8

WHAT'S TECHNICAL ABOUT TECHNICAL WRITING?

DAVID N. DOBRIN

Most writing dies quickly and deservedly. It lives only when readers, not authors, keep it alive. Thank you, editors and Oxford.

Should it have died? Reading it over, I wonder. The piece ought to have been leaner, and it ought to have gone farther. I can see, as well as remember, that the ambitious young author wanted tenure at MIT a little too badly. Robert Graves says that an inauthentic voice is at the bottom of all bad writing, and in this case, he is certainly right.

When you compromise your integrity as a writer, it is usually the reader who suffers. Google "Dobrin" and "What's Technical," and you'll find hundreds of postings to classroom bulletin boards from baffled students, all containing some variant on "I thought technical writing was supposed to be clear."

It could have been clearer. I was not happy with the knee-jerk definition of technical writing—"Technical writing is writing about technology"—so I looked for a more illuminating substitute. I wanted something that told us more about what technical writers do, and what they do is write or ghostwrite manuals and reports.

The reports and manuals appear when there is a technology, a writer, and readers who want to use the technology. When the pieces succeed, they act as a kind of semipermeable membrane that lets understanding leak through at a controlled rate. Once the understanding gets through, I noticed, the membrane disappears. This is not Jane Austen, folks; once the readers get the technology, they drop the manual.

"Writing that accommodates technology to the user" still seems to me a clever formulation of this.

So why isn't "What's Technical" only a page or two long?

Then, as now, teachers of technical communication were paid by humanities departments to perform a function that had little to do with the departments' mission. Humanists teach students to think and to love literature. Technical writing teachers teach students skills and conventions they will need on the job. The humanists assume, perhaps correctly, that teaching technical writing is pretty easy and that there are lots of people who could do that job who could not do theirs.

Humanists want aspirants to colleagueship to be deserving. Their academic articles have to be learned and contribute to knowledge and all that guff; so, therefore, do academic articles by technical writers. I accepted this, and in "What's Technical," I tried to create something that

would strike these readers as appropriate and worthy. I did not realize at the time that I had donned a yellow armband.

I now see that this desire for economic security affected every single word of "What's Technical." I only wish I had noticed it then. I was not alone, after all. Most technical writers produce stuff that is deeply affected by economics that are essentially invisible to the reader.

The economics usually hurt their pieces, too. Technical writing should accommodate, and writers try to accommodate, but the accommodation often fails. Why? Look at who is paying for the writing and who is paying to use the technology, and you will see.

At the time, I did have more than my own example in front of me. It was just then that cloth-bound, three-ring computer manuals made their appearance. These excrescences were anything but accommodating. Never read, they were a colossal waste of hundreds of millions of dollars and thousands of working lives. "Are these manuals technical writing?" I might have asked. But I didn't.

If I had had the clarity and common sense to see how much of my own time and effort I was wasting, perhaps I could also have seen what was wrong with these pieces, and I might then have written an article that would have killed these things off sooner. That article would have deserved to live for twenty years.

David N. Dobrin

It is a peculiar question. Similar questions with this form (what's medical, what's legal) have a trivial answer (nothing) because the words "medical" or "legal" designate a clearly defined discipline. To the extent that the question is meaningful for these words, the adjective has the force of a noun: medical writing is writing about medicine. There is, however, no discipline of technics. "Technical," rather, has the force of an adjective; there is something about the writing itself which is technical. The conjunction of adjective and noun actually brings out the ambiguity in "writing": it can be a thing (a piece of writing) or an activity (an act of writing). In the first case, "technical writing," the technicality is in the piece; in the second, the adjective shades off into an adverb: one doesn't write technics but "writes technically."

An adequate answer to the question, "What's technical about technical writing?" is a definition of technical writing, and, quite naturally, there have been many of them. Interestingly enough, the problems of previous definitions turn on the linguistic ambiguity of the term. Some definers choose to define "technical writing," some to define "writing technically." The choice, whether conscious or unconscious, determines the definer's project.

TECHNICAL WRITING

Common sense gives an obvious way to define "technical writing": collect many pieces of technical writing and find the characteristics they share. This is Fred MacIntosh's method in "Teaching Writing for the World's Work." [1] Originally speaking to English teachers interested in technical writing, he wishes to impress upon them the importance and variety of technical writing, so he lists some forty different purposes and forms of technical writing. He could list more. The bulk would be warranted if the list were exhaustive, but it is not. Writing only from his (admittedly large) experience, he does not include what he does not know. The result is unwieldy, yet incomplete; after reading this article, if we wish to resolve whether a piece of writing is technical, we're still best off asking Macintosh.

If one does not list all the characteristics of these pieces, one must describe the determining characteristics by dividing them into large categories. A natural grouping is format, style, and content. (Some choose only one of these as the defining characteristics [2–4].) After examining hundreds of pieces of technical writing, John Walter uses precisely this di-

vision. According to Walter, each piece of technical writing he saw:

1. Had specific rhetorical modes and formats which were pitched to specific readers. (FORMAT)
2. Had a specialized vocabulary and an objective style. (STYLE)
3. Had primarily technical content. (CONTENT) [5]

Patrick Kelley and Roger Masse use the same categories, but conflate them, primarily because they overlap:

Technical writing is writing about a subject in the pure sciences or the applied sciences in which the writer informs the reader through an objective presentation of facts [6].

Their definition may seem to cover only content, but Kelley and Masse make clear elsewhere that "objective presentation" and "inform" refer to style and format. Both definitions speak to people who know less about technical writing than the authors, Walter's to those less experienced than he, and Kelley and Masse's to technical writing students. Both have enormous intuitive appeal. They are simple. The categories are familiar. They are the sort of definitions we give to friends who want to know what it is we do.

The trouble is that they are simple because they define a difficult concept in terms which are equally difficult and then leave those terms undefined. Any gritty tackling of technical writing must surely decide what "objective" is, what "facts" are, what "technical" is, and what "presentation" (as opposed to "argumentation") is. In what way are the formats and readers "specialized"? But neither Kelley and Masse nor Walter grapples with these terms; they simply refer us for examples to the technical writing they have encountered. Without distortion, neither definition would count environmental impact statements as technical writing (because their subject is nonscientific and they are by law directed toward any reader), but both would count fraudulent scientific works such as Velikovsky's *Worlds in Collision* (highly technical, informative, and directed toward astronomers). The authors would surely resolve the case of Velikovsky not by redefining "objective" but

by returning to their experience and then adding "truth" as a characteristic to the definition of technical writing. Again, this elaboration seems obvious. Yet a piece of technical writing, like natural speech, contains much that is neither true nor false: indicators of structure, hypothetical statements, recommendations, and even statements made in good faith but untrue. This criterion of truth requires yet further elaboration, or reference once again to authority, before it can be understood.

The definitions all break down, apparently because their authors have not explained themselves sufficiently. Yet I do not think further elaboration would prove fruitful. The method is faulty. The definers of technical writing don't collect systematically. Instead, they rely on a vast experience to govern the formulations they give us: they use a retrospective, intuitive, conservative procedure. They assume that something called technical writing exists, that it will change slowly, and that the bounds of their experience approximate the bounds of the corpus. They assume, in other words, that their experience is sufficient to comprehend (in both senses of the term) the texts they assemble and that those texts are in fact what technical writing is. But there is no reason to believe that their experience is complete, nor to believe that we can get at their experience in its totality with a few well-chosen words. So why should we depend on that experience for a definition?

WRITING TECHNICALLY

The definers of "technical writing" look at texts; the definers of "writing technically" look at the encounter which produces the texts. The aim of this method is straightforward: to find whatever is unique about the way the mind grapples with a technical subject and then converts that grappling into writing.

There are many such definitions [7–11]. I will discuss three, the most sweeping of which is John Harris's:

Technical writing is the rhetoric of the scientific method [12, p. 135].

Thus, whether writing is technical is determined by its own way of handling a subject, "quantitatively rather than qualitatively, and objectively rather than

subjectively." [12, p. 135] A closely related definition, indeed a metaphorical restatement without the gestures toward rhetoric and science, is Charles Stratton's. A technical writer in

> a particular art, science, discipline, or trade . . . helps audiences approach subjects [13, p. 10].

Thus, a technical writer should render his own act of writing invisible because technical writing is communication, not self-expression, and the information itself is far more important than the writer's attitude toward it.

In both definitions, what is unique about the act is its objectivity. Bringing a reader close to a subject is the result of objectivity, and handling information quantitatively is a way of gaining objectivity. The objectivity desired is of two kinds: the formal (the collection of such linguistic devices as impersonality with which a speaker performs an objective role) and the epistemological (the mental processes which formal objectivity conventionally designates). Neither Harris nor Stratton distinguishes the two.

Sharing these assumptions is a third definition of writing technically. Earl Britton, however, adds one very interesting criterion. Not only must writing technically be objective, it must be univocal.

> The primary, though certainly not the sole, characteristic of technical and scientific writing lies in the effort of the author to convey one meaning and only one meaning in what he says [14, p. 11].

Furthermore, while both Stratton and Harris would admit as technical writing something which is linguistically dense, Britton would not. He explains why in an analogy which appears frequently in his writing. For Britton, writing is like music. If one wants complexity in a piece of music, one writes a symphony; if one wants to wake up soldiers, one plays reveille on a bugle. Literature is a symphony; technical writing is a bugle call.

The three definitions say technical writing is a noble vocation. The technical writer speaks with the care of the scientist, the humility of a saint, the clarity of a bugle call. Frankly, I suspect more flattery than truth. Partly, it is because the definitions, like much flattery, are difficult to pin down. Their language is imprecise. I have difficulty understanding

what Harris means by "rhetoric" and "science," what either Harris or Stratton means by "objective," and how technical writing is like music.

RHETORIC, SCIENCE, AND TECHNICAL WRITING

For Harris, technical writing is the rhetoric of the scientific method. Yet recent work in the history of science (by commentators ranging from Popper to Kuhn) provides a fairly accurate distinction between scientific and technical writing. Scientific writing makes a truth claim; technical writing does not. Moreover, the truth claim of any individual scientific statement is only provisional, and the statement is presented as such. In technical writing, on the other hand, the individual statement can be certain, because the whole is unconcerned with truth. Let me explain. A scientific statement presents itself to a self-regulating discourse, which as a whole makes a truth claim. The statement is provisional because it asks to be evaluated in terms of the rest of the discourse (which includes not merely other statements, but the methods of experimentation, the modes in which data are constituted, the means of confirming theses, the epistemological models underlying the theory, and the conventions of nomenclature). If the statement is satisfactory, it is accepted, and once it is accepted it ramifies the claim of the whole. So situated, the claim of the statement is always universal, never contingent. To invalidate the statement, "Table salt is more stable than free sodium and chlorine," requires a refutation of the whole system in which "salt," "stable," "sodium," and "chlorine" mean something. With the refutation, all the words and statements, procedures and theories, must be reformulated. On the other hand, a technical statement, like "Nut A fits on bolt B," does not refer to all the rest of the discourse. If the statement were found to be invalid (but how would one invalidate it?), the rest of the discourse would still stand. The statement is ineffective rather than invalid; the failure is in the quality control department, not in the discourse. If the statement about salt were found in technical writing (I doubt it would), it would still not make a universal truth claim; it would be contingent, referring only to this salt at this time in these circumstances.

I do not mean by this distinction to imply that science is either logical or true. If it were, Harris's Comtian leap—claiming that something based on science is scientific—might be justified. But most philosophers of science are unwilling to make either claim for it. Science can only be logical or true if it provides some purely logical way of resolving the question of whether a scientific observation should be admitted to its discourse, that is, if there were a scientific method. Apparently there is not. Instead, a claim for admission is rhetorical, and scientists are *persuaded* to admit a particular observation [15]. Now Harris seems to have this understanding of science, or so his use of the word "rhetoric" indicates. But if he does have this understanding, there's no warrant for his belief that technical writing is scientific. Worse, his definition hides an important distinction between scientific and technical writing: that each has its own modes of demonstration. The modes of technical writing are concerned with the instrumental and contingent, those of science with the discursive and universal. Since they have different modes and make different claims, the yoking is very weak; the claim that the scientific method defines writing *technically* is simply cooptation.

FORMAL VERSUS EPISTEMOLOGICAL OBJECTIVITY

Perhaps the most obvious link between the scientific and the technical is that they both appear to be objective, a fact that all three definers of writing technically seize upon as crucial. For all three, both kinds of objectivity—the formal and the epistemological—are necessary to technical writing; no definer distinguishes the two. Yet the relationship is merely conventional. Being objective does not require me to use the linguistic devices which often designate that objectivity—such as not using "I" or using the passive voice. I find it troubling that all three seem to think it does. In writing, a subjectivity mediates audience and content. It seems to me that to disguise the mediation by using formal objectivity requires a warrant from the reader. He or she must know and accept both the fact and the nature of the mediation. To imply that formal objectivity confers epistemological objectivity on the subjectivity mediating is naive—and

dispiriting. Worse, it encourages unwarranted uses of formal objectivity. Naive audiences might believe a statement so couched. But even if the reader is ready to warrant formal objectivity, I'm not sure how ready the technical writer should be to take the reader up. Why should a subjectivity disappear from technical writing? If the visible presence of a subject automatically moves the audience "farther away" from the object of the discussion, why do human teachers like myself still present themselves to students as they present the subject? The stipulation of objectivity as a form in technical writing is merely another way of coopting the authority of science.

UNIVOCALITY

The last "scientific" stipulation is Britton's requirement that technical writing be precise: ideally each speech act has "one meaning and only one meaning." Britton's notion requires some stringent limitations of what is to count as meaning, which his analogy does not provide. Britton assumes that complexity inheres in speech itself—symphonies or poetry are complex, technical writing or bugle calls are simple. But surely complexity is an agreement on interpretive procedure; one agrees with the author that one will seek certain sorts of meaning in certain sorts of situations. Reveille performed in a concert hall is to be complex; Beethoven's Fifth played over loudspeakers at Fort Bragg is simple. So if Britton's writer wishes to mean one and only one thing, he must specify the procedure; moreover, that specification must itself be unambiguous.

We can identify some elements of that interpretive procedure. For one, it must be able to enumerate meanings, fitting apprehension into discrete categories. Words have primary and secondary meanings, implies Britton, or, to continue his metaphor, primary tones and harmonics. The procedure separates the two. The meaning of the word "rock" can be only that thing on the ground, once the procedure has been applied. The procedure enables us to identify and eliminate other meanings such as those established by the speaker's experience ("rock" from a geologist doesn't mean quite the same as "rock" from a child), the cultural context ("rock" before 1953 has a different flavor from that of "rock" now), the philology of the

word, and the sound of the word. The soldier hearing the loudspeakers at Fort Bragg is told to listen only to the message, "Wake Up," and does so, according to Britton. He does not hear the other messages in the bugle call: the insistence that each listener is uniform with respect to the speaker; the affirmation of a continuing authority; the promise and provision of a visceral reward when the listener cedes his individuality.

Obviously the soldier—or the technical reader— at least picks up the secondary along with the primary tones. To separate the two requires special equipment—assent in the first case or a heightened attention in the second—as well as instructions from the author to use this equipment. Yet even if we are instructed to move into an information processing mode and we are capable of doing so (and how technical writing tells us to treat it as information is worthy of much study), I wonder if we actually can do so. Language is not information. The image of language as discrete units comes from our picture of the dictionary, in which each word has "n" meanings. But dictionaries exist to describe language; their descriptions cannot be substituted for a particular word as if a sentence were a mathematical equation. Those who have attempted to treat language as lexically determinate, to treat the sentence as a concatenation of dictionary definitions, mostly developers of artificial languages and computer translation equipment, have failed [16–18].

Exactly how we do understand language is not at all clear. But it is clear that the procedure which can find the "one and only one" meaning works by placing the word into various contexts to see if it fits. The ways we discover context are, however, extraordinarily complex. When I come up to a STOP sign, it seems that I am being confronted with a univocal message. It's not that simple. To decide what the word means in this situation, I must look at its physical location to see if it applies to me: "You stop here." I must consult the current usage of the sign. STOP in Massachusetts is a suggestion, not an order: "You should consider stopping here." I must decide whether STOP has been superseded by other rules: "You should consider stopping here unless there's an ambulance in back of you." The message grows as I apply contexts. For the message to be univocal and unequivocal, therefore, the procedure should specify

the contexts I bring to the interpretation. It can't. There are too many contexts; they can be applied in too many ways. We do understand messages—we generally stop at stop signs—but not because the communication has specified how or because the author of the stop sign has intended only one meaning. We understand because we apply an experienced intuition to make pretty good guesses. And when we do so, we are frequently guided by those secondary meanings which Britton wishes to eliminate.

Apparently Britton is actually recommending a high level of specificity in technical writing. By "one and only one meaning" he means that we should distinguish which of several plausible meanings we actually do mean. If I say that a pen is easier to use than a pencil, I should specify whether I mean physically easier to grasp, psychologically more restful to me, or generally more responsive as I attempt to make smooth, graceful lines. If I mean all three, I should say so. It's hard, however, to tell how to apply Britton's recommendation. If he is enjoining us to write so that we're unlikely to be misunderstood by a good reader, his injunction scarcely applies only to writing technically. If the special characteristic of technical writing is that it always specifies, the injunction is a recipe for ponderousness. Surely preferable to a labored specificity is a grace which risks ambiguity. But even if ponderousness is the choice, that choice is made in all other kinds of writing besides the technical. Examined critically, Britton's specification is not specific enough.

UNIVERSALIST VIEW OF LANGUAGE

Thus far, I have been criticizing the definitions of "technical writing" and "writing technically" on many different grounds: that the definitions by inspection are imprecise, that experience limits such definitions, that various definers fail to distinguish technology and science, linguistic and epistemological objectivity, or the meaning and use of an utterance. The definers could probably reply to me by articulating more carefully what relationships they think hold between language, thought, science, technology, and reality. That they have not troubled to discuss these matters, however, is symptomatic of

their underlying position on them. They do not think these relationships are problematic. I do. At the heart of our disagreement is a disagreement over language. They hold what George Steiner calls the "universalist" view of language; in this essay I argue for the opposite view, the "monadist." [16] Those taking the universalist view believe a sentence can mean a particular thing and that precisely that meaning can be understood; those taking the monadist believe that what someone means is indeterminate and can never be precisely understood. The universalist might describe language as a collection of data: the monadist a group of adumbrations.

Carolyn Miller has described the technical writing version of the universalist view as the "windowpane" theory of language, and she suggests that the theory comes from logical positivism, whose foremost exponent in English was A. J. Ayer [19]. In fact, the definers of technical writing and writing technically do inherit some of their attitudes from Ayer, but it is important to realize that he is no primogenitor. Both positivism and the windowpane theory spring from the tradition of Cartesian rationalism, which is hundreds of years old. Among their forefathers are Bacon, Locke, Burke, Spencer, Russell, and the early Wittgenstein. The assumptions that the definers hold are actually part of a system of assumptions held by all these men, a system which (in its barest possible outlines) is as follows: One, the world is out there. Two, by properly applying our minds, we can know it. Three, there is a best way of knowing the world (a "privileged access") which the nature of the world dictates. The world is an open book; the world is legible. Four, this best way of knowing the world is available to any intelligence. Five, it is thus independent of language and human quirks. Six, language is a way of using and telling this access, a coding of the world, but the decoder is operated by a prelinguistic knower. Seven, we are able to distinguish between correct and incorrect (true and untrue) uses of language because our way of knowing is independent of language. Eight, so distinguishing is difficult and we often fail at it. Nine, if we can purify language and our consciousness, we can formulate a perfectly correct language, a universal language, in which we would not make mistakes. Ten (often unstated), it is our responsibility to do so.

Only by assuming that the world is out there can the definers of "writing technically" believe that there are subjects out there to which readers can be brought closer. Only because they assume that the world is legible and that it can be coded in language can they believe that writing is capable of "help[ing] audiences approach subjects" (to use Stratton's terms). And only by believing that there is a best way of knowing the world, which is independent of language and human quirks, can they believe that the world can be known objectively. Finally, only by believing that the way can be coded in a perfectly correct language can they hope to rid technical writing of subjectivity. The assumptions held by the definers of "technical writing"—for whom it is the encounter with the text, not the world, which is problematic—are a subset of these. To see how, just substitute for "world," "text." The text exists independently; it can be read correctly and it is through this experienced reading that these definers can identify texts that genuinely belong to the corpus of technical writing.

Underlying the universalist position (and the definitions of "technical writing" and "writing technically" that it informs) is a profound dissatisfaction with language as it is now practiced, a dissatisfaction that is particularly evident in points eight, nine, and ten in the list of assumptions given above. The universalist, wishing to stand back and interrogate the world without implicating himself, finds himself frustrated at every turn by a degraded language, and by the fallen man who uses this language. (For the universalist, the failure of language and the failure of man indicate each other, so purifying language is a moral, as well as an intellectual imperative.) The best way to relieve the frustration and purify language is to divide it into objective and subjective, primary and secondary, fact and opinion, and eliminate the second term. Hence, the thrust toward objectivity, precision, and neutrality, which we have seen in the definers thus far, a thrust toward moral grace as well as intellectual honesty. Hence also their lack of concern for interpretive procedures, for once language is purified, interpretation will not be problematic.

It is this moral fervor which all those who have tried to build a universal language share. Perhaps inevitably, their architectural strategy has been much the same. All have sought to guarantee a sound moral

base for their language by choosing to build upon some preexisting language form which for them had some moral cachet. The Gnostics, for instance, chose to reconstruct the language at Babel. Numerological analysis of Biblical phonemes being out of favor in the eighteenth century, rationalists built a language from the infallible signs of appearances, which were simultaneously made available to man and validated by a rational God. Again, in the twentieth century, a new attempt and a new language: this time, mathematics. Interestingly enough, the enemy for all was the fecundity of language, and that fecundity was a sign of man's fall. For the Gnostics, the fecundity stems from the failure at Babel and so is an actual relic of the fall. For Swift, on the other hand, it is not fecundity itself but man's ability to be untrue to appearances and speak "the thing which is not" which distinguishes him from the soft, rational Houyhnhnms. For Russell and Wittgenstein, the endless extent of language made their project too vast for merely human capacities; again, it would take something better than man to make the language [16, pp. 49–235].

Ayer's logical positivism is an attempt to solve Wittgenstein's problem by limiting what is to count as a meaningful statement to statements derivable by formal procedures from statements about sense impressions. Statements such as "This pillow is good" are meaningless to the extent that "good" is not reducible to "soft" and "blue." The idea is obviously appealing to definers of technical writing; it probably accounts for the extraordinary word "data" in Harris's description of technical writing as a "data retrieval mechanism." [12, p. 137] But another offshoot from Wittgenstein and Russell has had an equally profound impact on thinking about technical writing: information theory. The power of this is not so much in the philosophy it provides as in the example. Computers and computer languages clearly use something which looks like language, which is based on the procedures of mathematics, and which transfers the language from donor to receptor perfectly. Technical writing should be so good. This example probably accounts for the "retrieval mechanism" in Harris's phrase; it certainly accounts for those flow charts for technical writing we've all seen, the ones with the boxes for the transmitter, channel, receiver,

and noise. This seems to be what we do: write down information and have someone else pick it up, albeit imperfectly, because of the noise.

But the metaphors logical positivism and computer science provide the definers with are only metaphors and indeed rather unconvincing [20]. (Think about it. Even though a person may receive information from technical writing—so that the effect of technical writing is information transfer—does the nature of the effect in any way determine the way it is produced, that is, make information theory applicable to writing? The effect of art is pleasure, but that doesn't give us a theory of art.) That we do not criticize them for being only metaphors is perhaps not surprising. To the extent that the definitions have ever had any power to convince, it is because they participate in a drama now hundreds of years old, the drama of Western man confronting a malevolent other, the universe, and seeking the language and the tools to subjugate that other. It is a drama whose end—failure—is known. The universalist definitions account for that failure: language itself has broken under the weight of knowing placed on it. The definitions prescribe a remedy, make language stronger by making it like the currently fashionable theory of truth, in this case science. (It is well to remember that scientific writing, though it deals with scientific subjects, is not thereby made scientific any more than writing about music is musical.) Thus, it is easy for the definitions to justify their remedies by appealing to common sense, a common sense they need not question. The result, and it has been so at least since Descartes, is that such definitions suspect the experience and language of man.

If the universalist tradition could realize its project and create a universal language, then such suspicion would be warranted. Yet, as even the universalists acknowledge, it may not be possible. There are only two possible ways to build it up: start from existing formal languages or start from the universal constants of language behavior. As we've seen, science and mathematics might be such formal languages, the languages of sense-data. But most philosophers of science believe that they are not in fact formal, and even if they were, Quine has shown that they can't be built up [21]. A universal language might be built by finding the basic Chomskian deep structures which

are actually wired into the brain and putting them together in the right way. Unfortunately, the available evidence suggests that there are no such structures. No language structure seems to be biologically inherent, the way the number of noses is.

If no universal language can exist, then the value of "purifying" language in its name should be reassessed. If we take each word only insofar as it contains information and refer each piece of information to other such pieces, we set up a clumsy interpretive system for ourselves. We must assert procedures for specifying context; we must account for and identify linguistic noise; we must write a technical lexicon. Moreover, we must accept preconditions for the project—a deracination of language, an implicit belief that man is fallen, and an automatic separation of epistemology and language—which are morally and pragmatically costly. And to what end?

THE MONADIST VIEW

The monadist alternative is to see language as it is actually used, rather than as a formal system, by readmitting its "tonal qualities" (Steiner's term).

> The directly informative content of natural speech is small. Information does not come naked except in the schemata of computer languages or the lexicon. It comes attenuated, flexed, coloured, alloyed by intent and the milieu in which the utterance occurs (and "milieu" is here the total biological, cultural, semantic ambience as it conditions the moment of individual articulation) [16, pp. 220–221].

The study of language becomes historical; it must ultimately take in each moment of being and the pressures shaping it. This seems sensible enough; we study technical writing by looking at how technical writers think about technical writing, but the preconditions for this study—the monadist ideology—are difficult to those of us brought up in the Cartesian tradition. The monadist does not separate knowledge and language; he argues that one knows in language. Since there is no way of knowing without language— a human construct—there can be no privileged access to the world. Since language creates knowledge of the world, it is not fruitful to suspect language nor to diminish it. And since language is not suspect, neither is the man who makes it; man is not fallen. Each language use is a "rich expression of articulate being," a being which simply is [16, p. 51]. No preexisting language form is likely to be better than the one we have; formalized languages are useful in special situations, but they are not extensible. Interpretation, consequently, is very difficult, and meaning can never be fully understood. What we mean depends on our consciousness as we speak; "all communication 'interprets' between privacies." [16, p. 198]

What motivates this view of the world? Why shouldn't we try to distinguish between knowing and speaking, when so much of our intellectual apparatus depends on making such distinctions? To answer these questions, we must again look back, this time to Giambattista Vico, an eighteenth-century professor of law and science. It is Vico's great clairvoyance, says Steiner, that knowing and speaking are inseparable, "that man enters into active possession of consciousness, into active cognizance of reality, through the ordering, shaping powers of language." [16, p. 75] To believe this, of course, requires a radical reorganization of what one wants to count as real. Vico made such a reorganization. For him, what is real or true is what we make (the doctrine of *verum factum*). Thus laws, language, or history, which we make entirely, are the primary objects of knowledge, and the natural world, which we do not make, is entirely secondary. After all, Vico argues, what we know of the natural world we know through experiments, which we make. There is no uninterpreted knowledge of the natural world.

Vico's doctrine was not accepted by his own century, whose dispositions were elsewhere. It took the Romantic preoccupation with the past's constituting of the present and with the individual voice to create a world in which Vico made sense [16, pp. 49–235]. In that world, even the father of linguistics, Humboldt, could say that language and knowing were reciprocal. Steiner summarizes his ideas: "Language does not convey a pre-established or separately extant content, as a cable conveys telegraph messages. The content is created in and through the dynamics of statement." [16, p. 82] To Humboldt, this idea is inescapable; nothing else explains the variety of languages and the difficulties of translating them. So,

too, for the twentieth century American linguists Edward Sapir and Benjamin Lee Whorf, the explanation of the differences in language was that "different linguistic communities literally inhabit and traverse different landscapes of conscious being." [16, p. 89] Whorf's most famous example is the Hopi language, in which, he claims, the Indians actually think time not as past, present and future, but as time-distance. Vico's thought, however, does not have its greatest consequence in linguistics. Coupled with the problem of how consciousness comes into being through language is the problem of how consciousness makes itself aware of the products of other consciousnesses, the problem of interpretation. Those who have grappled with this problem form a European tradition as distinguished as the universalist, but less familiar to Americans. The heirs of this tradition, Heidegger and Merleau-Ponty among others, have much to say about interpretation, which they view as the fundamental human activity [16, pp. 49–235].

Our version of Cartesian rationalism elides such radical problems of language production and interpretation by establishing pragmatic systems of interpretation and justifying them in common sense. For the monadist, however, the canons of common sense are what Steiner calls "axiomatic fictions," "conventions about 'reality-contents' of language . . . and about the accessibility of memory to grammatical coding." [16, p. 138] Axiomatic fictions claim to be absolute, but actually they provide a limited, indefensible view of the world. The descriptions of "technical writing" and "writing technically" which I have discussed are attempts to articulate these fictions. They are thus a description of language practice (including interpretive practice), not a formulation of the essential nature of technical writing. They bear the same relationship to a definition of technical writing as a description of Coach Woody Hayes' strategy has to a definition of football.

Such descriptions are, of course, definitive guides if everyone is playing Woody Hayes-style football. Even if the philosophic grounds for axiomatic fictions are crumbly, the group's decision to base its practice on them lend them a certain sturdiness, and make the group's injunctions on practice seem like common sense. My job in arguing a monadist view of technical writing (where the view seems quite out of

place), is to show how the present axiomatic fictions do limit everyday practice—how they damage it or cause internal contradictions. I must ask what of value is left out by the prescriptions that make natural language resemble formalizable language. What, in other words, is the language so prescribed unable to do? If I cannot answer this question, my philosophical objections are irrelevant.

ALTERNITY

I cannot give a full answer here: yet the form of my argument and the people I refer to do indicate where a full answer can be found. I only have room to show that the prescriptions limit the vitality of the language used, thereby limiting the creativity of the writer and forcing us to establish in the writing human relationships which are mistaken and false. These prescriptions (objective, quantitative, univocal) propose to cure writing by eradicating ambiguity. What they actually do is confuse ambiguity (a property of denotations), vagueness (a confused intention) and what Steiner calls "alternity." [16, 21] Alternity is a characteristic of any language statement. It designates the fact that any statement, as it states what is, also brings into the domain of consciousness what isn't. Alternity is a source of vitality and creativity, because it means that using languages is always playing with the possible.

We play in several different ways simultaneously. As we use a word, for instance, we do not merely denote something, we also call up some of the linguistic history of the word, its associations, the way it is habitually used. More than that, we also call up a domain of words which are not used; when we say "red," we may also mean "not blue," or "not polka-dotted" (but we certainly don't mean "not elephants"). As we put words into sentences, we open up a world, which is rich because of its alternatives and unique because of what we deny. This sort of play is not merely important in literature or on some arcane philosophic plane; it is crucial in technical writing. As we write, we construct a way of looking at a thing which precludes other ways at least temporarily, announcing that this is the privileged access to the thing. We write design specifications and

document maintenance procedures in part to ward off such illegitimate ways; we must, if only for legal reasons.

More fundamentally, we play as a way of becoming in the world, to exercise our human will. When I speak and believe it to be true, it can only be the truth because I know how to lie; I have considered the alternative; and I have chosen to behave in this way toward others and toward myself. No machine can speak the truth; it can only speak, because it does not make this choice. Our language also lets us play frequently with conditions other than the actual which are neither true or false, and so play with our hopes and fears. The past, the future, the conditional, and the hypothetical are constantly being set against the present when language is being used. (Note the orchestration of conditions in that last phrase "when—is—being—used.") Of course, as we play with these conditions, we do not necessarily involve others in it. Some of the play is private. I may associate a certain word with a friend who used it and so strain to use it myself just that I may remember or imitate. A word may surface from a private discourse, an internal expression of hope or hate. This privacy gives strength to the writer and to the listener, who rarely fails to appreciate it when a voice becomes individual or when a word strikes one of the listener's private chords. Perhaps a technical writer can indulge too much in private play, but strangely, the instrumental purposes of technical writing are rarely so finely tuned that it matters. In most technical writing, there is no editorial reason to choose between "squeeze between the palms" and "compress in the hands." The actions resulting will be the same. Yet for me the first image is more satisfying to write or think, and having it makes my job easier and less alienating.

The cause of this alternity, the reason it has developed and survived, is that it has specific functions within a group. Alternity makes participation in a group—at all levels—a dynamic activity. Alternity does this by making a language act both inclusive and exclusive, both shield and sword. At the level of consciousness, using a word (which is never our own) has admitted the other. Perhaps a better description, as autistic children know, is "has let the other invade." At best, accepting an outside word and using it is distressing. (We all know the turmoil of being un-

able to find the "right" word and being forced to accept another, and we know the attendant loss and denial.) Alternity defends against this invasion; it creates a zone of selfhood where we may become ourselves as we become the other. At the level of articulation, the inverse process occurs. As we use a word which others hear, we simultaneously enter the group (which of us has not felt relieved upon finally having talked at a party) and individuate ourselves. We give the words to the group, and yet they remain ours. Beyond these activities within a group, alternity allows our language acts to include members of the group and exclude the others. Language acts in this sense are like discussing baseball with the new one in a prisoner-of-war camp. Using the correct word shows we belong and tests whether he does. Does alternity operate in this way in technical writing? Take for one example, jargon, a sin to technical writers and technical writing teachers who wish that technical writing were not a collection of Balkan states. But is it a sin? Jargon may be owlish to us, but to students or engineers who use it so delightedly it is a ticket of admission to a group which they set against our own and prefer. Creating, employing, and preserving jargon is a means of self-preservation, not simply the mode of aggression we usually condemn it as.

According to the monadist view, alternity makes any group vital. Perhaps at the highest levels this is the most clear. Surely we agree with Orwell that a language rich in possibility commits us to democratic freedoms and threatens arbitrary authority. Such speech lets us find dissatisfactions and think of alternatives. That is why political repression aims at limiting speech, either by suppressing it entirely or by making it sere, vague, mechanical, unthinking, endlessly univocal.

How does ignoring the property of alternity affect the descriptions of technical writing? In three ways. First, because the descriptions ignore the delicate modes of group cohesion entailed in technical writing, they misconstrue the difficulty of interpreting one group to another, for instance engineers to managers. Writing for a lay audience, as another example, seems only to involve substituting the general for the precise word, the metaphor for the equation. In fact, it requires the translator (for that is what he or she is) to inhabit two groups at once, testing the prac-

tices of each against the other. Second, the definitions fail to give technical writing the responsibility it should have or to invest it with the consequent creativity. The belief that the world is legible largely accounts for this. When a technical writer places something before a group, he or she determines how it will be seen. (What reader of a John Deere manual would use a tractor for a backstop, as I saw some boys doing one day.) That determination is trivial if there is only one best way to see something. Third, the definitions fail to account for or even to describe a slackness in technical writing which is due to the fact that it is written to a limited future. Assuming that technical writing should disappear as it is read or acknowledging that it will disappear soon after gives a writer a few ways to play with it and little reason to establish selfhood in it.

The belief that technical writing should disappear has a graver consequence, because sometimes it shouldn't disappear. We tend to think that technical writing gives access to information about the world; a universalist holds that the access should be quick and efficient—usually logical. But in situations where the audience is going to be using the writing for a long time, it is not at all obvious that efficient access is paramount. Take access to streets in a city as an example—and as a metaphor for much technical writing. Generally speaking, street names and addresses are laid out systematically on a grid, so that residents or newcomers can find any place and the route to that place quickly. So it is in Los Angeles, where I come from. In cities like Boston, the street system is older than the idea of access, and the streets seem laid out randomly, at least to a newcomer. The result is chaos and confusion, occasionally, but also an increase in what city planner Kevin Lynch calls imageability [23]. According to Lynch, a city is highly imageable if it presents itself to the mind as a complex whole, which is understandable in many ways at once. A highly imageable city enriches the experience of the residents, for we learn its life as we learn to get around. I know that in Boston, Lynch's example of a highly imageable city, learning the city's ethnicities and history is part of learning the addresses. And in Boston, even physical access is humanized, for the only practical way of getting around is to get pretty close and then ask somebody. In a less

imageable city, like Los Angeles, you can get no hint of the Korean neighborhood on 3rd Street from the map; street names record only the quirks of developers. Access, of course, is very simple: driveway to driveway. I came from Los Angeles to Boston, and Boston's system was difficult at first, and frustrating. But now I am grateful to it, for it gives contour to my experience.

A NEW DEFINITION OF TECHNICAL WRITING

I am not suggesting that we abandon methodical parts lists and label parts whimsically. I am not suggesting that we write precious ambiguities or take up obscurantism. I am suggesting that the injunctions of clarity, precision, logic, objectivity, and univocality, the injunctions which we have accepted in deference to and imitation of the technology we imagine our writing gives privileged access to, are not absolutes but axiomatic fictions of a particular group. What is technical about technical writing is technology, to the extent that technology defines certain human behaviors among certain human beings and defines a group. Hence I suggest the following definition of technical writing.

Technical writing is writing that accommodates technology to the user.

The key word is "writing": it should be understood in the monadist sense as a way of thinking and establishing human relations in a group. The word "accommodate" also suggests the invasive quality of technology (even to technologists) and the self-effacing role technical writing plays. ("Accommodate," curiously, allows its indirect and direct objects to be inverted with only a flick of the eye; in an invasion, who is accommodating whom, invader or invaded, technology or user, depends on the power of each.) "User" is appropriate rather than "reader," because technology is meant to be used; moreover, "user" reflects the fact that technical writing exists within a system which measures actions, people, and things by the criterion of use. "Technology" is more than an array of tools or procedures. It extends to the

way human beings deploy themselves in the use and production of material goods and services. One may speak profitably of an economic strategy or an administrative formation as a technology.

The idea that by technology we mean a way that people, machines, concepts, and relationships are organized is crucial to the definition, but at first glance it seems strange. We usually associate the word "technology" with machines or the ability to make machines, as in "computer technology." But this usage narrows our attention unnecessarily; the ability we speak of surely cannot be confined to a design, but must also include all concerned with creating and implementing the design. It is symptomatic, and I think instructive, that in its section on technology management the *Encyclopedia of Professional Management* argues that "private companies—multinational companies—are likely to be the most effective mechanisms for the spread and development of useful technology." [24, p. 1154] For the *Encyclopedia* a certain system of control is appropriate to technology; for me the two are a part of each other.

A second idea is that technology makes an essential difference to technical writing. Technical writing doesn't just happen to occur alongside technology; it is a technological product, a residue of technological management. Managers know this. It does not strike the editors of the *Encyclopedia* as odd, for instance, that they cross-reference "Research and Development Management" to "Writing for Business." Technical writing as a profession is a result of such management logic. It was invented after World War II in the aerospace and electronics industries, when very large tasks required extensive documentation, particularly in the proposal and design stages, and managers decided that these tasks could best be performed by separating the technical and writing functions. It may be argued that separation of difficult tasks is a natural response of any large organization, not something special to technology. But in fact, it, or even the less salient separation of the writing and engineering functions in a single job description, is the product of technological organization; the separation comes by analogy with the assembly line.

There are large organizations also concerned with the manipulation of the natural world in which the distinction is much less clear. I am thinking of academic science. In the scientific community, it would be considered an evasion of responsibility for a scientist to leave his or her writing to a scientific writer. (The only professional writing having to do with science, per se, is science writing, a species of journalism.) The organizational distinction, then, is very large; technology sees its technical writing as a thing to be quantified, controlled, and managed; academic science simply requires such competence to be part of the professional's tools. The distinction I made earlier between science and technology perhaps explains why. Scientific readers, engaged in a search for truth, are highly motivated, and they have a small arsenal of ways to test the writer's truth claim, the self-regulating mechanisms in the discourse. Technical readers have less exacting methods of testing a statement (they are not concerned with a writer's truth claim) and also make very different demands on it. The relationship of reader to text or writer to writing is thus like a loose joint, and so must be controlled and managed.

Under the universalist view, the fact that a group organizes its writing in a certain way does not say anything about the writing itself. In the monadist view it does, because the language practice of any group sets forth the limits of the group, the aims of the group, and the relationships that go on inside it. Technology, like any group, has particular ways to model the activity of human beings, particular categorizations of experience, particular modes of responsibility and control. Let me give an example. Most of this article was written while I was sitting in a Steelcase desk chair; the rest in an old-fashioned swivel desk chair which I got from a chairmaker. The Steelcase one came with a manual. The chairmaker did not provide one. Steelcase's manual is of more than semiotic interest, though that alone is considerable. (The manual proclaims the technology of chairmaking, but so does the chrome and synthetic fabric. High-technology chairs do not sell unless they look technological.) The existence of the manual indicates more than a habit of documentation run wild, though this, too, is important. (I get the feeling the manual was included because everything before distribution had been documented, so why stop now?) The manual is not simply something to use if I need help. Its existence defines a particular relationship with me

and projects a particular power over my experience. First of all, it proclaims the right to penetrate my experience, as it accomplishes the penetration. It models me as isolate. If I have trouble raising the chair, I should not turn to the mechanically minded professor next door or to my own common sense, I should turn to it. (True, I may be isolate, but that doesn't change my point.) Similarly, the manual also takes a certain line of responsibility and drops another. If I have trouble with the Steelcase chair, I go to the manual. If that fails, or I fail it, I then must take on the Steelcase Corporation. On the other hand, if I have trouble with the craftsman's chair, I first turn to myself or to a nearby friend. But I can always fall back on calling the craftsman, who I know will take responsibility. A principle of limited responsibility informs technological organizations; their writing enforces and establishes that principle.

Technology, in sum, not only uses language but employs its own axiomatic fictions; not only uses logic, but sets forth a rationality; not only perceives, but has its own way of knowing. The idea that technology has an ideology is difficult only because how technology thinks seems so obvious, so commonsensical; the idea would be easy if we were Hopi and studying technology from outside. Why has the ideology of technology become common sense? I find the most useful answer in the work of Herbert Marcuse and the Frankfurt School of philosophy. Several parts of the argument in Marcuse's *One-Dimensional Man* are particularly relevant to this discussion [25]. Marcuse argues, for instance, that the co-optation of science we have seen in some definitions of technical writing is integral to technological discourse. The key features of the scientific method as it was developed in the seventeenth century—they include the adoption of a value-free "objectivity," the constitution of the world into quantifiable and interchangeable things, qualities, and relationships (positivities), and the description of positivities in operational or instrumental terms so as to enable the manipulation of matter—the key features together form a discourse of technics, a *techno-logy,* which had no great authority in social and economic relations until the early nineteenth century, when it was brought into the discourse of production. Technological discourse then converted all things, natural or human, into functions, so that it could dominate man and matter simultaneously, using the same discourse to bring man into complicated systems of control and organization as it used to bring matter into complicated systems of manipulation. The conversion seemed like applying scientific logic to human beings, but the point of it was power for those wielding the logic. Marcuse thus calls it the "logic of domination."

Consider, for instance, how the logic of domination has coopted the idea of "objectivity." I have been arguing that in the definitions, no distinction has been made between epistemological and formal objectivity, when there is no necessary connection between the two, when the formal seems unnecessary and perhaps irrelevant and the epistemological seems problematic. Why then is objectivity so often stipulated in technical writing? Because technology demands a third kind of objectivity—instrumental objectivity or fungibility. If writing can speak with a single, third-person voice and pretend that this is the voice of everyman, the writing is likely to be uniform, and thus interchangeable.

The logic of domination operates in every such stipulation, whether it be objectivity, a scientific demeanor, or univocality that is stipulated. It must. We would probably not submit to such mechanization of our being, even though it brings us extraordinary material benefits, if the interchangeability of man and machine, the belief, for instance, that the question "will machines replace us?" makes sense, did not permeate our discourse. Thus Britton's dictum—convey one meaning and only one meaning—is not merely a guide to current practice in technical writing; it intends a subjugation of writing and writers. Dicta that remind the writer of the richness of language, whatever their truth, are very inconvenient in a testing laboratory. Alternity invests the writer with responsibility, responsibility which technology requires be in the hands of the manager. Alternity valorizes complex, personal communications, just the sort of thing to decrease productivity. Alternity makes quantifying language production silly. Yet how is one to plan, if one cannot set an output level?

Marcuse argues that most of technology's success comes from its ability to hide terms of the discourse which might be threatening to the discourse itself, terms like alternity. But his argument extends to the

way technology is organized, and he thus explains the separation of functions described earlier. That there be a profession of technical writing is certainly one term of technology, and it is certainly an important one. Yet technical writers are pretty low on the corporate totem pole. They are not well paid nor held in great esteem. If a technical writer wants to get ahead, he or she tries to move as quickly as possible into management. Technical writers are production people. Yet technical writers must often get to know far more about what they write than anyone else. To do this, they perform managerial functions. They oversee the work of other sections, communicating frequently with many different areas of a company. They make frequent and discerning judgments about the products or processes. On the basis of these judgments, they frequently make *de facto* policy. They have power. Yet neither they nor management seem to be aware of this. Why? The belief that language is transparent and that there is a privileged access to the world clouds the issue. What a technical writer does is obvious and easy. Judgment, which is given to the manager, is a higher faculty than perception.

THE TRANSFER OF TECHNOLOGY

Technical writing moves outward—from designer to millwright, from engineer to manager, from distributor to customer. At each point, the reader is a user. (People do not read technical writing for fun but because they need to do a task.) At every point, the technology must be accommodated to the user or the user must be accommodated to the technology. Previous definitions call this process giving access to the user, but "accommodate" is more accurate. The ambiguity of the word "accommodate," as observed earlier, sets forth the mutuality and mutability of the power of relationships established by technical writing. Moreover, "accommodate" suggests that conversion of thing to function which is crucial to the discourse of technics. Technical writing appears to be concrete, but it is only concerned with the concrete. In fact it makes the concrete abstract; it replaces the obdurate thing with the manipulable concept. It thereby makes the strange, invasive, expensive, or inefficient into the familiar and useful. Most important, "accommo-

date," unlike "give access," reminds us that technical writing and the movement of technology are human relationships, with all the attendant feints. Viewing technical writing as access makes us blind to its rhetorical quiddity.

The criterion of use—put it in only if the reader can use it, read it only if I can use it—is the most important single governor on technical writing. In it are the grounds for Britton's confusion of meaning and use (the meaning of a bugle call and symphony may be different, though their use is the same). The word "use" is as difficult to understand or use as we have seen the word "meaning" is; yet in descriptions of technical writing it has been used in an equally simplistic, Gradgrindian sense. The use of the writing has been what the writing lets the user do efficiently. The criterion of use thus accounts for the barrenness of technical language. What is the use of fripperies in language, after all? But "use" need not be so demeaning. Can't joy in language communicate itself, and can't men or women on the job use joy? The criterion of use is one more gesture toward science, but in fact it reveals once more the difference between the two. If the criterion of use informs the structure of technical writing, then it undermines technical writing's ostensible status as the privileged access to a legible world. Technical writing gives what is useful, not what is known. The first question a technical writer asks is "Who is the reader?" not "What is the world?" and the answer to the first determines the answer to the second. Thus, the barrenness of technical writing is actually ironic. The gesture towards science gives technical writing a thirty-weight flavor, but technical writing's greatest success comes when it is swallowed easily and digested quickly.

THE IMPLICATIONS OF THIS DEFINITION

It may be charged that my definition evades the title question by displacing "technical" onto "technology." I criticize the other definitions for leaving fuzzy boundaries around "technical," yet the boundaries around "technology" are by no means distinct. I admit this charge. My claim for the definition is not that it is ultimately accurate; it is that the definition shifts attention to where it should be shifted, to tech-

nological practices. The boundaries of that group cannot be distinct; the boundaries of no human endeavor are. Science and technology overlap; law and technology overlap; work and technology overlap. Yet even though they are fuzzy, the boundaries are more precise and more useful than the previous ones. The definition resolves problematic cases more accurately than the earlier ones: Velikovsky is not technological and not useful; environmental impact statements emphatically do accommodate technology to the user. Moreover, the definition does not let the boundaries be decided by one person's large experience. Technology is the subject of many disciplines: law, political science, history, management. The definition permits and even demands that we use such findings as they provide. The definitions we have seen are rules of thumb which serious and dedicated people have found useful for many years. My definition does not deny those definitions so much as it places them in context.

By questioning the philosophic basis of the prescriptions for technical writing, I am actually making my title question less meaningful. The title implies that language can be defined; my views of language say that such definitions are problematic—and mutable. The title implies that a procedure, presumably scientific, can be developed to answer the question; my criticism of previous definitions suggests that such procedures are misguided.

The definition suggests a different procedure for looking at technical writing. In this procedure, the piece of technical writing or the act of writing technically are two of several foci, which must also include the practice of the groups which the writer is writing to, writing for, and writing from, as well as the practices of the group in which the writer has located himself or herself. The procedure is in effect a natural history of technical writing. It looks at each thing in its domain both as an organism (which has a history) and as an entity (which is simply there). The procedure begins where someone conceives the need to accommodate, adducing the relationships of power and perception which generate it; and the procedure must end where the accommodation is completed. Along the way, the procedure follows the need and its traces in human relationships. Such a procedure is very difficult, for penetrating groups which you are not a member of requires learning a new way of thinking. It is likely that this new way will not be easy to generalize. The way they handle technical writing at Kodak is very different from the way they do at Corning, and each way is tied up with the corporation's organization, its self-image, its decisions about what is acceptable behavior, its valuations of judgment and knowledge, and so on. Despite the difficulties of this procedure, it provides the only means by which we can develop a full response to the question, "What's technical about technical writing?"

People come into technical writing from two directions; either they are technicians who are asked to write or writers asked to gain technical skills. As technical writers, they are likely to ask themselves what they are and what they do: obvious and necessary questions. The answers function as a definition of technical writing, and that definition helps the definer find an internal equilibrium and some direction for the future. The previous definitions of technical writing worked well to that end; they could make us feel very comfortable with technical writing, what it is and what it does. This definition does not. It questions the value of what we do; it suggests that our common sense misguides us much of the time. As a remedy, it requires that we abandon deeply held assumptions about how we know and write the world. Asking us to suspect ourselves leaves us without much equilibrium and with an uncertain future. But perhaps that future will give us writing which is more responsible, more creative, and more fulfilling.

NOTE

ideas. Much of the argument was thrashed out in the hallways at Miami in long conversations with Brit Harwood. And without Judith Fryer, who gave me both intellectual support and sympathy during the whole time I wrote it, I would never have gotten started, nor would I have had the push to work it through.

REFERENCES

1. F. H. MacIntosh, Teaching Writing for the World's Work, in *The Teaching of Technical Writing,* D. H. Cunningham and H. A. Estrin (eds.), National Council of Teachers of English, Urbana, Illinois, pp. 23–33, 1975.

2. E. P. Dandridge, Notes Toward a Definition of Technical Writing, in *The Teaching of Technical Writing,* D. H. Cunningham and H. A. Estrin (eds.), National Council of Teachers of English, Urbana, Illinois, pp. 15–20, 1975.

3. R. Hays, What is Technical Writing?, in *The Teaching of Technical Writing,* D. H. Cunningham and H. A. Estrin (eds.), National Council of Teachers of English, Urbana, Illinois, pp. 3–8, 1975.

4. W. K. Sparrow, Six Myths About Writing for Business and Government, *The Technical Writing Teacher, 3,* pp. 49–59, 1976.

5. J. A. Walter, Technical Writing: Species or Genus?, *Technical Communication, 24,* pp. 6–8, 1977.

6. P. M. Kelley and R. E. Masse, A Definition of Technical Writing, *The Technical Writing Teacher, 4,* pp. 94–97, 1977.

7. R. Carter, Technical Writing: A Framework for Change, *The Technical Writing Teacher, 7,* pp. 39–42, 1979.

8. F. H. MacIntosh, Where Do We Go From Here?, *Journal of Technical Writing and Communication, 8,* pp. 139–145, 1978.

9. M. Rabinovitch, Technical Writing's Last Stand, *Technical Communication, 27,* pp. 23–25, 1980.

10. T. M. Sawyer, The Common Law of Science and the Common Law of Literature, in *The Teaching of Technical Writing,* D. H. Cunningham and H. A. Estrin (eds.), National Council of Teachers of English, Urbana, Illinois, pp. 185–191, 1975.

11. P. Skaggs, Teaching Business Communications: Journeywork or Humanistic Endeavor?, *The Technical Writing Teacher, 6,* pp. 66–68, 1979.

12. J. S. Harris, On Expanding the Definition of Technical Writing, *Journal of Writing and Communication, 8,* pp. 133–138, 1978.

13. C. R. Stratton, Technical Writing: What It Is and What It Isn't, *Journal of Technical Writing and Communication, 9,* pp. 9–16, 1979.

14. W. E. Britton, What Is Technical Writing? A Redefinition, in *The Teaching of Technical Writing,* D. H. Cunningham and H. A. Estrin (eds.), National Council of Teachers of English, Urbana, Illinois, pp. 23–33, 1975.

15. C. Bazerman, Scientific Writing as a Social Act: A Review of the Literature on the Sociology of Science, in *New Essays in Technical and Scientific Communication: Research, Theory, Practice,* J. Brockmann and C. R. Miller, Baywood Publishing Company, Farmingdale, New York, 1983.

16. G. Steiner, *After Babel: Aspects of Language and Translation,* Oxford University Press, London, 1975.

17. J. Weizenbaum, *Computer Power and Human Reason,* W. H. Freeman, San Francisco, California, 1976.

18. H. Dreyfus, *What Computers Can't Do,* Harper and Row, New York, rev. ed., 1979.

19. C. R. Miller, A Humanistic Rationale for Technical Writing, *College English, 40,* pp. 610–617, 1979.

20. D. N. Dobrin, What's Wrong with the Mathematical Theory of Communication?, *Proceedings of the 29th International Technical Communication Conference,* Society for Technical Communication, Washington, D.C., pp. E37–E40, 1982.

21. W. V. Quine, Two Dogmas of Empiricism, *From a Logical Point of View,* Harvard University Press, Cambridge, Massachusetts, 1953.

22. I. Scheffler, *Beyond the Letter: A Philosophical Inquiry into Ambiguity, Vagueness, and Metaphor in Language,* Routledge and Kegan Paul, London, 1979.

23. K. Lynch, *The Image of the City,* The M.I.T. Press, Cambridge, Massachusetts, 1960.

24. Technology, Management Implications, *Encyclopedia of Professional Management,* McGraw-Hill, New York, 1978.

25. H. Marcuse, *One-Dimensional Man,* Beacon Press, Boston, 1964.