



HarperCollins e-books



How to Write

Richard Rhodes

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Advice and Reflections

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‘WORDS LIKE A LIFE ROPE’

If you want to write, you can. Fear stops most people from writing, not lack of talent, whatever that is. Who am I? What right have I to speak? Who will listen to me if I do? You’re a human being, with a unique story to tell, and you have every right. If you speak with passion, many of us will listen. We need stories to live, all of us. We live by story. Yours enlarges the circle.

There are more ways to tell a story than there are stories to tell; a story is a map, and maps always simplify. You write a story whenever you put words on paper—even filling in a license form. A love letter or a business letter, a novel or a narrative, a short story or a news story, a screenplay, a song lyric, a family or scholarly history, a legal brief, a technical manual, a biography or an autobiography, a personal journal, a scientific paper, a photo caption, an essay, a poem, a sermon, advertising copy, schoolwork—all these and many others are forms of story you may wish to write.

The challenge is to get from where you are to where you want to be. That probably won’t be easy or quick. Writing is work, hard work, and its rewards are personal more than financial, which means most people have to do it after hours. But if writing is work, learning to write isn’t necessarily painful. To the contrary, silence is pain that writing relieves. Our uniqueness isolates us. Writing, we make our way out of our isolation onto the commons that we share. It’s an emotional experience. You stumble gibbering into the valley of the shadow; you pull yourself hand over hand to ecstatic heights. Beyond those terrific passages gathers the community of readers, an open, world community of people—men, women, and children—who want and need to hear.

Writing is only one kind of making. Loving, raising children, doing the work that buys our groceries, are kinds of making as well. But because writing is structured from a common code, it’s more durable than the private events that fill our lives. Books know no hierarchy and abolish space and time. We read Montaigne and know what it was like to be Montaigne, four hundred years ago, and may at least hope that someone will read us and know us four hundred years hence. Only temples and pyramids enjoy such permanence as writing enjoys. Human memory is the only certain immortality; books are memory’s hard copy. Presidents and royals may read your work, your great-grandchildren, devoted fans in Red Rock, Arizona, or Timbuktu. The *Iliad* has been sung for three thousand years.

Writers are people who write. If you need a place to begin, begin there. Years ago, I came off active duty in the United States Air Force with a pregnant wife and one hundred dollars to my name. I was living in Kansas City at the time and found work at Hallmark Cards, writing the daily employee newspaper. A poet who made his living teaching English told me scornfully that such writing was drivel and I'd be better off driving a cab. But five mornings a week by 10 A.M. I had to fill two sides of an 8½-by-11 sheet of paper with news—of promotions and retirements, of corporate doings, of births and marriages and deaths. The forms of the stories I wrote were highly stylized, the contents carefully censored, but every morning by 10 A.M. I had to get the Spain to the front line. At Yale I had chosen not to take the only creative writing course the university offered, which was called Daily Themes and which required a page of original writing delivered to the instructor's door every morning, five days a week. Now Hallmark was paying me to double that production. (The poet would say there's no comparison. He'd be wrong. Every form you learn to write, no matter how mundane, is another tool in your kit.) I worked in the Hallmark public relations department for a man named Conrad Knickerbocker, the public relations manager, who had already begun publishing book reviews and fiction. After I got to know Knick a little, I asked him timidly how you become a writer. He said more pungently what I wrote at the beginning of this paragraph. He said, "Rhodes, you apply ass to chair." I call that solid-gold advice the Knickerbocker Rule.

But I was afraid, as you may be afraid. Who was I? What right had I to speak? My fear manifested itself as creative paralysis. In those days I was trying to write fiction. I could write the Hallmark employee newspaper, the sales bulletin, the employee magazine, and product press releases day in, day out almost without faltering, but if I began a short story or worked on a novel in the evening at home I drifted into trance states and couldn't push through, couldn't continue and finish. I had writer's block before I became a writer. Nor was the quality of what I was writing even close to what I wanted it to be. I wrote Joycean or Faulknerian pastiches; when I tried to write in my own voice I overworked my sentences to the point of affectation. I was three hands clapping. I was too tight.

My immediate personal problem was post-traumatic stress disorder left over from a time of childhood abuse. You may not suffer from such a condition, but many people who want to write have difficulties getting started similar to mine. I know because I notice their response in the audience when I lecture about writing and mention fear: they look relieved. Most of us were punished for telling stories when we were children, which inhibited verbal invention with a flinch of shame. We learned in school that the rules of language are rigid and the standards of literature insurmountably high. So we storied away effortlessly among ourselves but went blank when the teacher asked us to open our notebooks and write. Unless you're a paragon of self-confidence, such conditioning has its effect on you. Nor does society encourage the buoyant hypnotic state where the creative imagination floats. I was a little worse. I was afraid that if I let out my rage I would somehow destroy the world.

Writing was the answer for me. Somewhere within me I seem to have known that. If you want to write, you may feel that writing is the answer for you as well. I find at least partial explanation for the sense of calling in the literature of suffering. The suffering such works report is extreme and the power of narrative therapeutic, as I will illustrate, but even at everyday levels of experience or up along the curve at the other extreme of celebration, the process of writing is always a healing process because the function of creation is always, *always*, the alleviation of pain—the writer's, first of all, and then the pain of those who read what she has written. Imagination is compassionate. Writing is a

form of making, and making humanizes the world.¹

Thus, in his extraordinary book, *Achilles in Vietnam*, about treating Vietnam veterans for combat post-traumatic stress disorder, the physician Jonathan Shay reports that narrative heals:

Severe trauma explodes the cohesion of consciousness. When a survivor creates fully realized narrative that brings together the shattered knowledge of what happened, the emotions that were aroused by the meaning of the events, and the bodily sensations that the physical events created, the survivor pieces back together the fragmentation of consciousness that trauma has caused. Such narrative often results in the remission of some symptoms.... Narrative enables the survivor to rebuild the ruins of character.²

The concentration camp survivor and psychotherapist Viktor Frankl, in a book I cherish, *Man's Search for Meaning*, quotes Spinoza to wider and more general effect: "Emotion, which is suffering, ceases to be suffering as soon as we form a clear and precise picture of it."³ Spinoza's "clear and precise" picture was rational, but Frankl has something more phenomenal in mind: the discovery of a meaning that gives us reason to want to live even in extremity. He quotes Nietzsche: "He who has a *why* to live for can bear with almost any *how*."⁴ That tragic and courageous insight saved Frankl from despair at Auschwitz and Dachau, as he describes in his book. He applies Nietzsche's aphorism concretely, and his application sounds like Jonathan Shay's "narrative":

It is impossible to define the meaning of life in a general way. Questions about the meaning of life can never be answered by sweeping statements. "Life" does not mean something vague, but something very real and concrete, just as life's tasks are also very real and concrete. They form man's destiny, which is different and unique for each individual. No man and no destiny can be compared with any other man or any other destiny. No situation repeats itself, and each situation calls for a different response.⁵

Why resides in *how*, and *how* is highly specific. "Life," Frankl sums up, "ultimately means taking the responsibility to find the right answer to its problems and to fulfill the tasks which it constantly sets for each individual." Life is action, that is, not abstraction. All these statements apply to writing as well—not surprising, since writing is a simulation of life. (Which is why good writing doesn't spell out morals; life doesn't either.)

One more version of writing as alleviation. The journalist Roger Rosenblatt, thrown together in Nairobi in 1994 with a group of colleagues preparing to report on the slaughter that year in Rwanda, found himself analyzing how he and they dealt with the recurring inhumanity they saw. He identifies three stages of response: shock and revulsion and "a twinge of guilty excitement"; then bitterness and spite and hatred of "the people on whom they report"; then a third stage, during which they no longer believed that their reporting would improve the situation but found "something mysteriously redeeming in the telling." Rosenblatt mentions a Norwegian colleague named Gunnar Kopperud who felt himself breaking down at a Mauritanian refugee camp. How did you pull yourself out? Rosenblatt asked Kopperud. "I started taking notes," the Norwegian told him. "That small ordinary act gave me

purpose. If those people didn't have a future, well, I did. I wrote, and I used the words like a life rope."⁶ He who has a *why* to live for can bear with almost any *how*.

I broke through to serious writing, by which I mean writing that knew and felt and sensed, only after I began a long course of psychotherapy in my thirty-second year. Shay found similarly that victims of combat post-traumatic stress disorder had to establish their "safety, sobriety; and self-care as an essential precondition of healing."⁷ I was anorexic and emotionally numbed; six months into therapy, with a strong positive transference established, I stopped fainting at suicide, started eating, and started writing. I wrote about the killing of coyotes and cocks for sport in rural Kansas, a violence that seemed to match my own. That first work of essay was one of my best. *Esquire* bought it and published it with stunning photographs by Art Kane of fighting cocks brandishing steel malevolent spurs.

But of course "Death All Day in Kansas" wasn't an immaculate conception. I'd written for years (including the Hallmark *Noon News* years) before I wrote it, or I couldn't have taken advantage of the emotional breakthrough.⁸ I'd practiced every way I could, however journeywork the results. And before I began writing and while I was practicing I studied writing, consciously and unconsciously, just as you almost certainly have done. I studied writing by reading. I'd been reading, ardently and even compulsively, since I was four.

Reading is the one necessary prerequisite for writing. Every published writer of books I know grew up reading. It's obvious that entertainers like Liza Minnelli, who were born into show business, have an advantage over entertainers who try to break in as adults. It's a rare theoretical physicist whose father and/or mother wasn't an academic, positioning the physicist well up the ladder of abstract thought. Successful farmers, believe me, are almost always born to the trade. Any complicated human activity benefits from childhood apprenticeship; the sooner you begin, the more you're likely to learn and practice and therefore the better you're likely to be. If the preferred form of expressive discourse among young people today is the screenplay, that's probably because young people today grow up watching movies and television more than reading. Not many years ago the preferred form was poetry. When I was in college, in the 1950s, the preferred form was the short story. I grew up on books, so it was always books I wanted to write, not short stories or poems or screenplays, though I've tried my hand at all three to see how they work. All the craft of books is found in books. Not the life—the craft.

If you're a serious and dedicated reader, then, you already know part of how to write. You know the forms and conventions of writing and how others have used those forms and conventions to shape their work. (If you haven't been a reader, I'd suggest you become one fast if you want to write.) What you may not know is how to begin and continue and finish, and how to publish when you're done. This book can help.

Which brings me back to fear. The fear that grips someone who wants to write is usually not undifferentiated and monolithic but a composite of smaller fears. With time and thought, some can be resolved; others can be shooed back under their rocks or even coaxed into harness and put to work. Stephen LaBerge, a scientist who studies sleep, told me once about a successful encounter with a nightmare. LaBerge teaches and studies lucid dreaming, a state of sleep during which one wakes up,

to speak, within one's dream and takes control as actively as a film director controls the making of a film. ~~Dreaming one night that a monster was chasing him, LaBerge went lucid, turned around, and hugged the monster, which immediately ceased to threaten him. His dream experience left LaBerge feeling blissful. "The monster was my own invention, after all," he told me, "part of my personality. In the dream I acknowledged it and accepted it. That kind of reintegration ought to feel good."~~

I was afraid that my rage would destroy the world. The time came when I had a contract to write a novel, my first work of fiction and my second book (later I'll explain how I got there). Not surprisingly, I had proposed a historical novel about the Donner Party, those mid-western pioneers who went west to California in 1846 but were trapped in the Sierra Nevada by early snow and survived by eating their dead. Apparently the subject matter wasn't sufficiently grisly to placate the rage I felt at having been beaten, starved, and tortured when I was a child. Before I could write the Donner Party novel, I disgorged another fiction, a one-hundred-forty-page novella I wrote in one maniacal week, an indirect first-person narrative of the childhood of a Lee Harvey Oswald-like assassin (a childhood like my own). I insisted that my agent offer *Assassin* for publication. He did, perhaps handling it with tongs. He refused to tell me what the dozen editors said to whom he sent it. He quoted only one, the kindest of the lot; she told him, "I think it's perfectly dreadful." I don't believe my little story is dreadful; in its own way it's as fine a crafted object as a long brass rifle shell, but it makes *Last Exit Brooklyn* look demure. It's still on the shelf, unpublished. It didn't destroy the world, and since the world went on revolving, I went on to write *The Ungodly*.

I started therapy for myself, not for writing, but it was through that process that the breakthrough came. Talking to someone who's trained to listen isn't a bad idea if you want to be a writer. It's another experience of narrative. Franz Kafka rejected psychoanalysis because he feared that exorcising his demons would exorcise his angels as well; but my angels taught my demons to sing. Seven years of therapy was no more expensive than graduate school would have been, and I've come to think of therapy as graduate school for the emotions (or was it remedial?). When I groaned at the expense, my therapist, a good man trained at the Menninger Clinic, expressed the hope that therapy would pay for itself. Since I've made a good living writing now for more than twenty years, it did.

You may not carry so much freight that you need therapy. You may not even be interested in "creative" writing; you may have read this far to see what you can pick up to help you as a journalist, in business, or even writing a *Noon News*. Whatever your purpose, the best remedy for fear of writing any kind of writing, is the Knickerbocker Rule: ass to chair. If you're afraid you can't write, the answer is to write. Every sentence you construct adds weight to the balance pan. If you're afraid of what other people will think of your efforts, don't show them until you write your way beyond your fear. If writing a book is impossible, write a chapter. If writing a chapter is impossible, write a page. If writing a page is impossible, write a paragraph. If writing a paragraph is impossible, write a sentence. If writing even a sentence is impossible, write a word and teach yourself everything there is to know about that word and then write another, connected word and see where their connection leads. A page a day is a book a year. Listen to that again: a page a day is a book a year. You may not yet be ready even for a page, much less a book. But you can certainly begin with a word. Write your name. Do you love it? Do you hate it? Who gave it to you and why? What's in a name? Tell me a story. Once upon a time...

When the fear is upon you, write for yourself. It doesn't matter what you write as long as you do it regularly. Set aside an hour or a half hour daily or as often as you can. If you don't think you have

time, keep a record of how you spend the quarter hours of your day and see where you can borrow (most people spend most of their time outside of working hours watching television). Steal an hour from sleep on alternate early mornings if there's no other choice.

Use writing equipment you're comfortable with—a pencil, a pen, a typewriter, a computer. You don't need to keep a formal journal. The less baggage, the better. The point is to strip away every possible constraint except the fear itself, so to find your way around your fear. You and your fear, wrestling like Jacob and the angel. Jacob did all right despite the odds.

Forget spelling. Shakespeare spelled his own name four different ways. Forget punctuation if paying attention to it inhibits you—you can always add it later. Gertrude Stein wrote with minimal punctuation. She said people know where the commas go. She wanted her writing to flow, to reproduce the way her thought seemed to flow, so she borrowed some of the metric devices of poetry. Here she explores what I called our unique stories, our personal histories:

A history of any one must be a long one, slowly it comes out of them from their beginning to their ending, slowly you can see it in them the nature and the mixtures in them, slowly everything comes out from each one in the kind of repeating each one does in the different parts and kinds of living they have in them, slowly then the history of them comes out from them, slowly then any one who looks well at any one will have the history of the whole of that one. Slowly the history of each one comes out of each one. Sometime then there will be a history of every one.⁹

You're letting your history out. That may be one reason you're afraid. If you don't want anyone to read it, you can always delete it from your disk or tear it up.

Your thought may not flow like Gertrude Stein's. You. May. Want. To. Write. Like. This. At. First. Feel free. Don't think about how you're writing: write. Everyone knows how to do something: describe a process. How do you tie your shoe? How do you brush your teeth? How do you plant a bulb? How do you drive a car, read a map? Everyone has feelings: how do you feel about something or someone? Set a mirror before you and describe your face. Describe your hands. Are they different or the same? Language itself may have come out of our hands, the left hand holding (if you're right-handed): a noun; the right hand manipulating: a verb. What do your hands have to say to each other? Describe what you smell, sitting wherever you are. Describe what you taste or hear or see. What parts of you touch the world? Where does the world touch you? How does it feel? What are you thinking? Write it down. What do you think about what you were thinking? Write that down. Write until your time is up. Put your writing away.

Start again next time: write about something else. Write something deep. Write something silly. Write your first memory. Write the most revealing story you know about your mother, your father, your lover, your boss, your teacher, your child. Write two people talking. Write a joke. Write a beginning. Write an ending. Write a middle. You are a camera. You are a child. You are an avenging angel. You pant and gasp with love in someone's arms. You clot with black hate. You yearn. You're happy. You're sad. Write yearning, happiness, sadness, *concretely* as acts—things you do, not things you think or feel. You are a soul. Here is what you are and what these episodes of writing are about:

There was a child went forth every day,

And the first object he look'd upon, that object he became,

and that object became part of him for the day

or a certain part of the day,

Or for many years or stretching cycles of years.

The early lilacs became part of this child,

And grass and white and red morning-glories,

and white and red clover,

and the song of the phoebe-bird,

And the Third-month lambs and the sow's pink-faint litter,

and the mare's foal and the cow's calf,

And the noisy brood of the barnyard or by the mire

of the pond-side,

And the fish suspending themselves so curiously below there,

and the beautiful curious liquid,

And the water-plants with their graceful flat heads,

all became part of him....[10](#)

No one makes craft, carefully wrought, seem more casual than Walt Whitman. What your episodes are about is opening that fresh, innocent eye.

None of this work will be wasted. At the very least you'll learn from it. If you're as frugal as most writers I know, you'll probably use it later.

If even these first efforts make you fearful, move them into a comfortable frame: write them in a letter to a person you trust and file the letter (or mail it, if you prefer). Tom Wolfe wrote his first *Esquire* piece as a letter to his editor. I suspect he chose that approach because the pomp of writing a magazine piece was inhibiting. All the editor had to do was delete the salutation.

Writing moves you into a place of intense concentration similar to the concentration of chess and

other complex games but more richly colored with feeling. It's like the place where you go mentally when you read, but it's lucid reading, so to speak, like lucid dreaming—you write the text you're reading. So choose your setting carefully. As you reinforce your writerly concentration by repetition, you're likely to reinforce your associations with your surroundings as well. Newly hatched ducklings imprint on the first moving object they see. That's wiring, not association, but the results can be comparably awkward. I heard of an ostrich once that fell in love with a two-hundred-watt bulb. Somewhere, years ago, I read that a famous European writer had to smell the cider of an apple core in his wastebasket in order to start writing. If such a harmless trigger helps, by all means use one. Marcel Proust expressed the multiple volumes of his *Remembrance of Things Past* from the taste of a madeleine.

I asked Kurt Vonnegut, Jr., once if he had an apple-core equivalent. He said, "A carton of Pall Malls and a fit of coughing." I got drunk to write at first. I thought I needed to, and maybe I did. Alcohol allays anxiety and loosens inhibition. But eventually I had to learn to write without alcohol. "Gosh," my therapist said dryly one day when he thought I was ready to hear it. "It's hard enough to write; it must be even harder when you're drunk." I found out it was, but switching over took a while just as learning to write without smoking did. Ernest Hemingway used the nice trick of always stopping the previous day at a point where he knew what came next. Then he had a bridge.

If you're lucky, you finally learn simply to sit down and begin. Someone told the great British physicist Ernest Rutherford, who discovered the atomic nucleus, that he'd been lucky to come along just the time he did in the development of his science. "Yes," he shot right back, "but I made my luck didn't I." Make your luck. Sit down and begin.

TOOLS

While you're writing freely, without intention, wrestling with your demons and your angels, let's talk about tools.

Writing is a craft. Its primary function is communication. I mean “craft” strictly: like carpentry or pottery, writing is handmade. Like other crafts as well, writing can sometimes be organized to the special depth and resonance people call art. Art is a curious, ill-defined, and elusive combination of craft and invention; with the exception of so-called primitive artists (who are really self-taught and who are much rarer in writing than in the visual arts), writers who would make art have to learn writing as a craft first. The best way to learn is by doing—and thinking about what you're doing while you're doing it. You wouldn't expect to make superior pottery the first time you sat down at a wheel. People often assume they know how to write because they know how to speak. There are deep and important connections between spoken and written language, but they're not the same thing. If you think they are, tape a conversation and transcribe it verbatim and see how it reads. Better to imagine that you'll be writing in a foreign language of which, at the outset, you know only a few words and only the rudiments of syntax.

I had the privilege several years ago of working with a Nobel laureate physicist named Luis W. Alvarez, editing his memoir, *Alvarez: Adventures of a Physicist*. At Berkeley in the 1930s, Luie helped develop the particle accelerator known as the cyclotron—the first really powerful instrument for studying atoms by bombarding them with accelerated atomic particles—and he subsequently worked on the atomic bomb. In 1980, he and his geologist son, Walter, formulated the theory, now well accepted, that an asteroid impacted the earth sixty-five million years ago and caused an “impact winter” of darkness and cold that killed off the dinosaurs. Luie's physical discoveries as well as his many inventions drew on his encyclopedic knowledge of isotopes, the variant physical forms of elements, and particularly radioactive isotopes, which give off types and intensities of radiation as unique as fingerprints. Luie knew the physical characteristics of the elements and their isotopes as well as he knew the back of his hand; it was because he knew them so well that he could apply their different qualities to his work. He and his son deduced their impact theory from a piece of rock no larger than a pack of cigarettes; their deduction depended upon knowing that the element iridium is

rare in the earth's crust but plentiful in asteroids and comets. I asked Luie how he came to know isotopes so well. He told me that he learned them in his years on the night shift running the Berkeley cyclotron. For a while it was the only cyclotron in the world, and Luie's colleagues took advantage of that fact to make previously unknown radioactive isotopes right and left. Everyone claimed an element and got easy credit producing and reporting its radioactive isotopes. Luie was after bigger fish, but he participated in the isotope work, adjusting the cyclotron beam, arranging the target, feeling in his bones how much to crank up the current on the cranky instrument, where to jam in a metal shim to focus its magnetic field. On a wall in the laboratory the young physicists put up a big board laid out with the periodic table, with hooks projecting from the boxes designating elements, and each time someone identified a new isotope, Luie labeled a wooden tag with the isotope's characteristics and hung the tag from the appropriate hook. That's how he got to know isotopes so well. The knowledge he derived from those hard early years of work stayed with him like a vocabulary for the rest of his life. If you're starting out writing, you'll be working on the night shift; words, like unknown isotopes, will reveal their characteristics to you if you pay them close attention.

The tools of writing are a recording surface (paper, computer screen), a recording device (pencil, typewriter, keyboard/program), characters that stand for sounds of words, and a language. It's fortunate that the hardware of writing is so simple, because the software—language—is immensely complex, a vast, informal program of meaningful human sounds that developed historically and continues to evolve.

One property of language that bears significantly on writing is redundancy. You can say something many different ways. "Down the block and around the corner," "down the street and right the corner," and "east to the next corner and then south" will all get you to the same place. The basic directional information is redundant across the three phrases. But the phrases aren't identical. In particular, the third phrase orients its directions by compass points. Country people give directions that way in the United States; city people usually don't. If a character in a story you were writing said "east to the next corner and then south," you might be signaling your readers that the character's background was rural. ("East to yonder corner..." would make the signal even clearer.)

Language evolved redundancy so that it could work at many different levels of precision. Infants learning to speak typically construct one-word sentences, then learn to make two-word sentences, and continue adding on as they progress. They usually become intelligible to their mothers and fathers first; at some point further along the way, even before their speech becomes standard, an attentive stranger can understand them. Most people speak less precisely than they write. They insert markers in their speech like "you know" or "uh" to give themselves time to think, markers that would be distracting in writing; in the rush of speech they use words loosely; they repeat themselves, for emphasis or to make sure their listeners understand them. In a personal letter or an E-mail message, people may not bother to check the meaning or the spelling of a questionable word and may use slang, odd punctuation, or casual grammar that they might not use in writing—which suggests that they craft informal writing more like speech, knocking up something temporary in pine. A first written draft is usually less precise than a finished text, because even seasoned professional writers do not find it easy to control simultaneously all the many disparate elements that enter into composition and usually pay more attention at first to roughing in basic elements rather than to word choice or sentence structure. A finished text written under deadline pressure—a paper for a class, a newspaper story—may be rougher in form and less precise than a text written at leisure. Even finished texts differ in quality, of course, depending primarily on the knowledge, skill, and finesse of the writer.

I bring up these points, which you may find obvious, because many people who want to write and many students think of “creative” writing primarily as self-expression, meaning unedited free-association. Free-associating on paper is valuable—letting loose, as I described in the last chapter, and writing whatever you feel like writing, any way you want. It’s valuable when you’re learning to write to help you deal with fear, and it continues to be a useful technique for starting a piece of writing or moving beyond a point where you’re stuck. It’s a good way to develop characters and story by drawing on unconscious associations, free-associating *about* something (a process that used to be called meditation before meditation came to mean emptying your mind).

Some people cherish the spontaneity of their free-associative “self-expression” and resist editing it. For themselves, privately, they may be right to do so. Their personal writing may create a space of freedom for ecstatic expression in their lives; rereading their writing then recalls to them the feelings that creating it produced, just as hearing a cherished voice does or returning to a cherished place. Such states of mind can be fragile; editing might well shatter them. Personal writing is no one’s business but yours.

Writing to communicate is a different matter. Professional writers, without exception so far as I know, consider unstructured, unedited free association to be at best only the first stage of writing. Not even Jack Kerouac wrote that way, although he tried to make it look as if he did. Gertrude Stein, the exception that proves the rule, seems to have practiced a kind of automatic writing. Some of it is extraordinary, but most of it is nearly unintelligible and has found only a small audience; the books by which Stein is known to a wider audience were heavily edited by her companion, Alice B. Toklas.

If you look at your unedited free association closely—look up the definitions and histories of key words, think through the sense of the sentences—you’ll probably find that it doesn’t always say what you thought you were saying when you wrote it. The brain plays tricks. I Language is redundant partly to communicate despite those tricks. I interviewed a mathematician named Stanislaw Ulam once, one of the coinventors of the hydrogen bomb. He had recently returned from a conference on memory. He had decided, he told me, that memory was like a hound dog. You send it sniffing off to find something, and sooner or later it comes back with its quarry. Since then I’ve called my memory my dog. “My dog’s looking for that,” I tell my wife when I can’t remember a name or think of a word. My dog is either overanxious to please or lazy. It brings back approximations—the first word it can find that seems to match. And the match categories are curious, a window into the way the brain (or at least my brain) stores words. I’m looking for the word “apple” and my dog comes panting back with “pear.” I’m looking for the word “barn” and it brings back “berm.” “Principal” fetches “principle,” “cabinet” fetches “closet.” If I were writing and I wrote these retrievals down in the heat of composition, I’d need to fix them later. That’s one reason for editing. Writing communicates most effectively when it is carefully crafted.

Writing is made of words. Words are remarkable objects. Each one is a palimpsest, of which the electronic edition of my *American Heritage Dictionary* says the following:

n. A written document, typically on vellum or parchment, that has been written upon several times, often with remnants of earlier, imperfectly erased writing still visible. Remnants of this kind are a major source for the recovery of lost literary works of classical antiquity. [Lat. *palimpsestus* < Gk. *palimpsēstos*, scraped again: *palin*, again + *psēn*, to scrape.]

Parchment—goat- or sheepskin—was expensive; monks copying texts by hand reused old sheets by scraping off the top layer (destroying in the process priceless classical texts that the Church condemned as pagan). Words written on the incompletely scraped earlier layers showed through.

The bound edition of my dictionary reveals deeper layers under the word “palimpsest” itself. After a bracketed history of the word’s origin in earlier languages it adds, “See *k^wel*-¹ in Appendix.” The Appendix in question lists Indo-European roots, the reconstructed basic elements of words that are common to most European and Indian languages. “*K^wel*-” turns out to be an ancient root meaning “to revolve, move around, sojourn, dwell.” It gave rise to modern English words as diverse as *cultura* (and therefore *culture*), *cyclone*, *collar* (which encircles the neck), *pulley*, and *palimpsest*.

I’ll say more later about these old meanings and roots. Here I simply want to remind you that words are complex objects, structured with multiple levels of meaning below (and above and around and behind) their formal definitions. Choosing words and arranging them in an order appropriate to your purpose is much of what writing is about. In this basic way, writing is different from reading—a different as laying down paint on flat canvas is from viewing what appears to be a painted three-dimensional scene. Writing is analogous to weaving: a weaver works a thin yarn laboriously back and forth, in and out of a preliminary structure, until a broad visual pattern appears. Or, better, think of mosaic tile. Sometimes when I’m writing history, fitting together piece after piece of documented fact to make a picture, I feel as if I’m on my back trying to glue up a copy of the Sistine Chapel in mosaic tile.

Readers rarely experience writing as strings of words arranged on the page, however (if they do, the writing is calling attention to itself, deliberately or inadvertently). If a text engages a reader, the writing becomes transparent and she enters the story as if through a window into a dream. Something similar but much less complex happens when you watch television: your brain organizes the pattern on the screen (which is only rows of phosphor dots selectively illuminated by an electron beam) into an image. An even better analogy to writing and reading is a computer program and its output, because the phosphor dots on a television screen are organized automatically by a light-sensitive machine, but a computer program has to be written by human programmers, and what they write bears little or no resemblance to what happens on your display screen when the program executes—you may get a list of numbers, or toasters may fly.

If writing is making, what exactly is it that you make when you write? Most elementally, you make marks on a page that code for language. Your reader scans them, sees and sounds them into words in his head, and processes them for meaning. The meaning for which your reader processes your words takes many forms—ideas, feelings, people, scenes, activities—all richly interconnected. At some level all writing, even a business letter or a technical manual, tells a story, at minimum a story about the writer; if your reader enters into the story you are telling, the various forms your words evoke merge into a whole. Samuel Taylor Coleridge, the English poet, called this process of words making worlds “poetic faith,” defining it famously as a “willing suspension of disbelief.”

Computer technology offers a more familiar analogy perhaps than a religious concept such as faith. Virtual reality is a technology for tricking your senses into believing you’re experiencing a projected illusion. Gloves with built-in actuators enable you to “feel” a simulated object; a helmet with a built-in sound system, computer screens, and head- and eye-tracking sensors make it seem as if

you are looking around and moving within a projected space. Virtual reality is a powerful illusion, with remarkable possibilities. Biologists, for example, expect one day to use it to learn how biomolecules such as proteins assemble themselves by assembling virtual biomolecules and *feeling* the molecular forces that allow and forbid various arrangements. Imagination, an ancient human invention, is a virtual-reality process, with the disadvantage that everyone has to make up the virtual reality on his own. Writing is a recording system that allows imagination to share its virtual treasures. What do you make when you write? Writing makes virtual reality inside readers' heads.

If you dislike technology, or fear it, you may find these analogies unpleasant. Stick with poetic faith if you prefer. I bring up technological analogies not to discomfort you but to try to specify more clearly what writing is about and how it works. My senior high school English teacher believed that the way to communicate her love of literature was to praise literature with superlatives. "Oh, Shelley he's so *wonderful*! The *ineffable transcendence* of his poetry!" Her enthusiasm was refreshing at first but finally it was wearing, because her superlatives were essentially appeals to authority, not explanations of why Percy Bysshe Shelley's "Ode to the West Wind" was worth my time. If you want to write, you need to know what you're doing, not why writing is superior to other human activities (it's not). Presumably you already believe writing is worthwhile, or you wouldn't be reading this book.

Understanding writing as the production of virtual realities clarifies why taking care with craft is so important. There are at least as many elements to manipulate in writing, to get the reality right, as a movie crew has to deal with in shooting a film (in fact, there are many more): dialogue, plot, character development, makeup, lighting, sets, props, camera angles, and montage just for starters. (D. W. Griffith, the pioneering filmmaker, said he learned montage reading Charles Dickens.) Behind those theatrical and cinematographic elements you have to organize words in all their palimpsestal complexity, sentences, rhythm, and structure at every scale from phrase to sentence to paragraph to chapter to book. (Words and sentences are the machine language of writing, if you will; the elements that writing shares with theater and film are already part of the shell program you create.) And you're only one person, not a whole crew. That sounds like a discouraging burden to bear. It can be when you're not getting the results you want, but fortunately you don't have to create and control everything at once: writers generate multiple drafts of a text because they organize the elements of writing successively rather than simultaneously. Fortunately also, the inherent richness and complexity of the writing process makes it continually interesting, far more challenging to attempt and satisfying to achieve than chess or any other game. It's the deepest and most fulfilling work I know, with the possible exception of farming.

Controlling the mechanisms of language for precise effect serves not only to shape the reader's virtual-reality experience but also to avoid distracting her from its illusions. How easily distracted the reader is—how much care you must take—depends on what you're writing. Judging from the evidence of best-sellers, readers of genre fiction are tolerant of what any writing teacher worth his salt would call sloppy writing, so long as the writer pushes the right genre buttons. If the spies intrigue, if the romance blossoms, if the horrors haunt, devoted readers apparently don't notice the quality of the writer's prose or don't care. I know of at least one popular, best-selling genre author who carefully goes through his draft manuscripts and substitutes clichés for any original turns of phrase that may have crept in, because he doesn't want to distract his readers with unfamiliar words and images and because he's established a consistent (clichéd) authorial voice across his shelf of books that he knows his readers expect to hear. Literary critics, who tend to judge all writing by the same high standard,

may groan at these facts of life; genre readers read on enthusiastically, and genre writers laugh all the way to the bank.

Up another literary side street, poets structure their writing so rigorously that only the short forms have survived, with scant readership. The problem isn't that modern poetry is obscure, although sometimes it is; rather, the best modern poetry is so dense with fresh (and therefore unfamiliar) language that it's extremely demanding to read. Most of us aren't trained to such rigors. Nor does poetry fit the system most busy readers have organized for themselves of factual reading for work and citizenship, and narrative fiction, usually genre, for entertainment. Poetry isn't necessarily fiction and it isn't necessarily fact and it's hard work to read, so it falls between the bedstands.

I don't mean to be constructing a hierarchy here. Poets, with the defensiveness typical of embattled minorities, like to think prose is failed poetry written by people who can't come up to the mark; writers of literary prose look down on genre writers; genre writers think literary writers and poets are quixotic or self-indulgent. The truth is, each is writing in a different form, which has different requirements and meets different needs. James Joyce once claimed he could have written a stack of best-sellers in the time it took him to write *Ulysses*. He probably couldn't have written a popular novel if he tried; only rarely does a writer range successfully across that obscure divide. Music shows the same deep division between popular and classical, which suggests that it's a formal division, not the gulch between taste and tastelessness that high-culture critics hypothesize. Critics, like all consultants, have a vested interest in inflating the authority of their opinions.

The literary establishment would seem to consider technical writing beyond the pale (with rare exceptions, for example, literary prizes for science writing go to popularizations, not original scientific monographs), but I have read scientific papers of great power, power that derives not from rhetoric but from precision, logic, and originality of thought. Once you learn the necessary jargon of particular branch of science, the classic papers of that science reveal themselves to be fully correlative to works of art. Robert Pollack, a molecular biologist, in his book *Signs of Life*, calls the 1953 *Nature* paper by James Watson and Francis Crick that announced their discovery of the structure and function of DNA "a nine-hundred-word prose poem," and he's right, it is.¹ Popular discussion of left-brain versus rightbrain functions distorts the work of the neurobiologists and physicians Roger Sperry, Joseph Bogen, Michael Gazzaniga, and others, whose original papers, published in the journal *Brain* in 1965 and 1967, are "highly readable and well within the grasp of a high-school student," according to Sperry's fellow Nobel laureate David Hubel.² If I were teaching a writing course, I'd require my students to read scientific papers as well as other examples of exceptional prose; they're the best training I know in rigorous argument, a skill every writer can use.

It isn't possible in one small book to explore all the different requirements of all the different forms of writing (even if I knew and understood them, which I don't). The best way to do that in any case is to read and study the best texts of the form you wish to learn to write. But it's valuable to know—and most books about writing won't tell you—that different forms have different requirements. You'll save yourself a lot of confusion if you approach them without prejudice. I find I learn more by observing than by judging.

If you're interested in learning to write as well as you can, then the more forms you know, the better. The poet who scolded me about flacking for Hallmark should have told me I'd be better off *also* driving a cab; then I would have agreed with him. More experience with the forms of writing is

better than less because forms set up expectations in readers, and knowing them helps you control your writing's effect. I don't mean you should practice by writing a spy novel, unless spy novels are what you want to learn to write, but it might be valuable to read one or two, along with poems, narratives, oral histories, novels, short stories, technical manuals, scientific papers, and any other printed matter that comes to hand. I subscribe to periodicals ranging from the distinguished British scientific journal *Nature* through the *New York Times* to the *National Enquirer*; each grants me treasures the others don't provide.

Writing isn't a zero-sum game. With fifty thousand books published every year in the United States alone, stacks of magazines and journals, reams of newspapers, newsletters, and other media, there's room for diversity. Civilization won't collapse if people write differently. Bad writing—writing that's irrelevant or incoherent—won't survive history's relentless winnowing. Many critics who disdain forms of writing they consider vulgar are simply intellectually provincial. Others cling to a romantic belief that writing is a kind of secular revelation. It may be, but the oracles speak through many different forms.

Software aside for the moment, back to hardware. Do you write with a word processor or do you write with a pencil? People almost always ask writers that question at public appearances. I used to wonder why. I couldn't understand why it mattered. But of course it does matter. How writers physically compose their work can seem to someone beginning to write to be a point of entry, another passage through fear. So I take the question seriously when I'm asked.

What equipment writers use to write depends on what's available and what they're comfortable with. Herman Melville wrote *Moby-Dick* with pen and ink on unlined paper. Everyone wrote that way in the centuries before mechanical writing machines. Along came the typewriter, which made manuscripts easier for typesetters to read but disconnected the writer from direct contact with the paper under her hand and the often tedious but sometimes sensual process of forming letters and words from a thin line of ink (a physical correlative to the linear writing process itself). Nor was it possible with the typewriter to see the whole page at one time and catch with peripheral vision the annoying repetitions that the dog drags in. Some writers still use manual typewriters today. The historian David McCullough, for one, clacks out his generous, thoughtful histories on an old office manual, demonstrating his great fortitude. E. J. Kahn, Jr., the *New Yorker* writer who died in 1994, wrote more than three million words across fifty-six years for that magazine on a mechanical Remington. "(He never yielded to the vogue for electric or electronic machines)," his anonymous *New Yorker* obituary notes in characteristically snuffy parenthesis. The magazine had the good sense to yield to the vogue, though, didn't it, unless it's still typeset by hand.

If you want to write only occasionally, stay with familiar equipment. But if you intend to write regularly, you'll almost certainly benefit from using a computer with a word-processing program. Computers adequate for word processing cost less than a thousand dollars new; used computers are cheap. The benefit of using a computer may not be obvious while you're learning the equipment and its quirks and limitations get in your way. The benefit comes when you begin revising a draft you've written, because revision is much easier electronically than it is on paper.

I learned to write writing love letters to a girl I'd met at church camp when I was fourteen. I was living at a home for boys by then. The girl was from another town. I couldn't travel to see her, so I

wrote her. I wrote her four hundred letters in one year. I wrote with a ballpoint pen on school paper, and at I.I letters per day I must have done a lot of creative writing. I wish I'd kept the letters; I'd like to see what I had to say.

I took a typing course in high school. I had to convince the teacher to admit me to the class; typing in those days was considered secretarial and therefore, like home economics, exclusively for girls. (I argued that I needed the skill for college.) I wish I'd taken shorthand as well. When I got to college I bought a mechanical typewriter, a smooth Smith-Corona portable, and paid for it typing classmates' papers at five cents a page (ten cents if they wanted me to correct grammar and spelling, which they often did). I also learned to set type in college, pulling zinc letters smelling of machine oil out of a wooden type box to print headlines for the *Yale Daily News*. That experience, antique now, made language tangible. I dropped the zinc blocks one at a time upside down and backward into a steel type stick like a small version of the gadget shoe stores use to measure feet, sometimes rewriting on the fly if the headline writer had miscalculated and the line was too long. Then I tightened the clamp on the type stick, set the stick into the bed of a proof press, inked the type with a black rubber roller (the ink snapping viscously as I rolled it smooth), laid a sheet of heavily calendered white paper over the block, and pulled a proof to use for paste-up. While the proof was drying I wiped the leftover ink from the type and dismantled the words letter by letter back into the alphabet of the bins.

From a mechanical typewriter I progressed, many years later, to a bright-red IBM Selectric, the one with the clattering dervish ball, then to an electronic Olivetti, bulky as a copier, that had a one-line electronic display. For possible correction, the Olivetti held the line I was typing until I hit the carriage-return key, when, disconcertingly, it rat-a-tat-tatted the corrected line like a machine gun while I was trying to compose the next one.

I wrote *The Making of the Atomic Bomb* on the electronic Olivetti, with a sidekick Brother electronic portable for footnotes sheltering in its shade. That was the early 1980s, and the personal computer had just appeared, but I didn't think I could afford one and in any case believed learning to operate one would take too much time away from writing when I had deadlines to meet. The price I paid for that Luddite sentiment was retyping every chapter of my fifteen-hundred-page book manuscript at least ten times in the course of editing, which means I typed at least fifteen thousand pages. The time I wasted retyping would have seen me through computer school. After *The Making of the Atomic Bomb* was published, I bought a computer and a laser printer. Now I add new technology as it becomes available—most recently, a CD-ROM drive that puts a dictionary on-screen behind my word-processing program, where I can switch to it quickly when I need to look up a word.

To young people weaned on computers, this discussion must seem archaic. But equipment is important to writing, as it is to every craft. The problem most people have with adapting to new equipment is the awkward transition. Learning requires self-consciousness, and self-consciousness breaks the writing mood. I found the transition worth the temporary distraction. (It's certainly less distracting than quitting smoking.) With word-processing software, I edit more carefully now than I did before. Notebook computers make such software portable, but I rarely travel with a computer. I travel for research, which in my work results in either recorded tape (including my dictated notes) or copies of documents. I do my writing at home.

Back up everything you write, often. Not even the rigors of a colonoscopy match the pain of losing work and trying to reconstruct it from memory. Your memory dog will hide out in the break

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