WILLIAM ZINSSER

ON WRITING WELL
AN INFORMAL GUIDE TO WRITING NONFICTION

FOURTH EDITION
Revised, Updated and Expanded

HarperPerennial
A Division of HarperCollinsPublishers
The Transaction

About ten years ago a school in Connecticut held "a day devoted to the arts," and I was asked if I would come and talk about writing as a vocation. When I arrived I found that a second speaker had been invited—Dr. Brock (as I'll call him), a surgeon who had recently begun to write and had sold some stories to national magazines. He was going to talk about writing as an avocation. That made us a panel, and we sat down to face a crowd of student newspaper editors, English teachers and parents, all eager to learn the secrets of our glamorous work.

Dr. Brock was dressed in a bright red jacket, looking vaguely bohemian, as authors are supposed to look, and the first question went to him. What was it like to be a writer?

He said it was tremendous fun. Coming home from an arduous day at the hospital, he would go straight to his yellow pad and write his tensions away. The words just flowed. It was easy.

I then said that writing wasn't easy and it wasn't fun. It was hard and lonely, and the words seldom just flowed.

Next Dr. Brock was asked if it was important to rewrite. Absolutely not, he said. "Let it all hang out," and whatever form the sentences take will reflect the writer at his most natural.

I then said that rewriting is the essence of writing. I pointed out that professional writers rewrite their sentences repeatedly.
and then rewrite what they have rewritten. I mentioned that E. B. White and James Thurber rewrote their pieces eight or nine times.

“"What do you do on days when it isn’t going well?” Dr. Brock was asked. He said he just stopped writing and put the work aside for a day when it would go better.

I then said that the professional writer must establish a daily schedule and stick to it. I said that writing is a craft, not an art, and that the man who runs away from his craft because he lacks inspiration is fooling himself. He is also going broke.

“"What if you’re feeling depressed or unhappy?” a student asked. “Won’t that affect your writing?”

Probably it will, Dr. Brock replied. Go fishing. Take a walk. Probably it won’t, I said. If your job is to write every day, you learn to do it like any other job.

A student asked if we found it useful to circulate in the literary world. Dr. Brock said that he was greatly enjoying his new life as a man of letters, and he told several stories of being taken to lunch by his publisher and his agent at chic Manhattan restaurants where writers and editors gather. I said that professional writers are solitary drudges who seldom see other writers.

“Do you put symbolism in your writing?” a student asked me.

“Not if I can help it,” I replied. I have an unbroken record of missing the deeper meaning in any story, play or movie, and as for dance and mime, I have never had even a remote notion of what is being conveyed.

“I love symbols!” Dr. Brock exclaimed, and he described with gusto the joys of weaving them through his work.

So the morning went, and it was a revelation to all of us. At the end Dr. Brock told me he was enormously interested in my answers—it had never occurred to him that writing could be hard. I told him I was just as interested in his answers—it had never occurred to me that writing could be easy. (Maybe I should take up surgery on the side.)

As for the students, anyone might think we left them bewildered. But in fact we probably gave them a broader glimpse of the writing process than if only one of us had talked. For of course there isn’t any “right” way to do such intensely personal work. There are all kinds of writers and all kinds of methods, and any method that helps people to say what they want to say is the right method for them.

Some people write by day, others by night. Some people need silence, others turn on the radio. Some write by hand, some by typewriter or word processor, some by talking into a tape recorder. Some people write their first draft in one long burst and then revise; others can’t write the second paragraph until they have fiddled endlessly with the first.

But all of them are vulnerable and all of them are tense. They are driven by a compulsion to put some part of themselves on paper, and yet they don’t just write what comes naturally. They sit down to commit an act of literature, and the self who emerges on paper is a far stiffer person than the one who sat down. The problem is to find the real man or woman behind all the tension.

For ultimately the product that any writer has to sell is not the subject being written about, but who he or she is. I often find myself reading with interest about a topic I never thought would interest me—some unusual scientific quest, for instance. What holds me is the enthusiasm of the writer for his field. How was he drawn into it? What emotional baggage did he bring along? How did it change his life? It’s not necessary to want to spend a year alone at Walden Pond to become deeply involved with a writer who did.

This is the personal transaction that’s at the heart of good nonfiction writing. Out of it come two of the most important qualities that this book will go in search of: humanity and warmth. Good writing has an aliveness that keeps the reader
reading from one paragraph to the next, and it's not a question of gimmicks to "personalize" the author. It's a question of using the English language in a way that will achieve the greatest strength and the least clutter.

Can such principles be taught? Maybe not. But most of them can be learned.

2

Simplicity

Clutter is the disease of American writing. We are a society strangling in unnecessary words, circular constructions, pompous frills and meaningless jargon.

Who can understand the viscous language of everyday American commerce and enterprise: the business letter, the interoffice memo, the corporation report, the notice from the bank explaining its latest "simplified" statement? What member of an insurance or medical plan can decipher the brochure that describes what the costs and benefits are? What father or mother can put together a child's toy—on Christmas Eve or any other eve—from the instructions on the box? Our national tendency is to inflate and thereby sound important. The airline pilot who announces that he is presently anticipating experiencing considerable precipitation wouldn't dream of saying that it may rain. The sentence is too simple—there must be something wrong with it.

But the secret of good writing is to strip every sentence to its cleanest components. Every word that serves no function, every long word that could be a short word, every adverb that carries the same meaning that's already in the verb, every passive construction that leaves the reader unsure of who is doing what—these are the thousand and one adulterants that weaken the strength of a sentence. And they usually occur, ironically,
Science, Technology and Nature

A basic tenet of journalism is that "the reader knows nothing." As tenets go, it's not too flattering, but a writer of science or technology can never forget it. You just can't assume that your readers know what you assume any boob knows, or that they still remember what was once explained to them. Speaking as one boob, I doubt if I could get into one of those life jackets that hundreds of airline flight attendants have shown me how to get into: something about "simply" putting my arms through the straps, "simply" pulling two toggle knobs sharply downward (or is it sideways?) and "simply" blowing it up—but not too soon. The only step I'm confident I could perform is to blow it up too soon.

Describing how a process works is valuable for two reasons. First, it forces you to make sure you know how it works. Then it forces you to take the reader through the same sequence of ideas and deductions that made the process clear to you. I've found it to be a breakthrough assignment for many students who couldn't disentangle themselves from disorderly thinking. One of them, a bright Yale sophomore still spraying the page with fuzzy generalities at midterm, came to class in a high mood and asked if he could read aloud his paper on how a fire extinguisher works. I was dubious; I was sure we were in for chaos. But his piece moved with simplicity and logic. It clearly explained how three different kinds of fires are attacked by three different kinds of fire extinguishers. I was elated by his overnight change into a writer who had learned to write sequentially, and so was he. By the end of his junior year he had written a how-to book that sold better than any book I had written.

Many other fuzzy students put themselves through the same cure and have written with clarity ever since. For the principle of science writing applies to all nonfiction writing. It's the principle of leading readers who know nothing, step by step, to a grasp of subjects they didn't think they had an aptitude for or
were afraid they were too dumb to understand.

Let me tilt the linear example by ninety degrees and ask you to imagine science writing as an upside-down pyramid. Start at the bottom with the one fact that a reader must know before he can learn any more. The second sentence broadens what was stated first, making the pyramid wider, and the third sentence broadens the second, so that gradually you can move beyond mere fact into significance and speculation—how a new discovery alters what was known, what new avenues of research it might open, where the research might be applied. There’s no limit to how wide the inverted pyramid can become, but the reader will understand the broad implications only if he starts with a narrow fact.

A good example is an article by Harold M. Schmeck, Jr., which ran on page 1 of the New York Times.

WASHINGTON—There was a chimpanzee in California with a talent for playing ticktacktoe. Its trainers were delighted with this evidence of learning, but they were even more impressed by something else. They found they could tell from the animal’s brain whether any particular move would be right or wrong. It depended on the chimpanzee’s state of attention. When the trained animal was properly attentive, he made the right move.

Well, that’s a reasonably interesting fact. But why is it worth page 1 of the Times? Paragraph 2 tells me:

The significant fact was that scientists were able to recognize that state. By elaborate computer analysis of brain wave signals they were learning to distinguish what might be called “states of mind.”

But hadn’t this been possible before?

This was far more ambitious than simply detecting gross states of arousal, drowsiness or sleep. It was a new step toward understanding how the brain works.

How is it a new step?

The chimpanzee and the research team at the University of California at Los Angeles have graduated from the ticktacktoe stage, but the work with brain waves is continuing. It has already revealed some surprising insights to the brain’s behavior during space flight. It shows promise of application to social and domestic problems on earth and even to improvements in human learning.

Good. I could hardly ask for a broader application of the research: space, human problems and the cognitive process. But is it an isolated effort? No indeed.

It is part of the large ferment of modern brain research in progress in laboratories throughout the United States and abroad. Involved are all manner of creatures from men and monkeys to rats and mice, goldfish, flatworms and Japanese quail.

I begin to see the total context. But what is the purpose?

The ultimate goal is to understand the human brain—that incredible three-pound package of tissue that can imagine the farthest reaches of the universe and the ultimate core of the atom but cannot fathom its own functioning. Each research project bites off a little piece of an immense puzzle.

So now I know where the chimp at U.C.L.A. fits into the spectrum of international science. Knowing this, I’m ready to learn more about his particular contribution.
In the case of the chimpanzee being taught to play tick-tack-toe, even the trained eye could see nothing beyond the ordinary in the wavy lines being traced on paper to represent electrical waves from an animal’s brain. But through analysis by computer it was possible to tell which traces showed that the animal was about to make the right move and which preceded a mistake.

An important key was the system of computer analysis developed largely by Dr. John Hanley. The state of mind that always foreshadowed a correct answer was one that might be described as trained attentiveness. Without the computer’s ability to analyze the huge complexities of the recorded brain waves, the “signatures” of such states could not have been detected.

The article goes on for four columns to describe potential uses of the research—measuring causes of domestic tension, for instance, or reducing the rush-hour stress of drivers—and eventually it touches on work being done in many corners of the world and in various pockets of medicine and psychology. But it started with one chimpanzee playing tick-tack-toe.

You can take much of the mystery out of science writing by helping the reader to identify with the scientific work being done. This means, once again, looking for the human element—and if you have to settle for a chimpanzee, at least that’s the next-highest rung on the Darwinian ladder.

One obvious human element is yourself. Use your own experience to connect the reader to some mechanism that also touches his life. In the following article on memory and how it operates, note how the writer, Will Bradbury, gives us at the start a personal handle with which to grab a complex subject:

Even now I see the dark cloud of sand before it hits my eyes, hear my father’s calm voice urging me to cry the sting away, and feel anger and humiliation burn in my chest. More than 30 years have passed since that moment when a playmate, fighting for my toy ambulance, tossed a handful of sand in my face. Yet the look of the sand and ambulance, the sound of my father’s voice and the throb of my bruised feelings all remain sharp and clear today. They are the very first things I can remember, the first bits of visual, verbal and emotional glass imbedded in the mosaic I have come to know as me by what is certainly the brain’s most essential function—memory.

Without this miracle function that enables us to store and recall information, the brain’s crucial systems for waking and sleeping, for expressing how we feel about things and for performing complicated acts could do little more than fumble with sensory inputs of the moment. Nor would man have a real feeling of self, for he would have no gallery of the past to examine, learn from, enjoy and, when necessary, hide away in. Yet after thousands of years of theorizing, of reading and misreading his own behavioral quirks, man is just beginning to have some understanding of the mysterious process that permits him to break and store bits of passing time.

One problem has been to decide what memory is and what things have it. Linseed oil, for example, has a kind of memory. Once exposed to light, even if only briefly, it will change consistency and speed the second time it is exposed. It will “remember” its first encounter with the light. Electronic and fluidic circuits also have memory, of a more sophisticated kind. Built into computers, they are able to store and retrieve extraordinary amounts of information. And the human body has at least four kinds of memory. . . .

That’s a fine lead. Who doesn’t possess some cluster of vivid images that he can recall from an inconceivably early age? The reader is eager to learn how such a feat of storage and retrieval
is accomplished. The example of the linseed oil is just piquant enough to make us wonder what “memory” really is, and then the writer reverted to the human frame of reference, for it is man who has built the computer circuits and who has four kinds of memory himself.

Another method is to weave a scientific story around someone else. This is the continuing appeal of the articles called “Annals of Medicine” that Berton Roueché has long been writing in The New Yorker. They are detective stories, almost always involving a victim—some ordinary person struck by a mystifying ailment—and a gumshoe obsessed with finding the villain. Here’s how one of them begins:

At about 8 o’clock on Monday morning, Sept. 25, 1944, a ragged, aimless old man of 82 collapsed on the sidewalk on Dey Street, near the Hudson Terminal. Innumerable people must have noticed him, but he lay there alone for several minutes, dazed, doubled up with abdominal cramps, and in an agony of retching. Then a policeman came along. Until the policeman bent over the old man he may have supposed that he had just a sick drunk on his hands; wanderers dropped by drink are common in that part of town in the early morning. It was not an opinion that he could have held for long. The old man’s nose, lips, ears and fingers were sky-blue.

By noon, eleven blue men have been admitted to nearby hospitals. But never fear—Dr. Ottavio Pellitteri, field epidemiologist, is quickly on the scene and telephoning Dr. Morris Greenberg at the Bureau of Preventable Diseases. Slowly the two men piece together fragments of evidence that seem to defy medical history until the case is at last nailed down and the villain identified as a type of poisoning so rare that many standard texts on toxicology don’t even mention it.

Roueché’s secret is as old as the art of storytelling. We are in

on a chase and a mystery. But he doesn’t start with the medical history of poisoning, or talk about standard texts on toxicology. He gives us a man—and not only a man but a blue one.

Another way of helping your readers to understand unfamiliar facts is to relate them to sights they are familiar with. Reduce the abstract principle to an image they can visualize. Moshe Safdie, the architect who conceived Habitat, the innovative housing complex at Montreal’s Expo 67, explains in his book Beyond Habitat that man would build better than he does if he took the time to see how nature does the job, since “nature makes form, and form is a by-product of evolution”:

One can study plant and animal life, rock and crystal formations, and discover the reasons for their particular form. The nautilus has evolved so that when its shell grows, its head will not get stuck in the opening. This is known as gnomonic growth; it results in the spiral formation. It is, mathematically, the only way it can grow.

The same is true of achieving strength with a particular material. Look at the wings of a vulture, at its bone formation. A most intricate three-dimensional geometric pattern has evolved, a kind of space frame, with very thin bones that get thicker at the ends. The main survival problem for the vulture is to develop strength in the wing (which is under tremendous bending moment when the bird is flying) without building up weight, as that would limit its mobility. Through evolution the vulture has the most efficient structure one can imagine—a space frame in bone.

“"For each aspect of life there are responses of form,” Safdie writes, noting that the maple and the elm have wide leaves to absorb the maximum amount of sun for survival in a temperate climate, whereas the olive tree has a leaf that rotates because it must preserve moisture and can’t absorb heat, and the cactus
turns itself perpendicular to light. We may not know anything about botany, but we can all picture a maple leaf and a cactus plant. With every hard principle Safdie gives us a simple illustration:

Economy and survival are the two key words in nature. Examined out of context, the neck of the giraffe seems uneconomically long, but it is economical in view of the fact that most of the giraffe’s food is high on the tree. Beauty as we understand it, and as we admire it in nature, is never arbitrary.

Or take this article about bats, by Diane Ackerman. Most of us know only three facts about bats: they’re mammals, we don’t like them, and they’ve got some kind of radar that enables them to fly at night without bumping into other things. Obviously anyone writing about bats must soon get around to explaining how that mechanism of “echo-location” works. In the following passage Ackerman gives us details so precise—and so easy to relate to what we know—that the process becomes a pleasure to read about:

It’s not hard to understand echo-location if you picture bats as calling or whistling to their prey with high-frequency sounds. Most of us can’t hear these. At our youngest and keenest of ear, we might detect sounds of twenty thousand vibrations a second, but bats can vocalize at up to two hundred thousand. They do it not in a steady stream but at intervals—twenty or thirty times a second. A bat listens for the sounds to return to it, and when the echoes start coming faster and louder it knows that the insect it’s stalking has flown nearer. By judging the time between echoes, a bat can tell how fast the prey is moving and in which direction. Some bats are sensitive enough to register a beetle walking on sand,

and some can detect the movement of a moth flexing its wings as it sits on a leaf.

That’s my idea of sensitive; I couldn’t ask a writer to give me two more wonderful examples. But there’s more to my admiration than gratitude. I also wonder: How many other examples of bat sensitivity did she collect—dozens? hundreds?—to be able to choose those two? Always start with too much material. Then give your reader just enough.

As the bat closes in, it may shout faster, to pinpoint its prey. And there’s a qualitative difference between a steady, solid echo bouncing off a brick wall and the light, fluid echo from a swaying flower. By shouting at the world and listening to the echoes, bats can compose a picture of their landscape and the objects in it which includes texture, density, motion, distance, size and probably other features, too. Most bats really belt it out; we just don’t hear them. This is an eerie thought when one stands in a silent grove filled with bats. They spend their whole lives yelling. They yell at their loved ones, they yell at their enemies, they yell at their dinner, they yell at the big, bustling world. Some yell faster, some slower, some louder, some softer. Long-eared bats don’t need to yell; they can hear their echoes perfectly well if they whisper.

Another way of making science accessible is to write like a person and not like a scientist. It’s the same old question of warmth, of being yourself. Just because you’re dealing with a scholarly discipline that’s usually reported in a style of dry pedantry is no reason why you shouldn’t write in good fresh English. Loren Eiseley is an example of a naturalist who refused to be cowed by nature as he passed on to us—in The Immense Journey—not only his knowledge but his enthusiasms:
I have long been an admirer of the octopus. The cephalopods are very old, and they have slipped, protean, through many shapes. They are the wisest of the mollusks, and I have always felt it to be just as well for us that they never came ashore, but—there are other things that have.

There is no need to be frightened. It is true that some of the creatures are odd, but I find the situation rather heartening than otherwise. It gives one a feeling of confidence to see nature still busy with experiments, still dynamic, and not through or satisfied because a Devonian fish managed to end as a two-legged character with a straw hat. There are other things brewing and growing in the oceanic vat. It pays to know this. It pays to know there is just as much future as past.

The only thing that doesn't pay is to be sure of man's own part in it.

Eiseley's gift to us is that he enables us to feel what it's like to be a scientist. The central transaction in his writing is the naturalist's love affair with nature, just as in Lewis Thomas's writing it's the cell biologist's love of the cell. "Watching television," Dr. Thomas writes in *The Lives of a Cell*, "you'd think we lived at bay, in total jeopardy, surrounded on all sides by human-seeking germs, shielded against infection and death only by a chemical technology that enables us to keep killing them off. We explode clouds of aerosol, mixed for good luck with deodorants, into our noses, mouths, underarms, privileged crannies—even into the intimate insides of our telephones." But even at our most paranoid, Dr. Thomas says, "we have always been a relatively minor interest of the vast microbial world":

I can think of a few microorganisms, possibly the tubercle bacillus, the syphilis spirochete, the malarial parasite and a few others, that have a selective advantage in their ability to infect human beings, but there is nothing to be gained, in an evolutionary sense, by the capacity to cause illness or death. Pathogenicity may be something of a disadvantage for most microbes, carrying lethal risks more frightening to them than to us. The man who catches a meningococcus is in considerably less danger for his life, even without chemotherapy, than meningococci with the bad luck to catch a man.

At the opposite pole of magnitude from bacteria and bats are disciplines so big, like astronomy, or so old, like geology, that they frighten writers away. Yet they are part of the world we live in, and a good science writer can find a way to scale them down to human size. One such writer, Dava Sobel, explaining the various geological situations that produce waterfalls, reminds us along the way that "waterfalls are often named for their shapes and colors (Horseshoe, Rainbow, Silver Apron, plus many Ribbons and Bridal Veils)" and that their names also "commemorate everyone from Winston Churchill to Sitting Bull." But her purpose is to instruct, not, like most waterfall watchers, to rhapsodize:

Technically, a waterfall is a stream descending precipitously over an exaggerated steepening of its bed... Some waterfalls—like those in Hawaii, Iceland and East Africa—are the result of volcano-associated faulting. Other kinds of waterfalls flow over rapidly receding sea cliffs, down fault scarps and even into the box canyons of the badlands during torrential rains.

The down-sloping boundary between the Piedmont Upland and the Atlantic Coastal Plain of the eastern United States turns every crossing river into a waterfall. This Fall Line is a vein of power that runs through Trenton, Philadelphia, Wilmington, Baltimore, Washington, Richmond, Petersburg and Columbia. "For cities built along the Fall Line,"
writes Edward S. Deevey, Jr., of the University of Florida, "geology has been destiny." At a waterfall, ships going upriver had to stop; inns, portages, depots and warehouses sprang up. At a waterfall, mills for grist and textiles tapped the cheap muscle of the river.

I've quoted from so many writers, writing about so many facets of the physical world, to show that they all come across first as people—men and women finding a common thread of humanity between themselves and their specialty and their readers. They aren't afraid of their task; on the contrary, they seem to be relaxed and having a good time. They all write clearly and without pretense, using the vocabulary of everyday life and seldom taking refuge in the jargon of their field. If Lewis Thomas uses "pathogenicity" it's because the word fits what he wants to say as tightly as a glove, and he trusts us to be intellectually curious enough to look it up (as I just did) and to find that it means "the production or development of a disease." He's not putting on airs or being deliberately obscure.

You can achieve the same rapport with your subject. Though I've used science as a demonstration model in this chapter, the principle applies to every field where the reader must be led across new and bewildering terrain. In the life sciences alone, think of all the issues—drugs, AIDS, abortion, health delivery, care of the old, toxic waste, pollution, global warming, gene splicing, surrogate motherhood—where biology and chemistry are tangled with ethics, religion, politics and economics. Only through clear writing can the rest of us make educated choices in these urgent areas where we have little or no education.

Finally, somewhere between the hard and soft sciences is the one that most Americans find scariest of all—mathematics—and I'll close with that, partly because it's a subject that might seem too abstract to lend itself to warm writing. But mainly I like this passage by S. M. Ulam, from his likable Adventures of a Mathematician, because he doesn't just tell me what he thinks about his subject. He tells me how he thinks about it.

The world of mathematics is a creation of the brain and can be visualized without external help. Mathematicians are able to work on their subject without any of the equipment or props needed by other scientists.... This may explain why so many mathematicians appear turned inward or preoccupied while performing other activities.

Ever since I started learning mathematics I would say that I have spent—regardless of any other activity—on the average of two to three hours a day thinking and two to three hours reading or conversing about mathematics. Sometimes when I was twenty-three I would think about the same problem with incredible intensity for several hours without using paper or pencil. By the way, this is infinitely more strenuous than making calculations with symbols to look at and manipulate.

I always preferred to try to imagine new possibilities rather than merely to follow specific lines of reasoning or make concrete calculations. Some mathematicians have this trait to a greater extent than others.... Paul Erdős concentrates all the time, but usually on lines which are already begun or which are connected to what he was thinking about earlier. He doesn't wipe his inmemory clean like a tape recorder to start something new.

Banach used to say, "Hope is the mother of fools," a Polish proverb. Nevertheless, it is good to be hopeful and to believe that with luck one will succeed. If one insists only on complete solutions to problems, this is less rewarding than repeated tries which result in partial answers or at least in some experience. It is analogous to exploring an unknown country where one does not immediately have to reach the end of the
trail or all the summits to discover new realms.

It is most important in creative science not to give up. If you are an optimist you will be willing to "try" more than if you are a pessimist. It is the same in games like chess. A really good chess player tends to believe (sometimes mistakenly) that he holds a better position than his opponent. This, of course, helps to keep the game moving and does not increase the fatigue that self-doubt engenders. Physical and mental stamina are of crucial importance in chess and also in creative scientific work.

16

Business Writing

Although this is a book about writing, it's not meant just for "writers." Its points are valid for all the people who have to do some writing just to get along in their job. The interoffice memo, the business letter and the marketing analysis are forms of writing, and many a career rises or falls on the ability or inability of an employee to state an idea or a set of facts clearly and concisely.

Most people work for institutions—businesses and banks, insurance firms and law firms, government agencies, school systems, nonprofit organizations and various other entities. Many of them are executives whose writing goes out to the public: the corporation president addressing the stockholders, the bank manager explaining a change in procedure, the school principal writing a newsletter to parents. Whoever they are, they are so fearful and so uncomfortable with words that their sentences lack all humanity—and so do their institutions. It's hard to imagine that these are real places where real men and women come to work every morning.

But just because people work for an institution they don't have to write like one. Institutions can be warmed up. Administrators and managers can be turned into human beings. Information can be imparted clearly and without pomposity. It's a question of remembering that readers identify with people, not