4: The Education of a Gearhead

1. I grew up in a commune; see note 3 of chapter 1.
2. In his history of the carriage trade, Kinney tells the story of one Ezra Stratton, who began his seven-year indentured apprenticeship at a southern Connecticut carriage maker in 1824. To his disgust, sixteen-year-old Ezra found that "his first morning's work consisted of repairing the stone wall around his master's two-acre field." "In a time and place when many workshops were extensions of the master's home, the line between habitation and business was blurred at best." At lunch, young Ezra noticed "the glee of a seventeen-year-old apprentice at the table, [and] quickly divined the cause." As he would write later in his own autobiography, "the cow and horse, the pig and woodpile no longer claimed *his* attention . . . for his initiatory year of 'chores' had expired" (Kinney, *The Carriage Trade*, p. 42).
3. This is the lesson of Solon's poem according to Werner Jaeger, as quoted by David Roochnik, *Of Art and Wisdom: Plato's Understanding of Techne* (University Park: Penn State Press, 1996), p. 29.
4. As the German philosopher Friedrich Jacobi (1743–1819) characterized the central doctrine of the Kantian revolution, "we can grasp an object only insofar as we can let it come into being before us in thoughts, can make or create it in the understanding" (Jacobi as quoted by David Lachterman, *The Ethics of Geometry: A Genealogy of Modernity* [New York: Routledge, 1989], p. 9). Yet this is merely the completion of an earlier revolution. Beginning with Copernicus and Galileo, "the decision was taken to undo the habitual subordination of mind to the (pregiven) 'object' of inquiry by making the latter's intelligibility depend on what the inquirer has inserted in the object in advance, in accordance with the relevant concept he has of it" (ibid., p. 11). The procedure of the newly mathematized physics came to be taken as the model for modern thought in its entirety.

This is evident in, for example, Gassendi's dictum that "whatever we know, we know in virtue of mathematics" (ibid., p. viii).

5. Aristotle, *Rhetoric*, 1355b12.
6. Once I went with my father to see Cirque du Soleil, the famous circus. As we took our seats, he looked up at the torches burning overhead and said, "Ah, sodium yellow." When sodium burns, it gives off a yellow color, which my dad liked to explain in terms of quantum mechanics. But in fact they weren't torches; they were strips of yellow ribbon blown by a fan, with a light shining on them, to produce an artful imitation of burning torches. I pointed this out to my dad, and he was genuinely shaken by the revelation. Embarrassed for him, I suggested maybe it was his eyeglasses, but his intellectual honesty was such that he had no interest in trying to save face. He insisted that no, he could now plainly see that they were ribbons, not torches, yet he had seen torches before. The fact that he was disturbed by this experience, and open about it rather than defensive, impressed on me once more his genuine love of truth. Yet it seemed to me that the intellectual habits of his scientific training had gotten in the way of a true perception.
7. This distinction I want to make between attentiveness and assertiveness may be found in agriculture as well, corresponding to "organic" (or traditional) versus industrial methods. Industrial agriculture is assertive in the sense that it imposes its plan on the land, and reliably attains its object. It is demonstrative; the fruit it produces is the conclusion of a radically simplified ecological syllogism. The land is a kind of abstract grid upon which is projected the intention of the farmer; that intention is not much conditioned by the peculiarities of the land, because the land is treated as basically pliable. Traditional agriculture, on the other hand, regards the land as having a reality of its own. Farming in this way has the chancy, elusive character of a stochastic art, and indeed it often fails. It is subject to contingencies that do not arise from the will of the farmer, and he

must subordinate his intention to them. This was especially so in the days of animal power, but remains true to some degree of traditional agriculture as practiced today. Adam Smith wrote that "the man who ploughs the ground with a team of horses or oxen, works with instruments of which the health, strength, and temper, are very different upon different occasions. The condition of the materials which he works upon too is as variable as that of the instruments he works with, and both require to be managed with much judgment and discretion" (*The Wealth of Nations*, ed. Edwin Cannan [Chicago: University of Chicago Press, 1976], Bk. 1, Ch. X, Pt. II, p. 142). Recall George Sturt's description of similar variability in the work of the wheelwright on p. 41. Traditional agriculture is opportunistic like a conversation; paths forward open up through a dialectic between what one wants and what nature affords. For a richly descriptive account of industrial versus traditional agriculture, see Michael Pollan, *The Omnivore's Dilemma*. In his various works, Wendell Berry reflects on how agricultural practices give rise to another sort of rural ecology—a web of human relationships that may be flourishing or impoverished.

8. Murdoch, *The Sovereignty of Good*, p. 84.
9. Robert Pirsig, *Zen and the Art of Motorcycle Maintenance: An Inquiry into Values* (New York: William Morrow and Company, 1974), p. 32.
10. Ibid., pp. 32–3.
11. Ibid., pp. 33–4.
12. If it is surprising for us to learn that our word "idiot" has an origin in the idea of privacy or self-enclosure, it is surely because our thinking takes place within a horizon shaped by modern philosophy, beginning with Descartes. It was Descartes who insisted on the radically private character of rationality, thereby driving a wedge between reason and ethics.
13. Murdoch, *The Sovereignty of Good*, p. 82.

14. Ibid., p. 91.
15. Ibid., p. 88.
16. Hoxie, *Scientific Management and Labor*, p. 134.

5: The Further Education of a Gearhead

1. The wages of motorcycle mechanics are considerably lower than those of car mechanics. The economics of this are complicated, and made a bit opaque by the fact that it is a touchy matter. I have asked more experienced independent motorcycle mechanics, with shop rates of sixty, seventy, or even eighty dollars per hour (in more expensive, northern and West Coast urban markets), what percentage of time they spend in the shop is billable, and I have never gotten a straight answer.
2. Paul J. Griffiths, "The Vice of Curiosity," *Pro Ecclesia* XV/1 (2006), pp. 47–63.
3. Amy Gilbert, "Vigilance and Virtue: In Search of Practical Wisdom," *Culture* (Fall 2008), p. 8.

6: The Contradictions of the Cubicle

1. James Poulos, "Some Enchanted Bureaucracy," *Society* (May/June 2008), p. 295.
2. Linda Eve Diamond and Harriet Diamond, *Teambuilding That Gets Results: Essential Plans and Activities for Creating Effective Teams* (Naperville, Ill.: Sourcebooks, 2007), p. 108.
3. Jonathan Imber offered this perfect phrase in another context.
4. Schumpeter adds in a footnote, "At present this development is viewed by most people from the standpoint of the ideal of making educational facilities of any type available to all who can be induced to use them. This ideal is so strongly held that any doubts about it

are almost universally considered to be nothing short of indecent . . ." (*Capitalism, Socialism and Democracy* [1942; New York: Harper-Perennial, 1975], p. 152).

5. In the usage that was once most common, the word "information" denoted a report about the state of the world. It could also mean instructions for altering the world, as in a recipe for beef stew. But in the 1940s, Claude Shannon of Bell Laboratories used it in a new way. His perspective was that of a mathematician who was trying to clarify some concepts that would be helpful to electrical engineers working for the telephone company. As used by Shannon, the word is no longer tied to the semantic content of utterances as grasped by sender and receiver; "information" in the new usage refers to the transmission of meaning rather than meaning itself, and it is *quantitative*, "a measure of the difficulty in transmitting the sequences produced by some information source" (according to Warren Weaver, "The Mathematics of Communication," *Scientific American* [July 1949], p. 12, as cited by Theodore Roszak, *The Cult of Information: A Neo-Luddite Treatise on High Tech, Artificial Intelligence, and the True Art of Thinking* [Berkeley: University of California Press, 1994], p. 12). In the new usage, "even gibberish might be 'information' if somebody cared to transmit it," as Roszak writes. Shannon's appropriation of the common word "information" for this purpose has led to all manner of confusion, and infected our common use of the word in such a way that one must make an extra effort to preserve the idea of *meaning* if that is what one intends. The net effect is to embolden our native tendency to intellectual leveling, and make it seem somehow in harmony with technological progress.
6. Alexis de Tocqueville wrote,

> *Men of democratic centuries like general ideas because they exempt them from studying particular cases; they contain, if I can express myself so, many things in a small volume and give out a large product in a little time. When, therefore, after an inattentive and brief examination, they believe they perceive a common relation among certain objects, they do not push their research further, and without examining in detail how these various objects resemble each other or differ, they hasten to arrange them under the same formula in order to get past them* (Democracy in America, *trans. Harvey C. Mansfield and Delba Winthrop [Chicago: University of Chicago Press, 2000], p.414).*

Trying to get past things with haste is incompatible with dwelling in things and giving them their due. But Tocqueville also suggests that the kind of attention demanded by practical involvement can serve as a corrective to this tendency. General ideas appeal to people "only in matters that are not habitual and necessary objects of their thoughts" (ibid., p. 416). Further, "those in commerce will readily seize all the general ideas one presents to them relative to philosophy, politics, the sciences, and the arts without looking at them closely; but they will entertain those that have reference to commerce only after examination and will accept them only with reservation" (ibid.). This statement requires a crucial qualification in our day. In Tocqueville's era there was no such thing as commerce without practical involvement and the kind of attention it demands, whereas in our time the separation of thinking from doing has disburdened the commercial officer class of such attention, and made it more susceptible to general ideas.

7. Among the "promising personality characteristics" listed in a current textbook of organizational psychology is "tolerance for contradiction." Frank J. Landy and Jeffrey M. Conte, *Work in the 21st Century: An Introduction to Industrial and Organizational Psychology*, 2nd ed. (Malden, Mass.: Blackwell Publishing, 2007), p. 102.
8. In fact, I think this theoretical ideal of monopoly behavior posits more omniscience than many businesses really possess. Demand-side

feedback is provided quickly in a supermarket. But when your customer is an institution, such as a library, there are unique rigidities on the demand side. How does a library solicit the expression of disgust from patrons? Instead the InfoTrac terminal simply sits unused.

9. Craig Calhoun, "Why Do Bad Careers Happen to Good Managers?" *Contemporary Sociology* 18, no. 4 (July 1989), p. 543. My account of Jackall's findings is heavily indebted to this review.
10. Robert Jackall, *Moral Mazes: The World of Corporate Managers* (New York: Oxford University Press, 1988), p. 136.
11. Ibid.
12. Ibid.
13. Ibid., p. 105.
14. Charles Murray, *Real Education* (New York: Random House, 2008), p. 103.
15. From a 2002 article in the *Chronicle of Higher Education*, as quoted by Noel Weyrich in the *Pennsylvania Gazette*, March/April 2006. It was Weyrich's article that alerted me to some of the literature I cite in this section.
16. Phillip Brown and Richard Scase, *Higher Education and Corporate Realities: Class, Culture and the Decline of Graduate Careers* (London: UCL Press, 1994), p. 138.
17. David Labaree, *How to Succeed in School Without Really Learning: The Credential Race in American Education* (New Haven, Conn.: Yale University Press, 1997), p. 3.
18. Ivar Berg, *Education and Jobs: The Great Training Robbery* (New York: Praeger Publishers, 1970).
19. Labaree, *How to Succeed*, p. 2.
20. Ibid.
21. Ibid., p. 13.
22. Where does this leave the bright kid from a lower-middle-class family who gets stellar SAT scores, studies hard, gets into a good college, and earns good marks there while working a part-time job? That job is sure to take time away from the extracurricular socialization process where the right attitudes are instilled, the subtle cues of self-presentation are learned, and cultural capital accrues. Brown and Scase write that "unless job applicants share the same cultural understandings and disposition as the recruiter, they will find it difficult to 'decode' the rules by which the selection process is being played" (*Higher Education and Corporate Realities*, p. 22). At the same time, the student's need to send the right signals *now*, while still a student, is more desperate than ever, because with "flatter" hierarchies there is less opportunity for advancement within an organization. There isn't much of a ladder of middle management to be climbed, and positions at the top are filled by horizontal recruitment from outside the firm.
23. David A. Franz, *The Ethics of Incorporation* (Ph.D. dissertation, Sociology Department, University of Virginia, 2009), p. 71.
24. Ibid.
25. Philip Rieff, *The Triumph of the Therapeutic* (New York: Harper and Row, 1966), p. 236.
26. Diamond and Diamond, *Teambuilding That Gets Results*, pp. 110–11.
27. Ibid., pp. 58–60.
28. Ibid. p. 60.
29. I owe the formulations of this paragraph to Manuel Lopez. In a related vein, he likens eruptions of obligatory office fun to "a high school pep rally, without the more natural enthusiasms generated by cheerleaders. They're more like pep rallies led by a principal and middle-aged teachers, for example those 'say no to drugs, get high on life!' rallies that forced one to view the stoners with a new respect, or at least discover within oneself newfound powers of contempt" (personal communication).
30. See Landy and Conte, *Work in the 21st Century*, p. 169.

31. Diamond and Diamond, *Teambuilding That Gets Results*, p. 151.
32. Ibid., p. 140.
33. Ibid., p. 150.
34. I don't want to idealize the trades. One of the worst jobs I ever had was on a large crew building a Home Depot in Southern California. The electrical work was well along by the time I joined, and a couple of the other electricians made a game of sending me off on wild-goose chases to find tools and materials that didn't exist (it was only later that I realized this was what was going on). I got very little work done, and after a few days I was fired. Because there is little supervision by higher-ups on a job site, there is probably more abuse of workers by other workers in the trades than in the office. The new guy, the nonwhite guy, and the woman are especially likely to incur extra hardships.
35. Jackall, *Moral Mazes*, p. 135.
36. J. Henderlong and M. R. Lepper, "The Effects of Praise on Children's Intrinsic Motivation: A Review and Synthesis," *Psychological Bulletin* 128, no. 5 (2002), pp. 774–95, as quoted by Murray, *Real Education*, p. 130.
37. Murray, *Real Education*, p. 130.

7: Thinking as Doing

1. Anaxagoras as quoted by Aristotle, *The Parts of Animals*, 686a.
2. Heidegger, *Being and Time*, trans. Stambaugh, p. 63.
3. This is my own, somewhat free translation of *Clouds* 223–233.
4. This error can be made even by someone who handles real shoelaces every day. This illustrates the power of abstractions to falsify experience, or rather displace it.
5. Daniel Bell, *The Coming of Post-Industrial Society: A Venture in Social Forecasting* (New York: Basic Books, 1973), pp. 29–30.
6. Ibid., p. 32. In this and many other passages in the book, one isn't sure if Bell himself adheres to the argument on offer. The passage I have quoted is in fact Bell's paraphrase of an argument by one Jay Forrester. Bell seems to distance himself from it on the next page (he calls the project of trying to rationally order society through the deployment of intellectual technology a utopian dream that has faltered), yet the whole thread of the book depends on its validity, and indeed Bell affirms it in statements published later. Kevin Robins and Frank Webster detail Bell's contradictions and suggest they are "functional"—they do important rhetorical work. See their "Information as Capital: A Critique of Daniel Bell," in Jennifer Daryl Slack and Fred Fejes, eds., *The Ideology of the Information Age* (New York: Ablex Publishing Corporation, 1987), pp. 95–117.
7. As quoted by Bruce Bower, "Seeing through Expert Eyes: Ace Decision Makers May Perceive Distinctive Worlds," *Science News* 154, no. 3 (July 18, 1988), p. 44. Klein says further that "When difficulties arise, experts find opportunities for improvising solutions."
8. See especially Michael Polanyi, *The Tacit Dimension* (Chicago: University of Chicago Press, 1966).
9. Hubert L. Dreyfus and Stuart E. Dreyfus, "From Socrates to Expert Systems: The Limits and Dangers of Calculative Rationality," available at http://socrates.berkeley.edu/~hdreyfus/html/paper_socrates.html.
10. A. D. De Groot, *Thought and Choice in Chess* (The Hague: Mouton, 1965).
11. This elegant variation on De Groot's original study, using the random condition, was conducted by W. G. Chase and H. A. Simon, "Perception in Chess," *Cognitive Psychology* 4 (1973), pp. 55–81.
12. See, above all, Michael Wheeler, *Reconstructing the Cognitive World: The Next Step* (Cambridge, Mass.: MIT Press, 2005).
13. For an excellent account, see Jean-Pierre Dupuy, *The Mechanization of the Mind: On the Origins of Cognitive Science* (Princeton: Princeton University Press, 2000).
14. It may be interesting to note that the *origins* of computer science