across the curriculum is that teachers in many fields will discover this transaction. Through the writing of our students we are reminded of their individuality. We are reminded, whatever subject we are charged with teaching, that our ultimate charge is to produce broadly educated men and women with a sense of stewardship for the world they live in.

A funny thing happened on the way to that ideal when the first space satellite was launched by the Soviet Union in 1957. Overnight, Sputnik turned us into a nation obsessed by technology and determined to produce a bumper crop of technicians every year. Pure science has been an American deity ever since. Many science professors say that their discipline is now taught without any reference to its past traditions or to its present or future impact on society.

"I was a Sputnik student," Professor Potts told me. "I graduated from Oberlin in 1967, and the chemistry I was taught was all hard-core science. The only time you talked about values was over coffee. As a result, my generation of chemistry teachers has been afraid to get into the background of the subject because we were never exposed to it ourselves. But now colleges like ours are paying more attention to the history and the ethics of science. We're also trying harder to reach the non-science student. This term, for instance, I'm teaching a course on hazardous wastes called 'Chemical Time Bombs,' and I've asked for a paper summing up the legal and ethical issues of Love Canal. That course wouldn't have been taught ten years ago."

If such values aren't imparted in the classroom they will probably never get imparted; college students who are praised and coddled for acquiring technical knowledge aren't likely to have an onset of ethics when they get out in the world of profit and loss. Yet moral dilemmas have never been woven so bewilderingly through American life. Every day we are assaulted by scientific or biomedical questions that we don't even know how to think about, from toxic wastes and "Star Wars" and nuclear energy to acid rain and gene splicing and surrogate motherhood. Many of them are the legacy of scientists who now admit that they didn't understand how their decisions would affect the quality of life, or life itself. Too many sick chickens have come home to roost. Too many lakes and rivers have died, too many fish and birds, too many people in states like Utah who had the bad luck to live downwind from the scientists. Too many names that we had never heard before—Bhopal, Chernobyl, Three Mile Island—have become instant synonyms for technology gone wrong.

That's why I liked the two trends that Professor Potts mentioned: educating future scientists to be more attuned to the impact of their work, and educating the rest of us to be more scientifically literate. It does us no good to just feel a growing sense of jeopardy over what the scientists are "up to." As citizens we're responsible for what we know and what we don't know.

Where does writing figure in all this? Writing is a tool that enables people in every discipline to wrestle with facts and ideas. It's a physical activity, unlike reading. Writing requires us to operate some kind of mechanism—pencil, pen, typewriter, word processor—for getting our thoughts on paper. It compels us by the repeated effort of language to go after those thoughts and to organize them and present them clearly. It forces us to keep asking, "Am I saying what I want to say?" Very often the answer is "No." It's a useful piece of information.

One of the most striking things I heard at Gustavus Adolphus came from a professor of philosophy, Deane Curtin. He said, "Many of my 'A' papers last term were 'failures.' A great paper in philosophy is often one that tells me why the student couldn't get where he wanted to go. That's progress. It's better than deluding yourself that something was proved that really hadn't been."

I liked the example because I've always believed that failure is one of the great teachers, every bit as instructive as success. It's not, however, a point that Americans want to hear. Winning is the national creed. Forget the pursuit of happiness—is the kid an "achiever"? How we love the student who "tests" high. How we hate the football team that loses. Reading the letters in the *Princeton Alumni Weekly*, year after year, I marvel at how bothered this highly educated segment of the populace is by the fact that their alma mater can't field a winning football team. There is no end of ululation in the letters column.

But failure isn't the end of the world, in football or anywhere else. In writing—and therefore in learning—it's often the beginning of wisdom. The point came up again when a professor of religion, Garrett E. Paul, told me about his course in "Ethics in Business and Economics." Early in the term he assigned his students a paper that would be read aloud in class.

"It gets them to write for their peers and not for the teacher," he told me, "and what they learned was a revelation to them. They learned by the presence or absence of response to what they had written. The good paper raised all the right questions, and on those days the paper would teach the class. The poor paper was instantly noticeable. There wouldn't be much in it to discuss—there'd be no place to start, or it was so unclear that we'd have to go back over it and try to figure out what it was about. It made everybody in the class realize that a piece of writing is a piece of thinking. By the end of the term all the

students said how much better they understood a subject by having to write about it."

Like his colleagues, Professor Paul had found many models of good writing in his discipline. One of his favorite assignments dealt with the issue of morality in advertising. Students were told to read a chapter on the "dependence effect" from John Kenneth Galbraith's *The Affluent Society* and then to read a rebuttal by Friedrich von Hayek, called "The Non-Sequitur of the Dependence Effect." (Both are in an anthology called *Ethical Theory in Business*.) "What I particularly pointed out," Professor Paul said, "was the elegance of von Hayek's argument. It's elegant in the sense of a geometric argument: Everything that needs to be there is there, and the essay has nothing in it that doesn't support the argument. I also emphasized to the students how short von Hayek's answer is. I'm paying much more attention now to the quality of the writing that we discuss in class."

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So my two days at Gustavus Adolphus gave me a glimpse of most of the courses that might be encountered in a liberal education and of the role that writing could play in learning them. Some of the disciplines caught me unaware of how they had changed. A professor of geography, for instance, Robert B. Douglas, said that he now insists on writing as a major component of his classes. "I keep in touch with my recent graduates," he told me, "and they all say that what they really needed in college were writing courses, because they now have jobs in fields like urban planning or retail store location, or in agencies for economic development or rural land use planning, and they have to write a great many reports, which have to be clear."

To give his students due reverence for the mother tongue, Professor Douglas sends them to the books of his literary hero,

J. B. Jackson—books such as *The Necessity of Ruins* and *The Vernacular Landscape*. “Every review of a new book by J. B. Jackson,” he said, “begins by calling attention to the clarity of his language, the brevity of his prose and the beauty of his style. I use him in two ways. I might tell a student, ‘Let’s see what Jackson has to say about the character of small towns in the Midwest, or about the grid plan of city streets.’ Later I get them to critique the writing style itself. *Why* is it so effective?”

Hearing from so many academic provinces, I occasionally wondered: What does the English department think of all this? I got my answer from Claude C. Brew, associate professor of English.

“Writing across the curriculum reinforces what we do,” he said, “and of course it gives writing a much broader base. That’s a healthy direction. In this country the English major has always been defined almost entirely in terms of literature and literary analysis, and therefore English department writing has a strong literary bias. In fact, the teaching of writing has only recently been incorporated in graduate English programs. Our education as English teachers never prepared us to do that.

“I was lucky in coming to Gustavus Adolphus because the college has a tradition that everybody in the English department teaches composition. I taught one course for five years in writing about science, which opened me to criticism from my department colleagues. But I learned something important: I got horribly literary papers from my students, because they thought that’s what an English teacher would want. They wrote things in those papers that they would *never* say. I tried to show them that science has a fine literature of its own. I got them reading the essays of Victor Weisskopf and books like Loren Eiseley’s *The Immense Journey*, Stephen Jay Gould’s *Ever Since Darwin* and Thomas Kuhn’s *The Structure of Scientific Revolutions*.”

I asked Professor Brew what he thought of the “comp/lit”

double grade that many English departments use to distinguish between how a paper is written and what it says.

“I don’t approve of it,” he told me, “because it emphasizes the split. Writing is not divisible.” I was greatly cheered to hear this truth affirmed by a professor of English. Professors of English are by no means unanimously delighted to see “their” subject—writing—parceled out to teachers beyond the tribal walls. *Chemistry* teachers! *Geography* teachers! Many English teachers would rather hold on to the keys. Why, they ask, can’t they correct a chemistry paper for its writing and let the chemistry teacher correct it for its chemistry? The answer, of course, is that an act of writing is an act of thinking—an organic compound, as the chemists would say. There’s little point in having a teacher clean up the messy syntax in a chemistry paper if he can’t also clean up the messy chemistry. The indivisibility of language is what gives writing its authority and its majesty. Lewis Thomas writes eloquently about cell biology because in his bones he is a cell biologist. That he also happens to be a good writer is a bonus.

My last visitors at Gustavus Adolphus were two professors of nursing, Ann Garwick and Marilee Miller. Their appearance at the end of a long parade of academics took me by surprise. I was secure in my knowledge that nurses are primarily technicians and that most of them work in hospitals. What would technicians want with reading or writing or a baccalaureate education?

The two women quickly set me straight. High technology has taken over many nursing tasks in hospitals, they said, and far more nurses are now out in the world of health care, keeping watch on some of our most important frontiers. “The value of a baccalaureate education for nurses today,” said Professor Miller, “is that it helps them to become leaders and decision-makers and advocates. The caring role is critical, and often nurses are the only people in a community who are in a position

to see what's happening to a family when something goes wrong—for instance, when the child of two working parents gets sick—and to find a solution.

"We push our nurses to be agents of change on health issues: everything from seat belts to day care to the right of employees to know about hazardous substances in their work environment. We're trying to make our nurses more socially aware and more politically astute. One course we require them to take is 'American Minorities.' It's a sociology course that helps them to understand how to work with different cultural groups. There's a big Southeast Asian population in Minneapolis, where many of them will be based."

Both professors make their students do extensive reading and writing. "We're pushing them into the literature," Professor Garwick said. "Among other things, we ask them to make a search of the pertinent journals and then to choose one article that particularly interests them and to write an annotated summary of it. Writing helps them to organize their plan of health care. It also expands their thinking and raises further questions that they ought to be asking. It's exciting to work with our students on their successive drafts. A wonderful thing happens when they realize they don't have to write in isolation—that they have a colleague who will go over their work with them—and when a section that had been giving them trouble just falls into place on the next draft."

Listening to the two women, caught up in their enjoyment of what they were teaching, I suddenly thought it was the most natural thing in the world that they had made reading and writing an integral part of their nursing courses. How else will we get the kind of nurses we need to make a difference in a society groping for decent health care? I had known all along that I liked the idea of writing across the curriculum. But nobody had told me how far across the curriculum it could reach.

5. Crotchets and Convictions

The artist Paul Klee once told his students that "art is exactitude winged by intuition." I like that equally as a definition of good writing. One of the things I enjoy about Klee is his willingness to be surprised during the creative process by an antic idea. Paintings that might have been cold because of their exactitude are animated by humor, nonsense and whim. Klee's humanity keeps jumping out of his material; I feel connected not only to the artist but to the man, especially because so much of the nonsense makes sense.

As a writer I'm no less grateful than Klee presumably was for unexpected visitors from the subconscious mind. In this book, memory has already taken me down many roads where I hadn't expected to go. I was startled, for instance, to find that I had forgotten all about the Latin teacher who so influenced me at Deerfield; the name Charles Huntington Smith and the silky white goatree jumped out at me in their full Victorian splendor. Once again I was struck by one of the miracles of the cognitive process—that the act of writing will summon from the buried past exactly what we need exactly when we need it. Memory and intuition and chance associations will always generate a certain percentage of what any writer writes. The remainder is generated by reason.

Therefore, for the purposes of this book, I'll generalize outra-

geously and state that there are two kinds of writing. One is explanatory writing: writing that transmits existing information or ideas. Call it Type A writing. The other is exploratory writing: writing that enables us to discover what we want to say. Call it Type B. They are equally valid and useful.

As a teacher I've concentrated on Type A writing because it's so badly needed. We are a society paralyzed by the inability to convey routine information—the inability of the executive to explain company policy in a memo to the staff, of the employee to explain his new idea in a proposal to the boss, of the bank to explain its “simplified” new bank statement to the customer, of the manufacturer to explain in a consumer manual how its product works, of the health and insurance professions to explain in a brochure how to get reimbursed for being sick, of the educator to explain in a letter how the school is educating our children, of the Internal Revenue Service to explain on its new tax form how to fill it out. Type A writing is what most people need to get through the day, both as writers and as readers. Its sole purpose is to inform; it has no deeper content that the writer will discover in the act of writing.

My advice to Type A writers begins with one word: *Think!* Ask yourself, “What do I want to say?” Then try to say it. Then ask yourself, “Have I said it?” Put yourself in the reader’s mind: Is your sentence absolutely clear to someone who knows nothing about the subject? If not, think about how to make it clear. Then rewrite it. Then think: “What do I need to say next? Will it lead logically out of what I’ve just written? Will it also lead logically toward where I want to go?” If it will, write the sentence. Then ask yourself, “Did it do the job I wanted it to do, with no ambiguity?” If it did, think: “Now what does the reader need to know?” Keep thinking and writing and rewriting. If you force yourself to think clearly you will write clearly. It’s as simple as that. The hard part isn’t the writing; the hard part is the thinking.

Type B writing—exploratory writing—requires no such cogitation, no prior decisions about which road to take; the road will reveal itself. Today many of America’s best writing teachers believe that this is the only kind of writing worth teaching, especially to young children. Unlike Type A writing, which they consider mainly a technical skill, Type B writing is a voyage of discovery into the self. Only by going into uncharted territory, they feel, can a writer find his potential and his voice and his meaning. Meaning, in fact, doesn’t exist until a writer goes looking for it.

I don’t entirely buy that theory because I think both types of writing are necessary for survival and fulfillment. But I like the humanism behind it—the idea that writing is a means of growth and that it should never be without elements of joy and wonder. Nor do I think Type B writers are exempt from the laws of grammar and order. However subconsciously they may stumble on what they want to say, they are finally as obligated as every other writer to make themselves understood. “Free writing” is a search mechanism, not a license to let it all hang out.

Such theorizing, however, is too vague to be useful here. It’s time to get down to fundamentals. What makes good writing good and bad writing bad? Here are some notions that are important to me.

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FICTION AND NONFICTION. This book has nothing to do with fiction. I’m dealing only with nonfiction, or factual writing, by which I mean all the kinds of writing that harness the world we live in and are therefore accountable to the truth. By contrast, the fiction writer—the writer of novels and short stories—is accountable only to his art. His gift is that he can take us into interior worlds where the fact-bound writer can’t go: worlds of imagination, rumination and fantasy. In return we enter into a more forgiving contract with him, allowing him to