

NOTES

In these notes, the following symbols are used for the following texts.

- AM *The Architecture of Matter*, by Stephen Toulmin and June Goodfield.
 CD *Civilization and Its Discontents*, by Sigmund Freud.
 DC *Darwin's Century*, by Loren Eiseley.
 DPT *The Development of Physical Theory in the Middle Ages*, by James A. Weisheipl.
 DS *The Dangerous Sex*, by H. R. Hays.
 EV *The Evolution of Physics*, by Albert Einstein and Leopold Infeld.
 HH *The Horrors of the Half-Known Life*, by G. J. Barker-Benfield.
 HS *A History of Science*, by W. C. Dampier.
 MES *Medieval and Early Modern Science*, by A. C. Crombie.
 MFM *The Metaphysical Foundations of Modern Science*, by E. A. Burtt.
 NGI *Not in God's Image*, edited by Julia O'Faolain and Luro Marthes.
 NIL *New Introductory Lectures on Psychoanalysis*, by Sigmund Freud.
 PA *Patriarchal Attitudes*, by Eva Figes.
 PSV *The Physician and Sexuality in Victorian America*, by John S. and Robin M. Haller.
 SE "The Spermatic Economy: A Nineteenth-Century View of Sexuality," by Ben Barker-Benfield.
 TH *The Troublesome Helmsman*, by Katherine M. Rogers.
 TP *The Tao of Physics*, by Fritjof Capra.
 UE *The Universe and Dr. Einstein*, by Lincoln Barnett.

The citations below are provided so that the reader may identify sources for my parody of the patriarchal voice and my telling of the history of patriarchal thought regarding woman and nature. (Here and there, for the sake of humor or style, I take liberty with language, but still the essential arguments of patriarchy are not distorted.) Complete bibliographical information for these citations can be found in the Bibliography. The notes for the rest of the book are not complete. It would have been tedious and probably impossible to list all the sources used for each section. Those texts which are listed are given to indicate the actual phenomenon or historical occurrences of which the writing is a reflection (for example in "Turbulence," I cite an article on "The Biosphere" which explores the necessity of the turbulence of the sea to all life), and also to give credit to the thinking of others.

- Page 7 *that matter is transitory and illusory*: see *The Republic of Plato*, "Allegory of the Cave," trans. Francis Macdonald Cornford.
Sic transit: see Thomas à Kempis, *Imitatione Christi*, trans. Anthony Hoskins.
Matter . . . allegory for the next: see MES, vol. 1, p. 15. Crombie describes science before the twelfth century: "The study of nature was not expected to lead to hypotheses and generalisations of science but to provide vivid symbols of moral realities."
Matter . . . passive and inert: see Aristotle, *The Physics*, bk. 7, trans. Wicksteed and Cornford, vol. 2. Everything that is moved, he posits, must be moved by something. See also MES, vol. 1, p. 71. According to Crombie, Aristotle's idea of substance was the basis of "all natural explanation" from the thirteenth through the seventeenth centuries.
soul is the cause: see the Platonists of Chartres, as cited in MES, vol. 1, p. 30.
8 *the existence of God can be proved*: see Thomas Aquinas, *Summa Theologica*, and HS, p. 86.
reason exists to: see the "later scholastics," as cited in HS, p. 86.
God is unchangeable . . . Logos: see Origen, as cited in HS, p. 64.
"And I do not know": see St. Augustine, *De Libero Arbitrio*, as cited in MES, vol. 1, p. 14.
that Genesis: see Thierry of Chartres, *De Septem Diebus et Sex Operum Distinctionibus*, cited in MES, vol. 1, p. 27.
"He who does not know mathematics": see Roger Bacon, *Opus Majus*, trans. Robert Belle Burke, vol. 1, p. 116.
all truth: Bacon was influenced by the thought of Pythagoras.
true explanation: see Robert Grosseteste, *Summary of Philosophy*, as cited in DPT, p. 52.
That there are three degrees: see Robert Kilwardby, *De Ortu Scientiarum*, as cited in DPT, pp. 52-4.
science might be able . . . made without limit: see Roger Bacon, *Epistola de Secretis Operibus*, as cited in MES, vol. 1, p. 55.
9 *that vision takes place*: see Plato, *Timaeus*, as cited in MES, vol. 1, p. 31.
that God is primordial light: see Robert Grosseteste, *op. cit.*, as cited in DPT, pp. 51-2.
waters of the firmament: see Bede, as cited in MES, vol. 1, pp. 19-20.
the space above is: see E. M. Tillyard, *The Elizabethan World Picture*, p. 37.

- Page 10 *the earth is a central sphere*: see Plato, *Timaeus*, as elaborated by the Platonists of Chartres, cited in MES, vol. 1, pp. 27-30. Plato and Eudoxus both favored perfect circles.
all bodies: see Aristotle, *The Physics*, *op. cit.*, vol. 1, pp. 188-9. See also MES, vol. 1, pp. 75-8.
"is so depraved": see Pierre Boistreau, *Théâtre du Monde*, as cited in E. M. Tillyard, *op. cit.*, p. 39.
"shineth night and day": see *Mirror of the World*, as cited in Tillyard, *ibid.*, p. 39.
"the good angels": see St. Augustine, *The City of God*, ed. David Knowles (Baltimore: Penguin, 1972), p. 367.
"the Devil's Gateway": see Tertullian, *De Cultu Feminarum*, and NCI, pp. 132-3.
10 *That regarding*: see Heinrich Kramer and James Sprenger, *Malleus Maleficarum*, pp. 115-17. The phrase "intellectually like children" is quoted by Kramer and Sprenger from Terence.
Frailty, thy name is woman: see William Shakespeare, *Hamlet*.
the word woman: see Kramer, *op. cit.*, pp. 115-16. "Wherefore in many vituperations that we read against women, the word woman is used to mean lust of the flesh." (The brothers were fond of quoting authorities on the evil of women.)
woman, whose face is a burning wind: *ibid.*, p. 122 (here citing St. Bernard).
female provides the matter: see Aristotle, *Generation of Animals*, trans. A. L. Peck, p. 185, and MES, vol. 1, p. 152.
in the bestiary: see *Bestiary*, as cited in HS, p. 66.
Vital Heat: see Albertus Magnus, *De Animalibus*, as cited in MES, vol. 1, p. 152.
monstrosities: *ibid.*, vol. 1, p. 152.
semen: see Aristotle, *Generation*, *op. cit.*, pp. 163, 175 "Semen, then, is a compound of *pneuma* and water (*pneuma* being hot air) . . ." And "The reason is that the female is as it were a deformed male; and the menstrual discharge is semen, though in an impure condition i.e. it lacks one constituent, and one only, the principle of Soul." See also MES, vol. 1, p. 153.
spontaneous generation: Albertus Magnus, *De Animalibus*, as cited in MES, vol. 1, p. 153.
"In the middle": see Copernicus, *On the Revolution of the Celestial Orbs*, as cited in J. D. Bernal, *The Scientific and Industrial Revolutions*, p. 408.
11 *the Sun is God*: see Johannes Kepler, *Astronomia Opera Omnia*, as cited in MFM, p. 60.

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 "all things decay": see Edmund Spenser, *The Faerie Queene*, bk. 3, canto 6.
 the face of the earth: see Loren Eiseley, *The Firmament of Time*, for a discussion of catastrophism.
 "the world is the Devil": Martin Luther, as cited in Norman O. Brown, *Life Against Death*, p. 212.
 power of the devil . . . in the privy parts: see Kramer, *op. cit.*, as cited in PA, p. 59.
 women under the power: see Francesco Maria Guazzo, *Compendium Maleficarum*, as cited in DS, chap. 15. See also Penname Hughes, *Witchcraft*.
 "Lucifer before his Fall": see Thomas Nash, *Pierce Pennilessse, His Supplication to the Devil*.
 "Virgin's urine": see Michael Scot, *Physionomia*, and NGI, p. 142.
 12 no wickedness to compare: see Kramer, *op. cit.*, pp. 114-15.
 "tongues in trees": see William Shakespeare, *As You Like It*.
 immutable laws: see Descartes's metaphysics as discussed in MFM, p. 114 and passim.
 planetary orbits . . . six planets: see Johannes Kepler, *Mysterium Cosmographicum*, as cited in MES, vol. 2, p. 180.
 music of the spheres: see Kepler, *Harmonice Mundi*, as cited in MFM, p. 63.
 cause of the universe: see Kepler, *Astronomia Opera Omnia*, as cited in MFM, pp. 64-5.
 all shapes . . . single figure: see MFM, pp. 44-6. (This geometrical compass was devised by Galileo.)
 heliocentric systems: see Nicolaus Copernicus, *De Revolutionibus*, as cited in MFM, p. 38. See also MES, vol. 2, pp. 176-7.
 13 "Nature": see Galileo, *Dialogue Concerning the Two Chief World Systems*, trans. Stillman Drake, p. 117.
 "Nature is not": see MFM, p. 39.
 "Nature is pleased": see Isaac Newton, *The Mathematical Principles of Natural Philosophy*, cited in MFM, p. 218.
 "Vain pomp and glory": see William Shakespeare, *Henry VIII*.
 "inordinate affections and passions": see Kramer, *op. cit.*, p. 119.
 women's sorrows: see Politeupha, *Wits Commonwealth*, ed. Nicholas Ling, as cited in TH, p. 107.
 "are made of blood": see John Marston, *Works*, cited in TH, p. 125.
 "Women are made/ of blood, without souls . . ."
 "shifts oft like the inconstant": see John Gay, "Dione": "Woman's mind/ oft shifts her passions, like th inconstant wind."

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 "all witchcraft": see Kramer, *op. cit.*, p. 122.
 sin originated: see Justin of Rome, *Dialogue in Trypho*, as cited in George H. Tvard, *Women in Christian Tradition*, p. 69.
 that angels are thin: see Nash, *Pierce Pennilessse*.
 nature can be understood only: see Nicholas of Cusa. "Knowledge is always measurement," and Kepler: "Nothing can be known completely except quantities or by quantities," as cited in MFM, pp. 53, 68. (The language "understood only by reduction" is mine.)
 without mathematics: see Galileo, *Opere Complete*, as cited in MFM, p. 75.
 that which cannot be measured: see MFM, p. 93, on Galileo. See also MFM, p. 88, citing the famous passage of Galileo that all qualities outside of number depend on sense perception and are therefore not real. St. Augustine in *On the Free Choice of the Will* argues even that "the truth of numbers belongs not to the senses of the body . . ."
 14 whether or not motion is real . . . motion is real: see William of Ockham, who considered motion as well as quantity to be unreal (his absolutes were substance and quality), and Brawardine, who considered motion "a real geometrical structure," as cited in DPT, pp. 62-88.
 all motion: see *The Works of Honorable Robert Boyle*, vol. 1, p. 2.
 "The Origin of Motion in Matter Is from God" See also Kepler, *Astronomia Opera Omnia*, as cited in MFM, p. 59, and Newton, as cited in MFM, p. 289. See also René Descartes, *Principles of Philosophy*, pt. 2, prin. 64, and see Aristotle, *Physics*, bk. 3, chap. 1, where he argues that "Nature is the principle of movement and change," and he defines change as the passage from potential to actual, thus laying the basis for a first mover who is immovable.
 all motion results: see Descartes, as cited in HS, p. 136. See also Newton: "No man endowed with a competent faculty of thinking will grant that a body can act where it is not." Newton, however, knew that a body could act so. See Giorgio de Santillana, *Reflections on Men and Ideas*, p. 26.
 God alone sees: see Sir Isaac Newton, *Opticks*, pp. 345, 379.
 position of . . . particles: see Laplace, as cited in MFM, p. 96.
 sensation of color: see René Descartes, *Principles*, as cited in MFM, p. 120, and Newton, *Opticks*, p. 328.
 women exist for pleasure: see Erasmus, *Colloquies* (Erasmus posed this argument as a devil's advocate), as cited in NGI, p. 182.
 "How fair": see Song of Songs 7:6.

- human mind: see Kepler, *Opera*, as cited in MFM, p. 68.
 what is there: see Kepler, letter to Herwart von Hohenburg, 1599 as cited in MES, vol. 2, p. 188.
 one authentic and the other bastard: see Democritus, as cited in AM, p. 58.
- 15 women are the fountain: see the Seven Sages of Rome, as cited in TH, p. 97.
 defective rib: see Kramer, *op. cit.*, p. 117.
 one would follow: see John Lyly, *Euphues*, as cited in TH, p. 111.
 sensations are confused: see Descartes, *Principles*, as cited in MFM, p. 116.
 "hystericat": see *Oxford English Dictionary*.
 dramatic poetry: see Plato, *The Republic*, pp. 337, 338, 83.
 "inordinate affections": see Kramer, *op. cit.*, p. 119.
 "dangerous effect": see Fénelon, *Traité de l'éducation des filles*, as cited in NGI, pp. 249-50.
 husbands should not: see L. B. Alberti, *The Family in Renaissance Florence*, as cited in NGI, p. 188.
 "Who, mooving" see William Shakespeare, sonnet 2.
 woman "is not fully": see Martin Luther, in a letter written to three nuns, August 6, 1524, in NGI, p. 196.
 where there is death: see St. John Chrysostom, *Della Verginita*, in NGI, p. 138.
- 16 God does not . . . He will not die: see Newton, *Principles*, as cited in MFM, p. 259, and Newton, *Opticks*, p. 379. (This is essentially my parody.)
 God is a mathematician: see Hans Jonas, *The Phenomenon of Life*, on Kepler and Galileo's notion of divine geometry and for his brilliant argument against this.
 "these the Divine Wisdom": see Galileo, *Two Great Systems*, as cited in Hugh Kearney, *Science and Change, 1500-1700*, p. 146.
 God has allowed us: see Kepler, letter to Herwart von Hohenburg, 1599, as cited in MES, vol. 2, p. 188.
 "not the woman": see St. Augustine, *On the Holy Trinity*, in NGI, p. 130. See also Aquinas, *Summa*, in NGI, p. 131.
 "the image of God": see Gratian, *Decretum*, in NGI, p. 130.
 God is the principle: see Aquinas, *Summa*, in NGI, p. 131.
 the minds of women: see Malebranche, in NGI, p. 246.
 All abstract knowledge: see Immanuel Kant, as cited in H. J. Mozans, *Woman in Science*, p. 136.
 controversies: see NGI, pp. 247-8.
 to the woman who owns: see Molière, *Les Femmes Savantes*, trans. Curtis Page.

- "but a brute thing": see *The Works of Honorable Robert Boyle*, as cited in MFM, p. 183.
 no intellect: *ibid.*
- 17 nature should: see Immanuel Kant, *Critique of Pure Reason*, as cited in MES, vol. 2, pp. 329-30.
 She is asked why she wears male: Questions asked of Joan of Arc during her trial as a witch. See Margaret Murray, *The Witch-Cult in Western Europe*, pp. 271-6, and Rossell Hope Robbins, *The Encyclopedia of Witchcraft and Demonology*, pp. 282-7.
 He says that nature . . . must be examined . . . bound into service . . . put on the rack: see Francis Bacon, as cited in Carolyn Iltis, *Nature and the Female in the Scientific Revolution*, and William Leis, *The Domination of Nature*, p. 57 and *passim*.
- 18 She is asked if she signed the devil's book . . . How she was able to fly: see Robbins, *op. cit.*, pp. 106, 175-7, 180, 410.
 the rational soul: see Robert Boyle, *op. cit.*, as cited in MFM, p. 183.
 Adam is soul: see Hubmaier, *On Free Will*, in NGI, p. 202.
 animals do not think . . . oysters, sponges": see René Descartes, letter to Marquis of Newcastle, in *Descartes Selections*, ed. Ralph H. Eaton, pp. 355-7.
- 20 souls of women: see Samuel Butler, *Miscellaneous Thoughts*: "The souls of women are so small/ That some believe they've none at all."
 universe acts: see MES, vol. 2, p. 164: "It was the most fundamental general conclusion of Descartes's mechanistic philosophy that all natural phenomena could eventually when sufficiently analyzed be reduced to a single kind of change, local motion; and that conclusion became the most influential belief of 17th century science."
 secret of the universe: see MFM, pp. 98-9, on Galileo's positivism, and p. 226 on Newton: "The ultimate nature of gravity is unknown, it is not necessary for science that it be known, for science seeks to understand how it acts, not what it is."
 That the particular: see MFM: "It is possible to have a correct knowledge of the part without knowing the nature of the whole." pp. 227-8.
 "celestial machine": see Kepler, letter to Herwart von Hohenburg, 1605, in MES, vol. 2, p. 196.
 maker of the universe: see Newton, *Opera Quae Exstant Omnia*, as cited in MFM, p. 290.
 "was the eye contrived": see Newton, *Opticks*, p. 344.
 "heart of animals": see William Harvey, *On Circulation*, trans. Leake, p. 71.

- That God is skilled: see Newton, (*Opera quae exstant Omnia*) as cited in MFM, pp. 289-91.
- Everything in the universe: see Newton, as cited in HS, pp. 170-1. Newton believed there was a general law but could not solve the problem of gravity, which he did not accept as innate.
- God constructed his clock: see Newton, as cited in HS, pp. 74-5, and MFM, pp. 293-5. Newton believed the clock to need adjustments; however, Leibnitz and Huygens thought God acted only at creation. See MFM, pp. 101, 292.
- God does not learn... choose to respond: see Newton, *Opticks*, p. 379. "God is able to... vary the laws of Nature and make Worlds of several sorts in several parts of the Universe." The language in the text is my parody of this image of an autistic God created by seventeenth-century intellect.
- "a God without dominion": see Newton, *Principles*, as cited in MFM, p. 294.
- we adore: *ibid.*
- "My author": see John Milton, *Paradise Lost*, 4.
- "Women should be": see Gratian, *Decretum*, in NGI, p. 130.
- women not be allowed: see John Calvin, *Institutes of the Christian Religion*, in NGI, pp. 202-3.
- "not in the character of": see Immanuel Kant, *Critique*, as cited in MES, vol. 2, p. 329.
- women... ovaries: see I. de Valverde, *Historia de las composicion del cuerpo humano*, in NGI, p. 122.
- human knowledge... "womb of nature": see Francis Bacon, *The New Organon*, bk. 1, aphorisms 1, 109.
- "it is annoying": see Boccaccio, *Concerning Famous Women*, cited in PA, p. 22.
- in the inferior world: see Matthew Hale, *The Primitive Origination of Mankind*, as cited in Leis, *op. cit.*, p. 33.
- power in words: see Ficino, as cited in Leis, p. 37.
- he who calls: see Francis Bacon, *Valerius Terminus*, as cited in Leis, p. 51.
- man fell: see Francis Bacon, as cited in Leis, p. 49.
- "knowing the force": see René Descartes, as cited in Bernal, *The Scientific and Industrial Revolutions*, p. 447.
- Scientific and Industrial Revolutions, p. 447.
- it is predicted: see Francis Bacon, *Atlantis*, as cited in Lewis Mumford, *The Myth of the Machine*, p. 117.
- two spaces: see Newton's theology and the divine sensorium, as described in MFM, pp. 244-55. (Newton makes clear, however, in *Opticks*, p. 379, that God has no need of the universe as an organ:

- "God has no need of such organs..."). See also MFM, pp. 143-50, on Henry More's concept of "Space as the divine presence."
- the vulgar: see Newton, *Principia*, p. 78. See also MFM, p. 245.
- "Man has been": see Adam Sedgwick, *Discourse on the Studies of the University*, as cited in Gertrude Himmelfarb, *Darwin and the Darwinian Revolution*, p. 235.
- changes: see Loren Eiseley, *The Firmament of Time*, and DC.
- And the sun will soon: see Lord Kelvin: "inhabitants of the earth cannot continue to enjoy the light and heat essential to their life..." as cited in DC, p. 238.
- last of a series: see Louis Agassiz, *An Essay in Classification*, as cited in DC, p. 97. According to the progressionists, the link between species was of "a higher and immaterial nature." See Hugh Miller, *The Testimony of the Rocks*.
- appearance of man: see Sedgwick, "Presidential Address before the Geological Society of London, 1831," as cited in DC, p. 266.
- in this universe a stair: see Sir Thomas Browne, *Religio Medici*, as cited in DC, p. 7.
- And woman is "the illest part": see Earl of Rochester, as cited in TH, p. 162.
- "fair Aurelia's womb": *ibid.*
- that savage races: see Hugh Miller, *op. cit.*, pp. 229-31.
- All nature... designed to benefit: see Rev. William Buckland, *The Bridgewater Treatises* vol. 1, p. 524. See also William Paley, *Natural Theology*.
- Animals run: see DC, p. 177.
- teeth were created: see Richard Westfall, *Science and Religion in Seventeenth-Century England*, p. 50, and his discussion of the virtuosi.
- "exist solely": see Arthur Schopenhauer, *Parerga and Paralipomena*, "On Women," as cited in DS, p. 199.
- nature has made it natural: see Henry A. Jones, *The Case of Rebelious Susan*, as cited in TH, p. 217. Sir Richard, in this nineteenth-century play, urges Elaine, a New Woman, to cook her husband a good dinner, etc. He says, "It's Nature that is so ungallant and unkind to your sex," and later: "Nature's darling woman is a stay-at-home woman."
- "a monster more horrible": see James McGrigor Allan, "The Real Differences," as cited in p. 220.
- nature has closed: see *Saturday Review of Literature*, September 12, 1857, editorial ridiculing the attempts of Barbara Leigh Smith

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 and Bessie Parkes, who worked for "widened professional and educational opportunities for women," as cited in TH, p. 211.
- 24 "Nature is the art": see Browne, *op. cit.*, in DC, p. 13.
secret cabinet: see Linnaeus, as cited in DC, p. 23.
we are assured: see Paley, *op. cit.*, as cited in DC, p. 176.
But still: see DC, p. 178.
doubt . . . rocks of the earth: see James Hutton: "Thus . . . from the top of the mountain to the shore of the seas . . . everything is in a state of change," in DC, pp. 69-75.
"nature lies in motion": see Hutton, as cited in Eiseley, *The First Moment*, p. 25.
"traces of vanished": see DC, p. 196.
"underrmine": Charles Darwin, as cited in DC, p. 172.
teeth appear: see Charles Darwin, *Foundations of the Origin of the Species*, ed. Frances Darwin, as cited in DC, p. 196.
"it is derogatory": *ibid.*, DC, p. 193.
nature makes nature: see DC, p. 198.
bones of animals: see Darwin, *Journal of Researches*, as cited in DC, p. 162.
 in 1852: see Vinzenz Ziswiler, *Extinct and Vanishing Animals*.
"immanent purpose": see Lamarck, as cited in DC, pp. 50-1.
orangutan: *ibid.*
nature evolves species: see Ernst Haeckel, *The Evolution of Man*, as cited in DC, p. 334.
forces of nature . . . blind will: see Arthur Schopenhauer, *The World as Will and Representation*, trans. E. F. J. Payne.
merciless and insatiable: see Karl Stern, *The Flight from Woman*, p. 119, for his discussion of Schopenhauer and the Marquis de Sade.
red in tooth and claw: see Alfred Lord Tennyson, *In Memoriam*.
nature lives and breathes: see Marquis de Sade, *Justine*, as cited in Stern, *op. cit.*, pp. 113-15.
 26 *woman's nature is more natural*: see Friedrich Nietzsche, *Beyond Good and Evil*, p. 169.
Woman!: see Robert Gould, *A Satyr Against Wooing*, as cited in TH, p. 164.
opposed to the will: see Schopenhauer, *The World*.
evolution of the brain: see "Wallace and the Brain," in DC, pp. 290-324.
only through reason: see Schopenhauer, *The World*.
"the genitals are the real focus": *ibid.*, p. 330.
organs compete: see Wilhelm Roux, *Der Kampf der Theile Organismus*, as cited in DC, p. 335.

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woman's generative: see Dr. Charles Meigs, as cited in SE, p. 347.
woman is what she: see Dr. Horatio Storer, as cited in SE, p. 347.
"degraded to the level": see Augustus Kinsley Gardner, *Conjugal Sins*, as cited in SE, p. 347.
"ovarian neuralgia": see A. L. Smith, "Are Modern School Methods in Keeping with Physiological Knowledge?" as cited in PSV, p. 59.
the thinking woman: see Barbara Cross, *The Educated Woman in America*, as cited in Adrienne Rich, "The Theft of Childbirth," *New York Review of Books*, October 2, 1975.
 27 *And the young*: see Sylvanus Stall, *What a Young Man Ought to Know*, as cited in PSV, p. 219.
Higher education: see A. L. Smith, "Higher Education of Woman and Race Suicide," as cited in PSV, p. 61.
Woman's greatest: see Joseph A. Conwell, *Manhood's Morning*, as cited in PSV, p. 83.
"All corporeal": see Charles Darwin, *The Origin of Species*, p. 450.
"The brain": see Louis Agassiz, *The Structure of Animal Life*, as cited in DC, p. 97.
woman is less evolved: see PSV, pp. 57-8, 61.
Men and women differ: see Hegel, *Grundlinien der Philosophie des Rechts*, as cited in NGI, p. 290.
her evolution resulted: see PSV, pp. 57-8.
that the later development of the: see Pfitzner, cited in a refutation by Havelock Ellis in *Man and Woman*, as cited in PA, p. 117.
 28 *woman's brain mass*: see PSV, pp. 56-7, 66-7. See also Ellis, in PA, p. 116, and James McGrigor Allan, "The Real Differences," as cited in TH, pp. 220-1 n.
lacking in reason: see Schopenhauer, "On Women," as cited in PA, p. 121.
in the womb: see Meckel, as cited in HS, p. 260.
mentally women: see Allan, *op. cit.*, in TH, p. 219.
thoughts of women: see Herbert Spencer, *Principles of Psychology*, as cited in PSV, p. 63. See also Hegel, *Philosophy of Right*, as cited in PA, pp. 120-1.
"Science offends the modesty": see Nietzsche, *Beyond Good and Evil*, p. 87.
that abstract thought: see Sir Almoth E. Wright, *The Unexpurgated Case Against Women Suffrage*, as cited in TH, p. 921 n.
female organism transmits: see William K. Brooks, "The Condition of Women from a Zoological Point of View," as cited in PSV, p. 69.
"the male": see Remy De Gourmont, *The Natural Philosophy of Love*, p. 52.

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 "Undergo . . . a severe": see Charles Darwin, *The Descent of Man in Relation to Sex*, as cited in PA, p. 113.
- 29 *without the male*: see De Gourmont, *op. cit.*, p. 52.
man kind has evolved: see DC, pp. 337-9, on Condorcet and others regarding the scale of being. See also Himmelfarb, *op. cit.*, p. 230, on Tennyson: "evolution . . . becomes . . . the promise of salvation."
- arise and fly*: see Alfred Lord Tennyson, *In Memoriam*.
all animals are merely: see Oken, as cited by Alexander Cade von Aesch, *Natural Science in German Romanticism*, in DC, p. 95.
- And striving*: see Emerson, as cited in DC, p. 52.
Man is an animal, and he is the most: Eiseley puts the date of the recognition that man is an animal at 1859, the date of the publication of the *Origin*, as cited in DC, p. 255. See also DC, p. 97, citing Luis Agassiz, *An Essay in Classification*: "that man is the last of a term of a series, beyond which there is no material progress possible . . ." and DC p. 287-324.
- according to the laws of survival*: see Lamarck and Erasmus Darwin, as discussed in DC, p. 51. (Note: Lamarck meant unconscious volition, but the popular nineteenth-century view was that the conscious will shaped evolution.)
- "*What was her*": see Charles Kingsley, *Yeast*, as cited in TH, p. 192.
"*stronger and . . . better equipped*": see Lamarck, *Zoological Philosophy*, as cited in DC, p. 52.
women were not meant: see Marquis de Sade, *La Nouvelle Justine*, as cited in DS, p. 83.
That woman is as: ibid.
that the able: see Charles Darwin, *Origin*, pp. 95-100.
the wolf . . . victor . . . allowed to breed: ibid., p. 96 and *passim*.
- 30 *That the species are shaped: ibid.*, p. 450: "Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely the production of the higher animals, directly follows."
"*vast wilderness*": see John Todd, *The Students Manual and The Young Man, Hints Addressed to Young Men of the United States*; and George Rogers Taylor, *The Transportation Revolution*, as cited in SE, pp. 366-7.
sons be raised: see Isaac Ray, *Mental Hygiene*, and Amariah Brigham, *Remarks on the Influence of Mental Cultivation and Mental Excitement on Mental Health*, as cited in SE, p. 337.
that the young man must be constantly seeking: see Todd, *Students Manual*, as cited in SE, p. 339.

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- education he must sacrifice*: see Brooks, "Women from the Standpoint of a Naturalist," as cited in PSV, p. 71.
That in evolution: see Hardaker, "Science and the Woman Question," and Grant Allen, "Women's Place in Nature," in PSV, p. 66.
That as the male brain became: see Spencerians, as cited in PSV, pp. 66-7.
- Women are the weaker*: see Herbert Spencer, *The Study of Sociology*, as cited in PSV, pp. 62-3.
And that because . . . "For, as nature": see Schopenhauer, "On Women," as cited in Karl Stern, *op. cit.*, p. 112.
those women who: see Spencer, *The Study*, as cited in PSV, p. 62.
nature has provided men: see Schopenhauer, *The World*, vol. 2, p. 335.
- women skilled in intuition*: see Spencer, *The Study*, as cited in PSV, p. 63.
girls should: see Brooks, "Women from the Standpoint of a Naturalist," as cited in PSV, p. 71.
nature endows: see Schopenhauer, "On Women," as cited in PA, p. 123.
- 31 *beauty vanishes*: see Schopenhauer, "On Women," as cited in DS, p. 199.
men do not like: see *Saturday Review* editorial, as cited in TH, p. 211.
society can be thankful: see Woods Hutchinson, "The Economics of Prostitution," as cited in PSV, p. 56.
ovum is passive: I owe this language to Carolyn Iltis, who cited Edmund Cope, "The Two Perils of the Indo European: What Evolution Teaches."
That in sperm . . . semen est: see Gardner, *Our Children*, as cited in SE, p. 341. "Totus homo," etc., is "an expression of Fernel."
runtz, feeble: see Gardner, *op. cit.*, as cited in SE, p. 342.
sperm functions: see Brooks, "The Condition of Women," as cited in PSV, p. 69.
ovum transmits: ibid.
sperm . . . newer variations: ibid.
That the male mind: see Brooks, "The Condition of Women," as cited in PSV, p. 69.
"*All organic beings*": see Darwin, *Foundations*, as cited in DC, p. 101.
all creatures are pressed: see Darwin, *Origin*, p. 29: "In the next chapter the Struggle for existence amongst all organic beings throughout the world, which inevitably follows from the high

- geometrical rate of their increase, will be considered. This is the doctrine of Malthus applied to the whole animal and vegetable kingdom."
- all the plants*: see Condolle, as cited in DC, p. 101.
- tendency of all beings*: see Comte de Buffon, as cited in DC, p. 40. See also Thomas Malthus, "An Essay on the Principle of Population as It Affects the Future Improvement of Society," included in *The Autobiography of Science*, ed. Moulton and Schifferes: "... I say that the power of population is indefinitely greater than the power in the earth to produce subsistence for man."
- the human race tends*: see Malthus, *Essay*, as described in HS, p. 275. (Actually, Malthus, in his essay, lists other boundaries, such as "failure of agricultural enterprise.")
- natural government*: see John Hunter, *Essays and Observations*, as cited in DC, p. 329.
- war serves*: see Sir Arthur Keith, Darwin's official biographer, as cited in Himmelfarb, *op. cit.*, p. 417.
- history of human society*: see Karl Marx and Friedrich Engels, *The Communist Manifesto*. (When Marx read the *Origin*, he saw it as "a basis in natural science for the class struggle in history." See Himmelfarb, *op. cit.*, p. 421, citing Marx.)
- development of large*: see John D. Rockefeller, as cited in Himmelfarb, *op. cit.*, p. 420.
- each organism*: see Thomas Huxley, as cited in DC, p. 335.
- human body*: *ibid.*
- "milk-white"*: see John Keats, *Poetical Works*.
- "every woman is always"*: see Allan, "The Real Differences," as cited in TH, p. 220.
- during menses*: *ibid.*
- pitry is the offspring*: see Jean Jacques Rousseau, "Discourse on the Origin and Foundations of Inequality," *First and Second Dialogues*, pp. 130-2.
- poets ... learned*: see Nietzsche, *Beyond Good and Evil*, p. 219.
- women appear*: see Darwin, *Descent*, as cited in PA, p. 112.
- pitry ... closer to the state*: see Rousseau, "Discourse," pp. 130-3.
- "the sick are"*: see Nietzsche, *A Genealogy of Morals*, as cited in PA, p. 127.
- a man whose house*: see T. W. H. Crosland, *Lovely Woman*, as cited in TH, pp. 222-3.
- men must work*: see Reverend Charles Kingsley, "Three Fishers Went Sailing," song with accompaniment for pianoforte; music by J. Hullah.

- who would sympathize*: see Schopenhauer, "On Women," as cited in DS, p. 200.
- surface ... Australian*: see R. Sweichel, as cited in DC, p. 277.
- all the stages*: see Auguste Comte, "The Science of Society," included in *Varieties of Classic Social Theory*, ed. Hendrik Leek, p. 68.
- That the struggle ... face of the earth*: see Darwin, *Life and Letters of Darwin*, as cited in DC, p. 283.
- gloom of the forest*: see Henry Piddington, *Journal of the Asiatic Society of Bengal*, as cited in DC, p. 262.
- Hottentots*: see DC, p. 260-1, citing accounts of voyagers of the late seventeenth and eighteenth centuries.
- tribes in South America*: see *Science Progress*, 1914, as cited in DC, p. 290.
- Negroes ... like orang-utans*: see Carl Vogt, *Lectures on Man*, as cited in DC, pp. 262-3.
- among the lower races*: *ibid.*
- And woman ... like the Negro*: see PSV, p. 57.
- intellectual faculties*: see Carl Vogt, *Lectures on Man*, as cited in PSV, p. 51.
- woman's brain ... 'lower races'*: see Allan, "The Real Differences," as cited in TH, pp. 220-1 n.
- "approach to the animal type"*: see Vogt, *op. cit.*, as cited in DC, p. 263.
- From voyages*: see Geoffrey Atkinson, *The Extraordinary Voyage in French Literature before 1700*, as cited in DC, p. 28.
- Slavery ... a condition*: see Nietzsche, *Beyond Good and Evil*, p. 169. Nietzsche draws the analogy here between woman's condition and slavery.
- A woman should be*: see John Cordy Jeaffreson, *A Woman in Spite of Herself*, as cited in TH, p. 194.
- "I am a woman"*: *ibid.* (These words and the words above are put into the mouth of a woman.)
- both the emancipated*: see PSV, pp. 57-8.
- "the generous sentiments"*: see George Fitzhugh, *Sociology for the South*, as cited in TH, p. 190 n.
- But as to women and men*: see DC, chap. 8.
- struggle for existence*: see A. von Humboldt, *Personal Narrative of Travels*, as cited in DC, p. 183.
- theory of mutation may make it possible*: see Thomas Case, *Science*, 1905, as cited in DC, p. 250.
- "animals our fellow"*: see Charles Darwin, *Life and Letters*, as cited in DC, p. 352. (These are the words of Darwin as a young man.)

- The redder blood*: see J. D. Bernal, *Science and Industry in the Nineteenth Century*, p. 59, referring to Julius Robert Mayer's observations relevant to the equivalence of heat and motion.
- Heat and motion*: *ibid.*, pp. 63-4.
- The engineer*: see Friedrich Engels, *Dialectics of Nature*, as cited in Bernal, *Science*, p. 42: "... the practical mechanics of the engineer arrives at the concept of work and forces it on the theoretician."
- Heat, energy and work*: see Bernal, *Science*, on the work of Joule, p. 43. See also EY, p. 49.
- "Where are the limits... their breathing and in their movement": see Marc Seguin, *Traité sur l'influence des chemins de fer*, as cited in Bernal, *Science*, pp. 53-5. (Seguin was a "pioneer of railway construction in France" and an "enthusiast for the Industrial Revolution.")
- 36 *The energy of a man*: see Gardner, *Old Wine*, as cited in SE, p. 358. *And the train*: see George Stephenson, as cited in Bernal, *Science*, p. 50. (Stephenson was an engineer who developed workable railroad tracks.)
- animal heat*: see Lavoisier, as cited in Bernal, *Science*, p. 43. *Both the sexes*: see M. A. Hardaker, as cited in PSV, p. 65.
- Rules for mobilizing*: see Ben Franklin, as discussed in Meyer, *Positive Thinkers*, cited in HH, p. 72.
- "are naturally": see Todd, *Students Manual*, as cited in SE, p. 338.
- Cures... "torpid"*: see Ray, *Mental Hygiene*, as cited in HH, p. 73.
- Women are not: ibid.*, p. 74.
- men should concentrate: ibid.*, p. 73.
- Under proper control*: see Gardner, as cited in HH, pp. 182-3.
- men who lose*: see W., "Insanity Produced by Masturbation," *Boston Medical and Surgical Note*, as cited in HH, p. 180.
- entropy, the amount*: see Dietrich Schroerer, *Physics and Its Fifth Dimension*: Society, pp. 127-8.
- the earth cannot: ibid.*, p. 130, citing the calculations of Lord Kelvin.
- "The energies of our": see Arthur James Balfour, *The Foundations of Belief* as cited in *The Oxford Dictionary of Quotations*.
- promiscuous intercourse*: see Dr. Benjamin Rush, *Medical Inquiries and Observations upon Diseases of the Mind*, as cited in HH, p. 76.
- "generative energy": see H. D. Thoreau, *Walden*, as cited in HH, p. 182.
- young man who*: see PSV, p. 219.

- 37 *Through those two*: see Charles Baudelaire, "Sed Non Sattata," *sturdy manhood*: see W., *op. cit.*, as cited in SE, p. 342.
- Alas and dissolute*: see Baudelaire, *op. cit.*
- victim of masturbation*: see W., *op. cit.*, as cited in HH, p. 180.
- to break*: see Baudelaire, *op. cit.*
- until all powers of the system*: see W., *op. cit.*, as cited in HH, p. 180.
- I shall go... dazzling dream*: see Baudelaire, "La Chevelure," *practice of building... allowing the thoughts... dissipation*: see Todd, *Students Manual*, as cited in HH, p. 176.
- I shall plunge*: see Baudelaire, "La Chevelure."
- no nation has ever*: see Todd, *Students Manual*, as cited in HH, p. 187.
- 38 *Only lust*: see Orson Fowler, *Creative and Sexual Sciences*, as cited in PSV, p. 201.
- "Prostitution": see Baudelaire, "Le Crépuscule du soir."
- the soldier*: see *A message to the soldiers of the British Expeditionary Force, 1914, to be kept by each soldier in his Active Service Pay-Book*, as cited in *The Oxford Dictionary of Quotations*.
- "Only science": see Ivan P. Pavlov, *Lectures on Conditioned Reflexes*, p. 41.
- behavior of dogs*: see Pavlov, *Conditioned Reflexes*.
- Of charges of electricity... history that can be determined*: see EY, "Field, Relativity," and on Faraday's discoveries and Maxwell's equations, pp. 125-64.
- All kinds of stimuli*: see Pavlov, *Conditioned Reflexes*, and J. B. Watson and behaviorism as discussed in HS, pp. 345-5.
- All matter*: see AM, p. 229 and *passim*. See also atomic table in HS, p. 385. See also Thomas S. Kuhn, *The Structure of Scientific Revolutions*, pp. 134-5: "Chemists could not, therefore, simply accept Dalton's theory on the evidence, for much of that was still negative. Instead even after accepting the theory, they had still to beat nature into line... When it was done, even the percentage composition of well-known compounds was different. The data themselves had changed."
- hard, impenetrable*: see Isaac Newton, as cited in TP, p. 56.
- ultimate reality*: see Alfred North Whitehead, *Science and the Modern World*, p. 17: "There persists, however, throughout the whole period the fixed scientific cosmology which presupposes the ultimate fact of an irreducible brute matter." See also AM, p. 270.
- Movements of molecules*: see EY, pp. 59-62, on Brownian movement.

nothing in this world: see CD, p. 3. Freud is the one, of course, who challenges this certainty, saying, "This is a deceptive appearance." X-rays: see Robert Reid, *Marie Curie*, p. 58. "He gave the rays the name X because this was the physicists' usual symbol for an unknown."

Radium is isolated: *ibid.*, pp. 85-7.

Radiocativity: *ibid.*, p. 96. (When Frederick Soddy, on discovering the spontaneous disintegration of the atom, called this "transmutation," Rutherford answered, "For Mike's sake, Soddy, don't call it transmutation. They'll have our heads off as alchemists.")

The unconscious is discovered... at any given moment: see NIL, "Dissection of the Personality."

From the phosphorescent: see HS, pp. 371-6.

The energy of the self: see NIL, "Dissection," p. 73. Freud, *Psychopathology of Everyday Life*. Passim. Freud, *The History of the Psychoanalytic Movement*, p. 62. Freud and Breuer, *Studies on Hysteria*. Passim.

40 women have a weaker: see Freud, "Civilized Sexual Morality and Modern Neurosis" ("Woman is endowed with a weaker sexual instinct"), as cited in Kate Millett, *Sexual Politics*, p. 192. See also NIL, "Femininity," p. 131. "Furthermore it is our impression that more constraint has been applied to the libido when it is pressed into the service of the feminine function."

self is made: see NIL, "Dissection," p. 72.

less super-ego: see Freud, "Some Psychological Consequences of the Anatomical Distinction Between the Sexes," in *Sexuality and the Psychology of Love*, p. 193. "Their super-ego is never so inextinguishable, so impersonal, so independent of its emotional origins as we require it to be in men." See also NIL, "Femininity," p. 129. See also Freud, *Totem and Taboo* (Freud compares the psychology of "the primitive races" with the psychology of the neurotic). And in NIL, "Dissection," p. 75, Freud describes the id as "primitive."

less ego: This formulation in language is my parody of Freud's view of the feminine. (Always less.) See "Femininity," passim, for his description of the female ego as being formed essentially from a sense of mutilation. See also "Anatomical Distinction," p. 193 ("They are less ready to submit to the great necessities of life"), and CD for Freud's notion that it is men who cope with reality and build civilization. Of his eventual wife, Martha Bernays, Freud wrote: "Am I to think of my delicate sweet girl as a competitor?" see *Letters of Sigmund Freud*, as cited in Mary Ellmann, *Thinking About Women*, p. 88.

women are less objective: see Freud, "Anatomical Distinction," *op. cit.*, p. 193.

men are responsible: see CD, p. 50 and passim.

Small boys: see Erik Erikson, "Womanhood and the Inner Space," as cited in Millett, *op. cit.*, p. 214. See also Helene Deutsch, *The Psychology of Women*, vol. 1, p. 282.

enclosures: *ibid.*

to be female: see CD, p. 50.

man is confined: see EV, p. 155. "Unfortunately we cannot place ourselves between the sun and the earth, to prove there the exact validity of the law of inertia and to get a view of the rotating earth... the earth is our co-ordinate system."

that confinement: see EV, p. 155. "All our experiments must be performed on the earth on which we are compelled to live."

A group of scientists: see EV, "Outside and Inside the Elevator," pp. 214-16.

electromagnetic field: see EV, p. 145.

velocity of the earth: see EV, pp. 155-6.

a single event: see TP, p. 62.

near the speed of light: see EV, p. 186.

The elevator... true absolutely: see EV, pp. 214-16.

Time and space: see EV, "Field, Relativity."

heartbeat of a man: see Einstein, as cited in UE, p. 65.

simultaneous: see TP, p. 62. See also Ernst Cassirer, *Substance and Function and Einstein's Theory of Relativity*, p. 381.

"two frightening ghosts": see EV, p. 238.

The idea of time: see NIL, "Dissection," pp. 74-6.

A young woman... free to drink: see Freud and Breuer, *Hysteria*, pp. 55-83. See also Freud, *The Origin and Development of Psychoanalysis*, p. 7.

In the dream: see Freud: *ibid.*, p. 40.

trip backward... wishes and memories still: see Freud, *Psychoanalytic Movement*, pp. 44-5. See also NIL, "Dissection," p. 74.

Space and time: see UE, p. 21.

Gravity: see HS, pp. 407-10.

universe is shaped: see UE, pp. 103, 91.

empty space: see UE, p. 50, and TP, p. 64.

universe is curved: see EV, p. 237.

Matter... an event: see Whitehead, *Science and the Modern World*. See also EV, pp. 241-2.

Mass changes... matter is a form: see EV, pp. 241-3, 196-7. See also AM, p. 280.

The distinction: see UE, p. 70.

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- no *real*: see EV, p. 242.
 the *id*, the *ego*: see NIL, "Dissection," p. 79.
 before the emergence: see NIL, "Dissection," p. 63 and *passim*, and "Femininity," *passim*.
 43 she seeks to merge: see NIL, "Dissection," p. 63.
 thoughts of women are formless: see Ellmann, *op. cit.*, p. 55 and *passim*.
 "and it was": see James Joyce, *Ulysses*.
 impossible to picture: see Sir James Jeans, as cited in UE, p. 30, and TP, pp. 208-23.
 women show a bias: see Baconen, as cited in Deutsch, *op. cit.*, vol. 1, p. 284.
 Discontinuity . . . wave and a particle: see EV, p. 249 and *passim*.
 A duality: see UE, p. 30.
 "as meaningless as": see UE, p. 30.
 "the riddle": see NIL, "Femininity," p. 116.
 Häupter . . . *Menschenhäupter*: see NIL, "Femininity," p. 113, citing Heine, *Nordsee*.
 behavior of the ovum: see NIL, "Femininity," p. 114.
 female must: *ibid.*, pp. 118-28.
 44 passivity now has: *ibid.*, p. 128: "Passivity now has the upper hand."
 what a woman wants: see letter from Freud to Marie Bonaparte in Ernest Jones, *The Life and Work of Sigmund Freud*, p. 377.
 what is known: see Irwin Schrodinger, "Our Image of Matter," in Heisenberg, Born, Schrodinger and Anger, *On Modern Physics*, p. 46. See also UE, p. 24, and Werner Heisenberg, "The Uncertainty Principle," in Moulton and Schifferes, *The Autobiography of Science*, p. 56. (In EV, p. 31, Einstein compares the universe to a pocket watch which is forever closed.)
 nature of the universe: see UE, p. 78.
 nature of the psyche: see NIL, "Dissection," p. 69.
 Under the gaze: see UE, pp. 30-4.
 absolutely: *ibid.*, p. 37.
 science will never know: see UE, p. 37: "One by-product of this surrender is a new argument for the existence of free will."
 behavior of the single: see EV, p. 285.
 quality of nature: see AM, p. 290.
 memories of women: see NIL, "Femininity," p. 120.
 if the universe . . . all the choir: see Einstein quoting Berkeley, as cited in UE, p. 21.
 Still, prediction: see EV, p. 27. See also De Santillana, *op. cit.*, "Necessity, Contingency and Natural Law."

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- electrons will be studied: see AM, p. 289, and EV, p. 249 and *passim*.
 45 in the year 1950: see Talcott Parsons and Robert F. Bales, *Family Socialization and Interaction Process*, p. 14.
 domestic pattern: see Parsons, *Essays in Sociological Theory*, p. 224.
 Waves of probability: see EV, pp. 288-9.
 impossible to find: *ibid.*, and Heisenberg et al., *op. cit.*
 "tendencies to exist": see TP, p. 68.
 The universe . . . finite . . . void: see UE, pp. 110-18.
 small boys: see CD and Freud, *Totem and Taboo*, and NIL, pp. 85-6.
 re-creation of the father: see CD, p. 13.
 from the love: see NIL, pp. 85-6, 129.
 to abate . . . nature: see CD, p. 18.
 46 girls . . . born castrated: see Freud, "Female Sexuality," in *Sexuality*, p. 202.
 "momentous": see Freud, "Anatomical Distinction" as cited in Millett, *op. cit.*, p. 181.
 wound . . . all women, *ibid.*, p. 183.
 women invented: see NIL, "Femininity," p. 132.
 women . . . debased: see Freud, "Femininity," as cited in Millett, *op. cit.*, p. 185.
 clitoris is a prototype: see Freud, "Fetishism," in *Sexuality*, p. 219: "just as the normal prototype of an organ felt to be inferior is the real little penis of the woman, the clitoris."
 small girls develop: see NIL, "Femininity," pp. 124-35.
 illnesses of the mind: see Freud, *Origin*, p. 16.
 ego is split: see NIL, "Dissection," p. 59.
 A young woman: see Breuer, *Hysteria*, "Case Histories: Fräulein Anna O."
 Antimatter . . . supernova: see AM, p. 294.
 47 An instinct . . . power over nature: see CD, pp. 70-4.
 in woman her body: see NIL, "Femininity," p. 116. The suppression of aggression, Freud writes, is imposed both "constitutionally" and by society. "Thus," he writes, "masochism . . . is truly feminine."
 a new fantastic toilette . . . carriage flies along like mad: see Sacher-Masoch, *Venus in Furs*, as cited in Gertrud Lenzler, "On Masochism: A Contribution to the History of a Fantasy and Its Theory." (Sacher-Masoch's work was "the principal source of Krafft-Ebing's description and definition of masochism.")

- the female cell*: see Marie Bonaparte, *Female Sexuality*, as cited in Millett, p. 204.
- the infant girl*: *ibid.*, p. 205.
- young girls dream*: see Deutsch, *op. cit.*, vol. 1, p. 255.
- women have a lust*: see Freud, "The Economic Problems of Masochism," as cited in Millett, *op. cit.*, p. 195.
- when a woman steps*: see Deutsch, *op. cit.*, vol. 1, p. 285.
- the meson*: see AM, p. 294.
- lambda* . . . kaon: see table in TP, p. 227.
- structure invisible*: see Geoffrey Chew, as cited in TP, p. 274: "A truly elemental particle—completely devoid of internal structure—could not be subject to any forces that would allow us to detect its existence."
- 48 *Every question*: see EV, p. 292: "Every important advance brings new questions. Every development reveals . . . new and deeper difficulties." See also Einstein, as cited in TP, p. 41: "As far as the laws of mathematics refer to reality, they are not certain; and as far as they are certain, they do not refer to reality."
- spectators and part*: see Niels Bohr, as cited in UE, p. 127.
- amorphous*: see UE, p. 92.
- time does not*: see TP, p. 62.
- absolute space* . . . *Solid elements*: *ibid.*, pp. 61-2.

LAND

Territory: These are the names of places passed through by Lewis and Clark. Their trip through this territory made the western expansion possible. See Bernard de Voto in his Introduction to *The Journals of Lewis and Clark*: ". . . it satisfied desire and it created desire: the desire of the western nation."

The Struggle: See Francis Parkman, *The Oregon Trail*.

The Abyss: See John James Audubon, "The Lost One," in *The Delimitations of American Scenery and Character*, as quoted by Annette Kolodny, *The Lay of the Land*.

Guide: See Grace Raymond Hebard, *Sacajawea: A Life of the Indian Guide*, and *The Journals of Lewis and Clark*.

Possession: See Louis B. Wright and Elaine Fowler, *The Moving Frontier*. Use: See Barry Commoner, *The Closing Circle*, on single-crop land usage and the effects of inorganic nitrogen fertilizer. See also Murray Bookchin, *Our Synthetic Environment*: "In many areas of the United States the land has been turned into an early lifeless, inorganic medium that must be nursed along like an invalid at the threshold of death." See

also in Bookchin, reference to the theory of Justus von Liebig that the soil was essentially dead. In fact, as Bookchin writes: "The soil," in a natural state, "is a highly differentiated world of living and inanimate things . . . always in the process of formation."

Exploration: This description of taking a soil sample from Mars was taken from a story in the *San Francisco Chronicle*, August 9, 1976.

TIMBER

See Ellis Lucas, *The Big Woods*, on the beginnings of the lumber industry on the West Coast. For advice such as: "The forest should be close to the sawmill," see various forest management texts, for example, *Managing the Small Forest* (U.S. Dept. of Agriculture) or A. J. Panshin and E. S. Harrar and W. J. Baker and P. B. Proctor, *Forest Products*. For comments on the management of office labor and on labor management in general, see texts such as Henry and M. C. H. Niles, *The Office Supervisor*, or Lettingwell and Robinson, *Textbook of Office Management*. "Production (Current of the Years)" is my description of a photograph of a giant redwood felled with hand tools, the crew posed around it, taken on the Mendocino coast in the 1930s.

WIND

This description of how to control hurricanes is drawn from a scientific speculation by Dr. Roger Revelle, "A Long View from the Beach," in *The World in 1984*, a book of predictions about future and possible accomplishments of science. The story of the woman who attempts to escape from an asylum was taken from Lara Jefferson's account in *These Are My Sisters*.

COWS

See Nevens, *Dairy Cattle Selection and Feeding*. ("Animals with well-shaped udders are in demand"), or Petersen, *Dairy Science*, for information relevant to the raising of dairy cattle. For a more general discussion of factory farming, see Harrison, "On Factory Farming," in *Animals, Men and Morals*, ed. Godlovitch and see Peter Singer, *Animal Liberation*. For a history of the worship of the Virgin Mary, see Warner, *Alone of Her Sex*. My comments on modern childbirth came from my own experience and those of my friends. See also Suzanne Arms, *Immaculate Deception*, and Kathleen Barry, "The Cutting Edge." I thought the two following quotations relevant here. From Charles Darwin, *The Variation of Plants and Animals under Domestication*: "When we compare highly improved stall-fed cattle with the wilder breeds, or