The world is in a constant flux around and in us, but in order to grapple with the floating reality we create in our thought, or at any rate in our language, certain more or less fixed points, certain averages. Reality never presents us with an average but language does.

OTTO JESPERSEN

Chapter 13 Wind as Science

Of course there are a thousand ways to see the wind. You can even talk to it—"O wild West Wind," cries Shelley. The terms available for describing the wind are practically infinite, and one reason for this may be, as we have already pointed out, that you can't see wind at all, directly. All you can do is sense it through signs: rustling of leaves, blowing of smoke, cool sensation on your face. You interpret certain feelings that your senses give you, and you call that wind. To recall the language of chapter 4, you observe the world around you and *read* it as wind.

In this next exercise you are going to try to see wind in one particular set of terms—the terms of numbers. To see things as numbers, to "measure" things, is a way of seeing that enjoys enormous prestige in our time, and it suggests all the dramatic improvements of life that have accompanied the growth of science. Whatever else it is that scientists do, one thing they obviously do is measure things, so that the world becomes defined in relation to an organization of statistical language.

How can you express the wind statistically? You have to have a device, an instrument of some sort, and in the case of measuring the speed of the wind, this instrument is called an anemometer. Then you communicate your various readings of this instrument by making use of a scale of measurement. Here, for example, is a famous scale of measurement—one invented by an Admiral Beaufort in 1806. (It is mentioned in Joan Didion's "Los Angeles Notebook," chapter 12.) As you study it, try to determine what instrument Beaufort has selected for his readings. What was Beaufort's anemometer?

Beaufort Number	*Description of the Wind*	*Beaufort's Criteria*
0	Calm	
1	Light Air	Just sufficient to give steerage way
2	Light Breeze	with which a well-conditioned man-of-war under all sail, and clean full, would go in smooth water from — 1 to 2 knots
3	Gentle Breeze	3 to 4 knots
4	Moderate Breeze	5 to 6 knots
5	Fresh Breeze	in which the same ship could just carry close hauled — Royals, etc.
6	Strong Breeze	Single-reefs & topgallants
7	Moderate Gale	Double-reefs, jibs, etc.
8	Fresh Gale	Triple-reefs, courses, etc.
9	Strong Gale	Close-reefs and courses
10	Whole Gale	with which she could only bear close-reefed main topsail and reefed foresail.
11	Storm	with which she could be reduced to storm staysails.
12	Hurricane	to which she could show no canvas.

Beaufort's anemometer was of course "a well-conditioned man-of-war," with all her complications of sails and rigging. That is the instrument he reads with this scale. For example, if the wind were blowing so hard that such a ship could just carry close-hauled single reefs and topgallants, then we are to name that wind a "Strong Breeze" or Beaufort 6. And what is the advantage of such naming? One advantage you can readily appreciate simply by casting your eye down the left-hand row of numbers and comparing their brevity with the vastly more

cumbersome phrasing under the headings "Description of the Wind" and "Beaufort's Criteria." The numbers are so simple! They are so easy to tell to someone else, so easy for a ship captain to enter in his log. Yet they are also, perhaps you will want to object, *too* simple. "Beaufort 6" is not an adequate translation of "Strong breeze in which a well-conditioned man-of-war could just carry close-hauled single-reefs and topgallants." To this objection one can only say that this always happens when life is expressed in statistics, or indeed any simple terms. There is a great gain in ease of communication; there is a great loss in richness and precision. Notice the paradox that numbers are actually *im*precise, inasmuch as they fail to show the indefiniteness of actual experience. This is a constant problem in science, and it occurs in all acts of measurement, even when the instrument being read and recorded with pencil and paper is, say, a needle on a dial, and not a well-conditioned man-of-war. The physicist, P. W. Bridgman, has put it this way: "Any physical indefiniteness does not get into the paper and pencil operations because the first preliminary to the paper and pencil operations is to replace the instrumental indications by numbers mathematically sharp." The sharpness, then, the clarity and simplicity, are in the mathematics, not in the wind. It would be hard to overemphasize this truth.