

NOTES

Chapter 1: Revolution

“Oxford ethicists promote”: The headline is actually “Oxford ethicist promotes MDMA to combat divorce,” but this makes it sound like only one of was making the relevant arguments.

Scotto, “Oxford ethicist promotes MDMA to combat divorce,” *Dose Nation* (blog), February 12, 2013, www.dosenation.com/listing.php?id=8715.

The blogger was referring to an interview: Brian D. Earp, Anders Sandberg, Julian Savulescu, and Ross Andersen, “The Case for Using Drugs to Enhance Our Relationships (and Our Break-Ups),” *The Atlantic*, January 31, 2013, www.theatlantic.com/technology/archive/2013/01/the-case-for-using-drugs-to-enhance-our-relationships-and-our-break-ups/272615/. **The truth is, we were not promoting the use of MDMA:**

See Brian D. Earp, Julian Savulescu, and Anders Sandberg, “Should You Take Ecstasy to Improve Your Marriage? Not So Fast,” *Practical Ethics* (blog), June 14, 2012, University of Oxford, June 14, 2012, <http://blog.practicaethics.ox.ac.uk/2012/06/should-you-take-ecstasy-to-improve-your-marriage-not-so-fast/>. **are moving quickly into the center of mainstream medicine:**

Stephen Bright and Martin Williams, “Should Australian Psychology Consider Enhancing Psychotherapeutic Interventions with Psychedelic Drugs? A Call for Research,” *Australian Psychologist* 53, no. 6 (December 2018): 467–76. In the *New York Times* alone: Khaliya, “The Promise of Ecstasy for PTSD” (editorial), *New York Times*,

November 3, 2017, www.nytimes.com/2017/11/03/opinion/ecstasy-ptsd.html; Jan Hoffman, “A Dose of a Hallucinogen from a ‘Magic Mushroom,’ and Then Lasting Peace,” *New York Times*, December 1, 2016, www.nytimes.com/2016/12/01/health/hallucinogenic-mushrooms-psilocybin-cancer-anxiety-depression.html; Aaron E. Carroll, “Can Psychedelics Be Therapy? Allow Research to Find Out,” *The Upshot* (blog), *New York Times*, July 17, 2017, www.nytimes.com/2017/07/17/upshot/can-psychedelics-be-therapy-allow-research-to-find-out.html. **But now that phase 3 clinical trials:**

Kai Kupferschmidt, “All Clear for the Decisive Trial of MDMA in PTSD Patients,” *Science News*, August 26, 2017, www.sciencemag.org/news/2017/08/all-clear-decisive-trial-ecstasy-

www.sciencemag.org/news/2017/08/all-clear-decisive-trial-ecstasy-

ptsd-patients; Kevin Kunzmann, “FDA Approves Landmark Psilocybin Trial for Treatment-Resistant Depression” (News), *MD Magazine*, August 24, 2018, www.mdmag.com/medical-news/fda-approves-landmark-psilocybin-trial-for-treatment-resistant-depression; MAPS, “MAPS Officially Begins Phase 3 Trials of MDMA-Assisted Psychotherapy for PTSD,” Multidisciplinary Association for Psychedelic Studies, November 29, 2018, <https://maps.org/news/update/7523-newsletter-november-2018>. **Phrases like “paradigm shift”**: Eduardo Ekman Schenberg, “Psychedelic-Assisted Psychotherapy: A Paradigm Shift in Psychiatric Research and Development,” *Frontiers in Pharmacology* 9, no. 733 (2018): 1–11; David E. Nichols, Matthew W. Johnson, and Charles D. Nichols, “Psychedelics as Medicines: An Emerging New Paradigm,” *Clinical Pharmacology and Therapeutics* 101, no. 2 (2017): 209–19. **This was two years after the very first pilot study**: Michael C. Mithoefer, Mark T. Wagner, Ann T. Mithoefer, Lisa Jerome, and Rick Doblin, “The Safety and Efficacy of $\pm 3, 4$ -methylenedioxymethamphetamine-Assisted Psychotherapy in Subjects with Chronic, Treatment-Resistant Posttraumatic Stress Disorder: The First Randomized Controlled Pilot Study,” *Journal of Psychopharmacology* 25, no. 4 (2011): 439–52. **PTSD stands for**: Ronald C. Kessler et al., “Trauma and PTSD in the WHO World Mental Health Surveys,” *European Journal of Psychotraumatology* 8, sup. 5 (2017): 1353383. **As the Washington Post reports**: William Wan, “Ecstasy Could Be ‘Breakthrough’ Therapy for Soldiers, Others Suffering from PTSD,” *Washington Post*, August 26, 2017, www.washingtonpost.com/national/health-science/ecstasy-could-be-breakthrough-therapy-for-soldiers-others-suffering-from-ptsd/2017/08/26/009314ca-842f-11e7-b359-15a3617c767b_story.html?noredirect=on&utm_term=.60754ee7d87e. **“ravaged lives and broken up marriages”**: Wan, “Ecstasy...” **It affects friends, family**: Danny Horesh and Adam D. Brown, “Post-Traumatic Stress in the Family” (editorial), *Frontiers in Psychology* 9, no. 40 (2018): 1–3. **Yet with PTSD, unprocessed traumas**: Katie Collie, Amy Backos, Cathy Malchiodi, and David Spiegel, “Art Therapy for Combat-Related PTSD: Recommendations for Research and Practice,” *Art Therapy* 23, no. 4 (2006): 157–64. **“That’s why there’s so much frustration and interest”**: Wan, “Ecstasy” **Current research suggests**: P. Ø. Johansen and T. S.

Krebs, "How Could MDMA (Ecstasy) Help Anxiety Disorders? A Neurobiological Rationale," *Journal of Psychopharmacology* 23, no. 4 (2009): 389–91; Robin L. Carhart-Harris et al., "The Effect of Acutely Administered MDMA on Subjective and BOLD-fMRI Responses to Favourite and Worst Autobiographical Memories," *International Journal of Neuropsychopharmacology* 17, no. 4 (2014): 527–40. **Objectively, it causes the release:** Allison A. Feduccia and Michael C. Mithoefer, "MDMA-Assisted Psychotherapy for PTSD: Are Memory Reconsolidation and Fear Extinction Underlying Mechanisms?" *Progress in Neuropsychopharmacology and Biological Psychiatry* 84, part A (2018): 221–28. **Subjectively, as one journalist:** Wan, "Ecstasy" **Findings from the early MDMA studies:** Kupferschmidt, "All Clear" **"Nothing worked for me":** Dave Philipps, "FDA Agrees to New Trials for Ecstasy as Relief for PTSD Patients," *New York Times*, November 29, 2016, www.nytimes.com/2016/11/29/us/ptsd-mdma-ecstasy.html. **After three sessions of therapy:** MAPS, "MDMA-Assisted Psychotherapy Study Participant CJ Hardin Hosts Q&A on Reddit," July 25, 2014, <https://maps.org/news/media/5252-mdma-assisted-psychotherapy-study-participant-cj-hardin-hosts-q-a-on-reddit>. **"We think it works as a catalyst":** Philipps, "FDA Agrees..." **"The focus," Mithoefer says:** Natasha Preskey, "Could MDMA Save Your Relationship?" *Elle*, July 21, 2017, www.elleuk.com/life-and-culture/culture/longform/a36937/could-mdma-save-your-relationship/. **MDMA was granted "breakthrough" status:** Janet Burns, "FDA Designates MDMA as 'Breakthrough Therapy' for Post Traumatic Stress," *Forbes*, August 28, 2017, www.forbes.com/sites/janetwburns/2017/08/28/fda-designates-mdma-as-breakthroughtherapy-for-post-traumatic-stress/. **The following year, a phase 2 clinical trial:** Michael C. Mithoefer, Ann T. Mithoefer, Allison A. Feduccia, Lisa Jerome, Mark Wagner, Joy Wymer, Julie Holland, Scott Hamilton, Berra Yazar-Klosinski, Amy Emerson, and Rick Doblin, "3, 4-methylenedioxymethamphetamine (MDMA)-Assisted Psychotherapy for Post Traumatic Stress Disorder in Military Veterans, Firefighters, and Police Officers: A Randomised, Double-Blind, Dose-Response, Phase 2 Clinical Trial," *The Lancet Psychiatry* 5, no. 6 (2018): 486–97. See also Dave Philipps, "Ecstasy as a Remedy for PTSD? You Probably Have Some

Questions,” *New York Times*, May 1, 2018, www.nytimes.com/2018/05/01/us/ecstasy-molly-ptsd-mdma.html. **As for safety, the accumulated evidence suggests:** Allison A. Feduccia, Julie Holland, and Michael C. Mithoefer, “Progress and Promise for the MDMA Drug Development Program,” *Psychopharmacology* 235, no. 2 (2018): 561–71. **And the risk of serious harm:** David J. Heal, Jane Gosden, and Sharon L. Smith, “Evaluating the Abuse Potential of Psychedelic Drugs for Medical Use in Humans,” *Neuropharmacology* 142 (November 2018): 89–115. See also Linda R. Gowing, Susan M. Henry-Edwards, Rodney J. Irvine, and Robert L. Ali, “The Health Effects of Ecstasy: A Literature Review,” *Drug and Alcohol Review* 21, no. 1 (2002): 53–63. **Often the legal or medical status:** David Nutt, “Mind-Altering Drugs and Research: From Presumptive Prejudice to a Neuroscientific Enlightenment? Science & Society Series on ‘Drugs and Science,’” *EMBO Reports* 15, no. 3 (2014): 208–11. See also Katherine R. Bonson, “Regulation of Human Research with LSD in the United States (1949–1987),” *Psychopharmacology* 235, no. 2 (2018): 591–604. **journalist Michael Pollan’s recent meditation:** Michael Pollan, *How to Change Your Mind: What the New Science of Psychedelics Teaches Us about Consciousness, Dying, Addiction, Depression, and Transcendence* (New York: Penguin, 2014). **The results, published in the Journal of Psychopharmacology:** Roland R. Griffiths, Matthew W. Johnson, William A. Richards, Brian D. Richards, Robert Jesse, Katherine A. MacLean, Frederick S. Barrett, Mary P. Cosimano, and Maggie A. Klinedinst, “Psilocybin-Occasioned Mystical-Type Experience in Combination with Meditation and Other Spiritual Practices Produces Enduring Positive Changes in Psychological Functioning and in Trait Measures of Prosocial Attitudes and Behaviors,” *Journal of Psychopharmacology* 32, no. 1 (2018): 49–69. **Some drugs that are used for medicine:** Andrew Kolodny, David T. Courtwright, Catherine S. Hwang, Peter Kreiner, John L. Eadie, Thomas W. Clark, and G. Caleb Alexander, “The Prescription Opioid and Heroin Crisis: A Public Health Approach to an Epidemic of Addiction,” *Annual Review of Public Health* 36 (2015): 559–74. **But other drugs:** Matthew W. Johnson, Roland R. Griffiths, Peter S. Hendricks, and Jack E. Henningfield, “The Abuse Potential of Medical Psilocybin According to the 8 Factors of the Controlled Substances Act,” *Neuropharmacology* 142

(2018): 143–66. **That’s another headline:** Alex Williams, “How LSD Saved One Woman’s Marriage,” *New York Times*, January 7, 2017, www.nytimes.com/2017/01/07/style/microdosing-bsd-ayelet-waldman-michael-chabon-marriage.html. **The reference is to a self-experiment:** Ayelet Waldman, *A Really Good Day: How Microdosing Made a Mega Difference in My Mood, My Marriage, and My Life* (New York: Knopf, 2017). **The effects are supposed to be subperceptual:** Erin Brodwin, “Scientists Are About to Find Out How Silicon Valley’s LSD Habit Really Affects Productivity,” *Business Insider*, June 28, 2017, www.businessinsider.com/microdosing-bsd-effects-risks-science-2017-6. **“I was suffering”:** Waldman, *Really Good Day*, xxii. **Her frustration:** Waldman, *Really Good Day*, 31. **Not only can microdosing land you in jail:** The limited data that do exist come from studies that are not very well controlled. See Petter Grahl Johnstad, “Powerful Substances in Tiny Amounts: An Interview Study of Psychedelic Microdosing,” *Nordic Studies on Alcohol and Drugs* 35, no. 1 (2018): 39–51; Luisa Prochazkova, Dominique P. Lippelt, Lorenza S. Colzato, Martin Kuchar, Zsuzsika Sjoerds, and Bernhard Hommel, “Exploring the Effect of Microdosing Psychedelics on Creativity in an Open-Label Natural Setting,” *Psychopharmacology* 235, no. 12 (2018): 3401–13. See also Thomas Anderson and Rotem Petranker, “Microdosers’ of LSD and Magic Mushrooms Are Wiser and More Creative,” *The Conversation*, November 5, 2018, <https://theconversation.com/microdosers-of-bsd-and-magic-mushrooms-are-wiser-and-more-creative-101302>. **The coming pages:** For an over-view and discussion, see Friederike Meckel Fischer, *Therapy with Substance: Psycholytic Psychotherapy in the Twenty First Century* (Dorset, UK: Muswell Hill Press, 2015). **One of us (Brian):** This is a completely fictionalized account of an exchange that did take place. **Some would argue that Sofia:** C. S. I. Jenkins, “‘Addicted’? to ‘Love’?” *Philosophy, Psychiatry, and Psychology* 24, no. 1 (2017): 93–96. **This is a normative definition of love:** For a discussion of this argument, see Brian D. Earp, Bennett Foddy, Olga A. Wudarczyk, and Julian Savulescu, “Love Addiction: Reply to Jenkins and Levy,” *Philosophy, Psychiatry, and Psychology* 24, no. 1 (2017): 101–3; see also Brian D. Earp and Julian Savulescu, “Is There Such a Thing as a Love Drug? Reply to McGee,” *Philosophy, Psychiatry, and Psychology* 23, no. 2 (2016): 93–96. **If the feelings between**

individuals: bell hooks, *All About Love* (New York: Harper, 2000).

Once we start defining for other people: See Kristina Gupta, “Why Not a Mannequin? Questioning the Need to Draw Boundaries around Love When Considering the Ethics of ‘Love-Altering’ Technologies,” *Philosophy, Psychiatry, and Psychology* 23, no. 2 (2016): 97–100. For a response, see Andrew McGee, “Love’s Exemplars: A Response to Gupta, Earp, and Savulescu,” *Philosophy, Psychiatry, and Psychology* 23, no. 2 (2016): 101–2.

Then listen to the incredulous groaning: See “Christopher Hitchens: Homosexuality Is a Form of Love,” www.youtube.com/watch?v=bq4mzH9wqjY.

The tendency to “medicalize” love: See Earp and Savulescu, “Is There Such a Thing...”

One implication of this account: Berit Brogaard, *On Romantic Love: Simple Truths about a Complex Emotion* (Oxford, UK: Oxford University Press, 2014).

Another prominent theory: This theory is due to Carrie Jenkins. See Carrie Jenkins, *What Love Is: And What It Could Be* (New York: Basic Books, 2017).

It acknowledges that our capacity for love: Daphne Blunt Bugental, “Acquisition of the Algorithms of Social Life: A Domain-Based Approach,” *Psychological Bulletin* 126, no. 2 (2000): 187–219; Gurit E. Birnbaum and Harry T. Reis, “Evolved to Be Connected: The Dynamics of Attachment and Sex over the Course of Romantic Relationships,” *Current Opinion in Psychology* 25, no. 1 (2019): 11–15.

One way Sofia could try: See Brogaard, *On Romantic Love... Or maybe they see parallels with Aldous Huxley’s: Aldous Huxley, *Brave New World* (London: Vintage, 1932/1998).*

An online commenter wrote: See the comments section in Tracy Moore, “Would You Take a Pill to Stay Happily Married?” *Jezebel*, June 12, 2013, <https://jezebel.com/would-you-take-a-pill-to-stay-happily-married-512366792>.

Whenever society is faced with: For extended discussions of this perspective as it relates to other technologies, see John Danaher, Brian D. Earp, and Anders Sandberg, “Should We Campaign against Sex Robots?” in *Robot Sex: Social and Ethical Implications*, ed. John Danaher and Neil McArthur (Cambridge, MA: MIT Press, 2017), 47–71; John Danaher, Sven Nyholm, and Brian D. Earp, “The Quantified Relationship,” *American Journal of Bioethics* 18, no. 2 (2018): 3–19; John Danaher, Sven Nyholm, and Brian D. Earp, “The Benefits and Risks of Quantified Relationship Technologies: Response to Open

Peer Commentaries on ‘The Quantified Relationship,’” *American Journal of Bioethics* 8, no. 2 (2018): W3–W6. **This is a blind spot in Western medicine:** Our argument was spelled out originally in Brian D. Earp and Julian Savulescu, “Love Drugs: Why Scientists Should Study the Effects of Pharmaceuticals on Human Romantic Relationships,” *Technology in Society* 52 (2018): 10–16. Larry Young has made a similar argument: Larry J. Young, “Love: Neuroscience Reveals All,” *Nature* 457, no. 7226 (2009): 148. **Controlled studies are already underway:** See Sarah Boesveld, “Chemical Seduction: How ‘Love Drugs’ May One Day Help Couples Save Failing Relationships,” *National Post*, March 30, 2013, <http://news.nationalpost.com/news/chemical-seduction-how-love-drugs-may-one-day-help-couples-save-failing-relationships>; also Adam Guastella, pers. comm., April 13, 2017. **Others may think that in the future:** Gavin G. Enck and Jeanna Ford, “A Responsibility to Chemically Help Patients with Relationships and Love?” *Cambridge Quarterly of Healthcare Ethics* 24, no. 4 (2015): 493–96.

Chapter 2: Love's Dimensions

According to the Yusufzai Pukhtun: see Charles Lindholm, "Leatherworkers and Love Potions," *American Ethnologist* 8, no. 3 (1981): 512–25. Please note that this paragraph is adapted from Julian Savulescu and Anders Sandberg, "Neuroenhancement of Love and Marriage: The Chemicals between Us," *Neuroethics* 1, no. 1 (2008): 31–44. **In Swedish folklore:** Savulescu and Sandberg, "Neuroenhancement of Love and Marriage," 31. **So would drinking plenty of water:** This sentence is adapted from Brian D. Earp, Olga A. Wudarczyk, Anders Sandberg, and Julian Savulescu, "If I Could Just Stop Loving You: Anti-Love Biotechnology and the Ethics of a Chemical Breakup," *American Journal of Bioethics* 13, no. 11 (2013): 3–17. The original source for these claims is Lawrence Babb, "The Physiological Conception of Love in the Elizabethan and Early Stuart Drama," *Publications of the Modern Language Association of America* 56, no. 4 (1941): 1020–35. **Such potions, he counsels:** Ovid, *Remedia amoris*. An English translation by A. S. Kline with a cool visual layout by Nikolas Schiller is available at www.nikolasschiller.com/blog/index.php/archives/2008/04/03/1345/. **Some scientists think that the more we understand:** See, e.g., Larry J. Young, "Being Human: Love: Neuroscience Reveals All," *Nature* 457, no. 7226 (2009):148. This sentence is adapted from Brian D. Earp, "Love and Enhancement Technology," in *The Oxford Handbook of Philosophy of Love*, ed. Christopher Grau and Aaron Smuts (Oxford, UK: Oxford University Press, 2019). Please note that much of the material in this chapter is adapted, with permission, from this essay. **In practice drugs are usually thought of:** For examples, see the "drug" entry at <https://en.oxforddictionaries.com/definition/drug> or <https://dictionary.cambridge.org/us/dictionary/english/drug>. **A popular textbook on pharmacology:** Jerrold S. Meyer and Linda F. Quenzer, *Psychopharmacology: Drugs, the Brain, and Behavior* (Sunderland, MA: Sinauer Associates, 2004), 4. **In this respect we agree with:** Carrie Jenkins, *What Love Is: And What It Could Be* (New York: Basic Books, 2017). **Although you may have heard that:** Lubomir Lamy, "The Day Love Was Invented," *Psychology Today*, April 17, 2011, www.psychologytoday.com/us/blog/the-heart-it-all/201104/the-day-love-was-invented. **In no special order:** These statements are

paraphrased from Sven Nyholm and Lily E. Frank, “From Sex Robots to Love Robots: Is Mutual Love with a Robot Possible?” in *Robot Sex: Social and Ethical Implications*, ed. John Danaher and Neil McArthur (Cambridge, MA: MIT Press, 2017), 219–43. We thank Sven Nyholm for recommending that we highlight these notions early on. **First, though, we’ll give a quick overview:** This section is adapted from Earp, “Love and Enhancement Technology.” **In rough outline, the science goes like this:** This paragraph and the next are adapted from Brian D. Earp, Anders Sandberg, and Julian Savulescu, “The Medicalization of Love,” *Cambridge Quarterly of Healthcare Ethics* 24, no. 3 (2015): 323–36. **These have been described differently:** Helen E. Fisher, Arthur Aron, Debra Mashek, Haifang Li, and Lucy L. Brown, “Defining the Brain Systems of Lust, Romantic Attraction, and Attachment,” *Archives of Sexual Behavior* 31, no. 5 (2002): 413–19. **At a more personal level:** For a fascinating recent discussion of one such possible “alternative lifestyle,” see Sophie Hemery, “Can Relationship Anarchy Create a World without Suffering?” *Aeon*, November 13, 2018, <https://aeon.co/ideas/can-relationship-anarchy-create-a-world-without-heartbreak>. **On the contrary, research across many:** Lisa M. Diamond, “What Does Sexual Orientation Orient? A Biobehavioral Model Distinguishing Romantic Love and Sexual Desire,” *Psychological Review* 110, no. 1 (2003): 173–92, 174; internal references omitted. **At the same time, ignoring:** Diamond, “What Does Sexual Orientation Orient?” **Consider the *Mona Lisa*:** The following material is adapted from the appendix to Brian D. Earp and Julian Savulescu, “Love Drugs: Why Scientists Should Study the Effects of Pharmaceuticals on Human Romantic Relationships,” *Technology in Society* 52 (2018): 10–16. **What’s on the screen:** Jenkins, *What Love Is*, 84 (in advance copy). **Similarly, when it comes to love:** Jenkins, *What Love Is*, 84 (in advance copy). **There are also chastity belts, genital mutilations:** Note that not all genital mutilations or modifications are primarily motivated by a desire to control sexuality; contrary to common belief, they serve different functions and follow different motivations in different societies. For in-depth discussions, see Brian D. Earp, “Between Moral Relativism and Moral Hypocrisy: Reframing the Debate on ‘FGM,’” *Kennedy Institute of Ethics Journal* 26, no. 2 (2016): 105–44, E1–E28; Brian D. Earp, “Female Genital Mutilation and Male Circumcision: Toward

an Autonomy-Based Ethical Framework,” *Medicolegal and Bioethics* 5, no. 1 (2015): 89–104; and Brian D. Earp and Rebecca Steinfeld, “Gender and Genital Cutting: A New Paradigm,” in *Gifted Women, Fragile Men*, ed. T. G. Barbat (Euromind Monographs—2) (Brussels: ALDE Group-EU Parliament, 2017). **“Principle of Default Natural Ethics”**: This paragraph and other minor portions of this chapter are adapted from Brian D. Earp, Anders Sandberg, and Julian Savulescu, “Natural Selection, Childrearing, and the Ethics of Marriage (and Divorce): Building a Case for the Neuroenhancement of Human Relationships,” *Philosophy and Technology* 25, no. 4 (2012): 561–87. **1947 treatise *Man for Himself***: Erich Fromm, *Man for Himself: An Enquiry into the Psychology of Ethics* (London: Routledge, 1949), 31. **Our biological nature places certain limitations**: Daphne Blunt Bugental, “Acquisition of the Algorithms of Social life: A Domain-Based Approach,” *Psychological Bulletin* 126, no. 2 (2000): 187–219. Focusing on childrearing and socialization, Bugental writes: Deliberate efforts to manage the experiences, behaviors, and values of the young operate within a wide range of flexibility. However, the ease with which such management can occur depends on the extent to which such efforts are consistent or inconsistent with the basic [evolved] algorithms of social life. Many seemingly rational strategies for regulating social relationships may meet a wall of resistance when they are in some way inconsistent with domain algorithms. Socialization or community programs that recognize the basic algorithms of social life (and the optional ways in which those algorithms may be implemented) are more likely to be successful than those that are based on “rational,” domain-insensitive principles. (209) **Sexual repression is a key example**: Christopher Ryan, “Sexual Repression: The Malady That Considers Itself the Remedy,” *Psychology Today*, April 20, 2010, www.psychologytoday.com/blog/sex-dawn/201004/sexual-repression-the-malady-considers-itself-the-remedy. **It has been argued that puritanical**: Kathrin F. Stanger-Hall and David W. Hall, “Abstinence-Only Education and Teen Pregnancy Rates: Why We Need Comprehensive Sex Education in the U.S.,” *PLOS ONE* 6, no. 10 (2011): e24658; John S. Santelli et al., “Abstinence-Only-Until-Marriage: An Updated Review of US Policies and Programs and Their Impact,” *Journal of Adolescent Health* 61, no. 3 (2017): 273–80. See also Brian D. Earp, “People

Are Terrified of Sex,” *The Atlantic*, November 12, 2015, www.theatlantic.com/health/archive/2015/11/the-stigma-of-sex-related-health-risks/415518/. **Even the moral crisis of child sexual abuse:** Jason Berry, *Lead Us Not into Temptation: Catholic Priests and the Sexual Abuse of Children* (New York: Doubleday, 1992); Thomas G. Plante, “Catholic Priests Who Sexually Abuse Minors: Why Do We Hear So Much Yet Know So Little?” *Pastoral Psychology* 44 (1996): 305–10; Christopher Ryan and Cacilda Jethá, *Sex at Dawn* (New York: HarperCollins, 2010); K. McPhillips, “The Royal Commission Investigates Child Sexual Abuse: Uncovering Cultures of Sexual Violence in the Catholic Church,” in *Rape Culture, Gender Violence, and Religion* (Basingstoke, UK: Palgrave Macmillan, 2018), 53–71. **Some researchers have described such behavior:** Richard Wrangham and Dale Peterson, *Demonic Males: Apes and the Origins of Human Violence* (London: Houghton Mifflin Harcourt, 1997); Randy Thornhill and Craig T. Palmer, *A Natural History of Rape: Biological Bases of Sexual Coercion* (Cambridge, MA: MIT Press, 2001). **Obviously, this perspective is controversial:** Jerry A. Coyne and Andrew Berry, “Rape as an Adaptation: Is This Contentious Hypothesis Advocacy, Not Science?” *Nature* 404, no. 6774 (2000): 121–22; Jonathan Marks, “Demonic Males: Apes and the Origins of Human Violence,” *Human Biology* 71, no. 1 (1999): 143–46. **(Among other problems:** For a general discussion, see Kate Manne, *Down Girl: The Logic of Misogyny* (Oxford, UK: Oxford University Press, 2017). **when these are central to understanding the more immediate causes of rape:** Hilary Rose, “Debating Rape,” *The Lancet* 357, no. 9257 (2001): 727–28; Elisabeth A. Lloyd, “Science Gone Astray: Evolution and Rape,” *Michigan Law Review* 99, no. 6 (2001): 1536–59. **It is wrong because it is a gross violation:** David Archard, “The Wrong of Rape,” *Philosophical Quarterly* 57, no. 228 (2007): 374–93. For further discussion, see Brian D. Earp, “‘Legitimate Rape,’ Moral Coherence, and Degrees of Sexual Harm,” *Think* 14, no. 41 (2015): 9–20; and Brian D. Earp, “The Child’s Right to Bodily Integrity,” in *Ethics and the Contemporary World*, ed. David Edmonds (New York: Routledge, 2019). **So, for example, the finding that males with pedophilia:** R. Blanchard, J. M. Cantor, and L. K. Robichaud, “Biological Factors in the Development of Sexual Deviance and

Aggression in Males,” in *The Juvenile Sex Offender* (New York: Guilford Press, 2006), 77–104. **Let us even assume that pedophilia:** Michael C. Seto, “Is Pedophilia a Sexual Orientation?” *Archives of Sexual Behavior* 41, no. 1 (2012): 231–36. **Moreover, if a person with pedophilia volunteered:** For discussions, see Ole Martin Moen, “The Ethics of Pedophilia,” *Etikk i Praksis* 9, no. 1 (2015): 111–24; Brian D. Earp, “Pedophilia and Child Sexual Abuse Are Two Different Things and Confusing Them Is Harmful to Children,” *Journal of Medical Ethics Blog*, November 11, 2017, <http://blogs.bmj.com/medical-ethics/2017/11/11/pedophilia-and-child-sexual-abuse-are-two-different-things-confusing-them-is-harmful-to-children/>; Paul J. Fedoroff, “Can People with Pedophilia Change? Yes They Can!” *Current Sexual Health Reports* 10, no. 4 (2018): 207–12; and James M. Cantor, “Can Pedophiles Change?” *Current Sexual Health Reports* 10, no. 4 (2018): 203–6. **The “naturalistic fallacy”:** Julia Tanner, “The Naturalistic Fallacy,” *Richmond Journal of Philosophy* 13 (2006): 1–6. See also Brian D. Earp, “Science Cannot Determine Human Values,” *Think* 15, no. 43 (2016): 17–23. **But something’s being natural or biological:** For a nice discussion, with many useful examples, see Steven Pinker, *The Blank Slate: The Modern Denial of Human Nature* (New York: Penguin, 2003). **It is true that nature has great beauty:** Nick Bostrom and Anders Sandberg, “The Wisdom of Nature: An Evolutionary Heuristic for Human Enhancement,” in *Human Enhancement*, ed. Julian Savulescu and Nick Bostrom (Oxford, UK: Oxford University Press, 2009), 375–416. **But nature also allows for great ugliness:** Ole Martin Moen, “The Ethics of Wild Animal Suffering,” *Etikk i Praksis* 10, no. 1 (2016): 91–104. **The basic blueprint for our bodies:** Richard Dawkins, *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe without Design* (New York: Norton, 1996). **Much of this improvement is due:** Steven Pinker, *Enlightenment Now: The Case for Reason, Science, Humanism, and Progress* (New York: Penguin, 2018). For criticism, see, e.g., Alison Gopnik, “When Truth and Reason Are No Longer Enough,” *The Atlantic*, April 2018, www.theatlantic.com/magazine/archive/2018/04/steven-pinker-enlightenment-now/554054/. See also John Gray, “Unenlightened Thinking,” *New Statesman*, February 22, 2018, www.newstatesman.com/culture/books/2018/02/unenlightened-

thinking-steven-pinker-s-embarrassing-new-book-feeble-sermon. **In short, without knowing the specifics of a situation:** C. A. J. Coady, "Playing God," in *Human Enhancement*, ed. Julian Savulescu and Nick Bostrom (Oxford, UK: Oxford University Press, 2009), 155–80. **Consider the situation of a person:** For an excellent overview of the philosophy of trans identities and related matters, see Talia Mae Bettcher, "Feminist Perspectives on Trans Issues," in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, Spring 2014, <https://plato.stanford.edu/entries/feminism-trans/>. **whose stable and deeply rooted gender identity:** See Robin Dembroff, "Beyond Binary: Genderqueer as a Critical Gender Kind"; abstract of the forthcoming paper available at <https://robindembroff.weebly.com/articles.html>. On the issue of misalignment, however, see Robin Dembroff, "Moving Beyond Mismatch," *American Journal of Bioethics* 19, no. 2 (2019): 60–63. **(They have often been subjected to violence:** Rebecca L. Stotzer, "Violence against Transgender People: A Review of United States Data," *Aggression and Violent Behavior* 14, no. 3 (2009): 170–79; Mark A. Walters, Jennifer Paterson, Rupert Brown, and Liz McDonnell, "Hate Crimes against Trans People: Assessing Emotions, Behaviors, and Attitudes toward Criminal Justice Agencies," *Journal of Interpersonal Violence* (2017), online ahead of print at <http://journals.sagepub.com/doi/abs/10.1177/0886260517715026>; Talia Mae Bettcher, "Evil Deceivers and Make-Believers: On Transphobic Violence and the Politics of Illusion," *Hypatia* 22, no. 3 (2007): 43–65. **Imagine that you are a woman:** Lori Watson, "The Woman Question," *Transgender Studies Quarterly* 3, nos. 1–2 (2016): 246–53. **She writes:** Watson, "Woman Question," 247. **All this because your body is socially:** Watson, "Woman Question," 248. **In order to simply survive in the world:** Sari L. Reisner, Asa Radix, and Madeline B. Deutsch, "Integrated and Gender-Affirming Transgender Clinical Care and Research," *Journal of Acquired Immune Deficiency Syndromes* 72, Suppl. 3 (2016): S235. **hormones treatments or surgeries is the best option for some transgender people:** Jason M. Weissler, Brian L. Chang, Martin J. Carney, David Rengifo, Charles A. Messa, David B. Sarwer, and Ivona Percec, "Gender-Affirming Surgery in Persons with Gender Dysphoria," *Plastic and Reconstructive Surgery* 141, no. 3 (2018): 388e–96e; Elizabeth A. Dietz, "Gender, Identity, and Bioethics,"

Hastings Center Report 46, no. 4 (2016): inside front cover; Stephen B. Levine, “Ethical Concerns about Emerging Treatment Paradigms for Gender Dysphoria,” *Journal of Sex and Marital Therapy* 44, no. 1 (2018): 29–44; Alex Dubov and Liana Fraenkel, “Facial Feminization Surgery: The Ethics of Gatekeeping in Transgender Health,” *American Journal of Bioethics* 18, no. 12 (2018): 3–9. **And they may legitimately pursue these means:** Larry R. Martinez and Michelle R. Hebl, “Additional Agents of Change in Promoting Lesbian, Gay, Bisexual, and Transgendered Inclusiveness in Organizations,” *Industrial and Organizational Psychology* 3, no. 1 (2010): 82–85. **Certainly, no one should be forced:** At least in most cases, no one should be forced; however, the moral bioenhancement of violent psychopaths has been proposed as a possible exception. See Elvio Baccarini and Luca Malatesti, “The Moral Bioenhancement of Psychopaths,” *Journal of Medical Ethics* 43, no. 10 (2017): 697–701. **To summarize, how well our lives go:** See, e.g., Julian Savulescu, “Genetic Interventions and the Ethics of Enhancement of **208...** Human Beings,” in *The Oxford Handbook of Bioethics*, ed. B. Steinbock (Oxford, UK: Oxford University Press, 2009), 417–30; and Julian Savulescu, “New Breeds of Humans: The Moral Obligation to Enhance,” *Reproductive BioMedicine Online* 10 (2005): 36–39.

Chapter 3: Human Natures

Consider a married couple: Portions of this chapter are adapted, with permission, from Brian D. Earp, “Love and Enhancement Technology,” in *The Oxford Handbook of Philosophy of Love*, ed. Christopher Grau and Aaron Smuts (Oxford, UK: Oxford University Press, 2019). **A plausible answer is, it depends:** Christopher Ryan and Cacilda Jethá, *Sex at Dawn: The Prehistoric Origins of Modern Sexuality* (New York: HarperCollins, 2010); Dossie Easton and Janet W. Hardy, *The Ethical Slut: A Practical Guide to Polyamory, Open Relationships, and Other Adventures* (Berkeley: Celestial Arts, 2010); Terri D. Conley, Ali Ziegler, Amy C. Moors, Jes L. Matsick, and Brandon Valentine, “A Critical Examination of Popular Assumptions about the Benefits and Outcomes of Monogamous Relationships,” *Personality and Social Psychology Review* 17, no. 2 (2013): 124–41; but see George W. Dent Jr., “Traditional Marriage: Still Worth Defending,” *Brigham Young University Journal of Public Law* 18, no. 2 (2003): 419–47. **Some philosophers argue:** Bryan R. Weaver and Fiona Woollard, “Marriage and the Norm of Monogamy,” *The Monist* 91, nos. 3/4 (2008): 506–22. **Instead, for most couples, and for society:** The following quotes from Dan Savage are from a profile by Mark Oppenheimer, “Married, with Infidelities,” *New York Times*, June 30, 2011, www.nytimes.com/2011/07/03/magazine/infidelity-will-keep-us-together.html. **As one religious scholar:** John Witte Jr., “Why Monogamy Is Natural,” *On Faith*, October 2, 2012, www.onfaith.com/onfaith/2012/10/02/why-monogamy-is-natural/12105. **According to the prominent evolutionary theorists:** David P. Barash and Judith Eve Lipton, *The Myth of Monogamy: Fidelity and Infidelity in Animals and People* (New York: Macmillan, 2002), 8. **Yet even social monogamy turns out to be:** Agustin Fuentes, “Re-evaluating Primate Monogamy,” *American Anthropologist* 100, no. 4 (1998): 890–907. **“Like bonobos and chimps”:** Ryan and Jethá, *Sex at Dawn*, 2. **But not everyone is on board:** According to Geoffrey Miller, only a very small percentage of mainstream evolutionary psychology, anthropology, or biology researchers agree with Ryan and Jethá that our ancestors were full-fledged bonobo-like polyamorists; but he grants that many—perhaps the majority—of researchers working on

human mating have what he calls “monogamist biases.” Geoffrey Miller, pers. comm., November 3, 2018; all quotes from Miller with permission. **“blue is the natural eye color for humans:** Carrie Jenkins, *What Love Is: And What It Could Be* (New York: Basic Books 2017), 93 (in advance copy). **Just as some people may be “wired up”:** See Brian D. Earp, “Can You Be Gay by Choice?” in *Philosophers Take on the World*, ed. David Edmonds (Oxford, UK: Oxford University Press, 2016), 95–98. **then polyamory is probably natural for some people, too:** For a fascinating discussion, see Ann Tweedy, “Polyamory as a Sexual Orientation,” *University of Cincinnati Law Review* 79, no. 4 (2011): 1461–1515. **“Every mating system:** Geoffrey Miller, pers. comm., November 3, 2018. **As empirical studies are beginning to suggest:** Terri D. Conley, Jes L. Matsick, Amy C. Moors, and Ali Ziegler, “Investigation of Consensually Non-monogamous Relationships: Theories, Methods, and New Directions,” *Perspectives on Psychological Science* 12, no. 2 (2017): 205–32. **Chances are—in this day and age:** For an excellent discussion of some of the stigmas facing polyamorous individuals, especially black men, see Justin Leonard Clardy, “I Don’t Want to Be a Player No More: An Exploration of the Denigrating Effects of ‘Player’ as a Stereotype against African American Polyamorous Men,” *Analyze Journal of Gender and Feminist Studies* 11, no. 25 (2018): 38–59. **Jealousy has deep evolutionary roots:** David M. Buss, *The Evolution of Desire* (New York: Basic Books, 2016). **Could a biological jealousy inhibitor:** This section and some latter parts of this chapter are adapted from Earp, “Love and Enhancement Technology” **“A 54-year-old male manager:** Gordon Parker and Elaine Barrett, “Morbid Jealousy as a Variant of Obsessive-Compulsive Disorder,” *Australian and New Zealand Journal of Psychiatry* 31, no. 1 (1997): 133–38. **“Marital difficulties followed his:** Parker and Barrett, “Morbid Jealousy,” 134. **“Personality review suggested a man:** Parker and Barrett, “Morbid Jealousy,” 134. **an almost universal behavior among the jealous:** Paul E. Mullen, “A Phenomenology of Jealousy,” *Australian and New Zealand Journal of Psychiatry* 24 (1990): 17–28. **Four weeks later, the man reported:** Parker and Barrett, “Morbid Jealousy...,” 134. **In fact, this man wasn’t diagnosed:** Parker and Barrett, “Morbid Jealousy...,” 133. **Could science one day help you:** For an

extremely thoughtful set of arguments to the effect that biochemically enhancing fidelity, while most likely morally permissible in many cases, may nevertheless be imprudent for some couples (because it could make it harder to tell whether one's partner is disposed not to sleep with others for the right kinds of reasons, that is, reasons that matter for genuinely attenuating one's vulnerability in a romantic relationship), see Robbie Arrell, "Should We Biochemically Enhance Sexual Fidelity?" *Royal Institute of Philosophy Supplements* 83 (2018): 389–414. **Unlike many antidepressant medications:** Jack G. Modell, Charles R. Katholi, Judith D. Modell, and R. Lawrence DePalma, "Comparative Sexual Side Effects of Bupropion, Fluoxetine, Paroxetine, and Sertraline," *Clinical Pharmacology and Therapeutics* 61, no. 4 (1997): 476–87. **According to one study, people treated with SSRI-based:** Modell et al., "Comparative Sexual Side Effects..." 476. **Evidence for this comes from:** Steven D. Levitt, "Heads or Tails: The Impact of a Coin Toss on Major Life Decisions and Subsequent Happiness," *National Bureau of Economic Research Working Paper 22487*, August 2016, www.nber.org/papers/w22487. **Once we have the power to alter a situation:** See Gerald Dworkin, "Is More Choice Better Than Less?" *Midwest Studies in Philosophy* 7 (1982): 47–61. **On the biological side, we looked:** Miller pointed out to us that there are also "many lifestyle approaches that people unconsciously use to manage their libidos. After marriage, many guys put on abdominal fat ('dad bod'), which reduces testosterone levels and libido. Many women also put on weight, which tends to reduce libido; if they feel a mismatch to their husband's libido, they might take up exercise, which tends to increase libido." Geoffrey Miller, pers. comm., November 3, 2018.

Chapter 4: Little Heart-Shaped Pills

“madly dote”: William Shakespeare, “A Midsummer Night’s Dream” (*Project Gutenberg*, 1595/1986), http://nfs.sparknotes.com/msnd/page_42.html. **Consider the 1960s chart-topper**: “Love Potion No. 9,” by The Searchers. Lyrics from <https://genius.com/The-searchers-love-potion-no-9-lyrics>. **“Amortentia**: J. K. Rowling, *Harry Potter and the Half-Blood Prince* (London: Bloomsbury, 2005). Quote from “Love Potions: Hogwarts’ Most Intoxicating Tonic,” www.pottermore.com/features/love-potion-guide-hogwarts-most-intoxicating-tonic. **For one thing, love drugs**: See our discussion in Brian D. Earp, Ander Samberg, and Julian Savulescu, “The Medicalization of Love: Response to Critics,” *Cambridge Quarterly of Healthcare Ethics* 25, no. 4 (2016): 759–71. **“From our earliest years”**: Kayt Sukel, *Dirty Minds* (New York: Free Press, 2012), 56. **“Hormones actually control sexual behavior**: Sukel, *Dirty Minds*, 56. **“Hormones are not absolute regulators**: Quoted in Sukel, *Dirty Minds*, 57. **“As you grow up**: Helen Fisher, *Anatomy of Love: A Natural History of Mating, Marriage, and Why We Stray* (New York: Norton, 2016), 318–19. Partially against this view, as one (anonymous) reader of our manuscript has speculated, at least some drugs, namely psychedelics, “*can* actually induce mental model transformations; they can change what matters to you, in life and in relationships. Perhaps induced plasticity in combination with therapeutic suggestion could change not just the quality of your feelings, but the way you direct your feelings.” For some suggestive evidence, see Calvin Ly et al., “Psychedelics Promote Structural and Functional Neural Plasticity,” *Cell Reports* 23, no. 11 (2018): 3170–82. **“Better relationships through chemistry”**: See https://en.wikipedia.org/wiki/Better_Living_Through_Chemistry. **Something that requires choice**: In this we agree with Erich Fromm in *The Art of Loving* (New York: Harper, 1956). Please note that this sentence and several of the following are adapted from Brian D. Earp, “Love and Enhancement Technology,” in *The Oxford Handbook of Philosophy of Love*, ed. Christopher Grau and Aaron Smuts (Oxford, UK: Oxford University Press, 2017). **the idea that love “takes work”**: This point was raised in the wonderful essay by Erik Parens, “On Good and Bad Forms of Medicalization,” *Bioethics*

27, no. 1 (2013): 28–35. **These neurochemicals, in fact:** Brian D. Earp, Olga A. Wudarczyk, Bennett Foddy, and Julian Savulescu, “Addicted to Love: What Is Love Addiction and When Should It Be Treated?” *Philosophy, Psychiatry, and Psychology* 24, no. 1 (2017): 77–92; Brian D. Earp, Olga A. Wudarczyk, Bennett Foddy, and Julian Savulescu, “Love Addiction: Reply to Jenkins and Levy,” *Philosophy, Psychiatry, and Psychology* 24, no. 1 (2017): 101–3.

Instead, touch, sex and orgasm: For a general discussion, see Cindy Hazan and Lisa M. Diamond, “The Place of Attachment in Human Mating,” *Review of General Psychology* 4, no. 2 (2000): 186–204.

You can even order oxytocin off the internet: We can’t vouch for any of the stuff you can get off the internet. It might not even be real oxytocin, or if it is, there’s no guarantee it has been prepared in such a way that it would have any effect. **These factors have been shown to play:** John M. Gottman, “Psychology and the Study of Marital Processes,” *Annual Review of Psychology* 49, no. 1 (1998): 169–97; Thomas Ledermann, Guy Bodenmann, Myriam Rudaz, and Thomas N. Bradbury, “Stress, Communication, and Marital Quality in Couples,” *Family Relations* 59, no. 2 (2010): 195–206. **Another issue is that some people really struggle:** For a related argument, see John Danaher, Sven Nyholm, and Brian D. Earp, “The Quantified Relationship,” *American Journal of Bioethics* 18, no. 2 (2018): 3–19. **“I just rounded the corner:** from the comments section of Tracy Moore, “Would You Take a Pill to Stay Happily Married?” *Jezebel*, June 12, 2013, <http://jezebel.com/would-you-take-a-pill-to-stay-happily-married-512366792>. **“The hard thing about constant relationships:** Moore, “Would You Take a Pill...”

And now Addyi (flibanserin): Alice G. Walton, “Why Libido Drug Addyi Is Not the ‘Female Viagra,’” *Forbes*, August 19, 2015, www.forbes.com/sites/alicegwalton/2015/08/19/fda-approves-addyi-but-it-is-not-the-female-viagra/#4e22a00d2889. **is being controversially touted as a prolibido:** Weronika Chańska and Katarzyna Grunt-Mejer, “The Unethical Use of Ethical Rhetoric: The Case of Flibanserin and Pharmacologisation of Female Sexual Desire,” *Journal of Medical Ethics* 42, no. 11 (2016): 701–4; Antonie Meixel, Elena Yanchar, and Adriane Fugh-Berman, “Hypoactive Sexual Desire Disorder: Inventing a Disease to Sell Low Libido,” *Journal of Medical Ethics* 41, no. 10 (2015): 859–62.

Testosterone blockers, for example: Thomas Douglas, Pieter

Bonte, Farah Focquaert, Katrien Devolder, and Sigrid Sterckx, “Coercion, Incarceration, and Chemical Castration: An Argument from Autonomy,” *Journal of Bioethical Inquiry* 10, no. 3 (2013): 393–405. **For example, some drugs used to treat depression:** Adam Opbroek, Pedro L. Delgado, Cindi Laukes, Cindy McGahuey, Joanna Katsanis, Francisco A. Moreno, and Rachel Manber, “Emotional Blunting Associated with SSRI-Induced Sexual Dysfunction: Do SSRIs Inhibit Emotional Responses?” *International Journal of Neuropsychopharmacology* 5, no. 2 (2002): 147–51; W. Jason Barnhart, Eugene H. Makela, and Melissa J. Latocha, “SSRI-Induced Apathy Syndrome: A Clinical Review,” *Journal of Psychiatric Practice* 10, no. 3 (2004): 196–99; Randy A. Sansone and Lori A. Sansone, “SSRI-Induced Indifference,” *Psychiatry* 7, no. 10 (2010): 14–18. **To illustrate, we’ll pick one main feature:** This portion of the chapter is adapted from Earp, “Love and Enhancement Technology” **Consider the view that true love:** Kevin E. Hegi and Raymond M. Bergner, “What Is Love? An Empirically-Based Essentialist Account,” *Journal of Social and Personal Relationships* 27, no. 5 (2010): 620–36. See also Bennett Helm, “Love,” in *The Stanford Encyclopedia of Philosophy*, August 11, 2017, <https://plato.stanford.edu/archives/fall2017/entries/love/> (especially the section on love as “robust concern”). **But there are plenty of case reports:** Opbroek et al., “Emotional Blunting Associated with SSRI-Induced Sexual Dysfunction,” 147. **Fully 80 percent of the patients:** Opbroek et al., “Emotional Blunting Associated with SSRI-Induced Sexual Dysfunction...,” 147. For more recent evidence and discussion, see Elcin Ozsin Aydemir, Eda Aslan, and Mustafa Kemal Yazici, “SSRI Induced Apathy Syndrome,” *Psychiatry and Behavioral Sciences* 8, no. 2 (2018): 63–70. **Indeed, on some views, the experience:** See Neil Delaney, “Romantic Love and Loving Commitment: Articulating a Modern Ideal,” *American Philosophical Quarterly* 33, no. 4 (1996): 339–56. **In other words, wanting to be physically intimate:** For a more complex account, see Laurence Dumortier, “Anarchic Intimacies: Queer Friendships and Erotic Bonds,” doctoral dissertation, University of California, Riverside, 2017, <https://escholarship.org/uc/item/76510324>. **Clearly, those things:** See Hichem Naar, “Real-World Love Drugs: Reply to Nyholm,” *Journal of Applied Philosophy* 33, no. 2 (2016):

197–201. **But there have also been controlled:** Barry T. Jones, Ben C. Jones, Andy P. Thomas, and Jessica Piper, “Alcohol Consumption Increases Attractiveness Ratings of Opposite-Sex Faces: A Possible Third Route to Risky Sex,” *Addiction* 98, no. 8 (2003): 1069–75; Nick Neave, Carmen Tsang, and Nick Heather, “Effects of Alcohol and Alcohol Expectancy on Perceptions of Opposite Sex Facial Attractiveness in University Students,” *Addiction Research and Theory* 16, no. 4 (2008): 359–68. **For a twist on the usual finding:** Laurent Bègue, Brad J. Bushman, Oulmann Zerhouni, Baptiste Subra, and Medhi Ourabah, “‘Beauty Is in the Eye of the Beer Holder’: People Who Think They Are Drunk Also Think They Are Attractive,” *British Journal of Psychology* 104, no. 2 (2013): 225–34. **This book deals with nudges and probabilities:** For a critical discussion, see Michael Hauskeller, “Clipping the Angel’s Wings: Why the Medicalization of Love May Still Be Worrying,” *Cambridge Quarterly of Healthcare Ethics* 24, no. 3 (2015): 361–65. **This hormone is released by the brain:** Beverley Fehr and James A. Russell, “The Concept of Love Viewed from a Prototype Perspective,” *Journal of Personality and Social Psychology* 60, no. 3 (1991): 425–39. **This same hormone is released through intimate touch:** Cindy Hazan and Lisa M. Diamond, “The Place of Attachment in Human Mating,” *Review of General Psychology* 4, no. 2 (2000): 186–204. Please note that the next few paragraphs are adapted from Earp, “Love and Enhancement Technology...” **Oxytocin, as we mentioned:** Susan R. Davis and Jane Tran, “Testosterone Influences Libido and Well-Being in Women,” *Trends in Endocrinology and Metabolism* 12, no. 1 (2001): 33–37. **Scientists should study these effects:** This part of the chapter through to the end is adapted from Brian D. Earp and Julian Savulescu, “Love Drugs: Why Scientists Should Study the Effects of Pharmaceuticals on Human Romantic Relationships,” *Technology in Society* 52, no. 1 (2018): 10–16. **A huge amount of data suggests:** For a review, see Olga A. Wudarczyk, Brian D. Earp, Adam Guastella, and Julian Savulescu, “Could Intranasal Oxytocin Be Used to Enhance Relationships? Research Imperatives, Clinical Policy, and Ethical Considerations,” *Current Opinion in Psychiatry* 26, no. 5 (2013): 474–84. **Close relationships also show up:** See, e.g., Derek Parfit, *Reasons and Persons* (Oxford, UK: Oxford University Press, 1984); and James Griffin, *Well-Being: Its Meaning,*

Measurement, and Moral Importance (Oxford, UK: Clarendon Paperbacks, 1986). **And some philosophers argue:** Sven Nyholm, “The Medicalization of Love and Narrow and Broad Conceptions of Human Well Being,” *Cambridge Quarterly of Healthcare Ethics* 24, no. 3 (2015): 337–46. **Likewise, if other drugs:** Here we are using the term “therapeutic” in its sense of having a positive effect on the body or mind, or contributing to a feeling or state of well-being. This is opposed to the sense of “healing a disease,” whereby a specific pathology must be present. For further discussion, see Brian Earp, Anders Sandberg, and Julian Savulescu, “The Medicalization of Love,” *Cambridge Quarterly of Healthcare Ethics* 24, no. 3 (2015): 323–36. **Many drug-based treatments:** For a thoughtful discussion, see Nina L. Etkin, “Side Effects: Cultural Constructions and Reinterpretations of Western Pharmaceuticals,” *Medical Anthropology Quarterly* 6, no. 2 (1992): 99–113. **These are commonly understood:** See entry “side effect,” www.merriam-webster.com/dictionary/side%20effect. **It has become obvious that:** Neil Levy, Thomas Douglas, Guy Kahane, Sylvia Terbeck, Philip J. Cowen, Miles Hewstone, and Julian Savulescu, “Are You Morally Modified? The Moral Effects of Widely Used Pharmaceuticals,” *Philosophy, Psychiatry, and Psychology* 21, no. 2 (2014): 111–25. **This is because the chemical properties:** Helen Fisher and J. Anderson Thomson Jr., “Lust, Romance, Attachment: Do the Side Effects of Serotonin-Enhancing Antidepressants Jeopardize Romantic Love, Marriage, and Fertility?” in *Evolutionary Cognitive Neuroscience*, ed. Steven Platek, Julian Paul Keenan, and Todd Shackelford (Cambridge, MA: MIT Press, 2007), 245. **Between 2005 and 2008:** Laura A. Pratt, Debra J. Brody, and Qiuping Gu, “Antidepressant Use in Persons Aged 12 and Over: United States, 2005–2008,” *NCHS Data Brief No. 76*, October 2011, www.sefap.it/servizi_letteratu-racardio_201110/db76.pdf. **with SSRIs being the most commonly prescribed:** Mayo Clinic Staff, “Depression (Major Depressive Disorder),” *Mayo Clinic Online*, July 9, 2013, www.mayoclinic.org/diseases-conditions/depression/basics/definition/con-20032977. **“He soon experienced diminished:** Fisher and Thomson, “Lust, Romance, Attachment...,” 267. **In addition to big-picture effects:** Fisher and Thomson, “Lust, Romance, Attachment...,” 257. **“After two bouts of depression:** J. Frankel, “Reviving Romance,” *New York Times*,

May 11, 2004, F4. **Consider this very different profile:** Louisa Kamps, “The Couple Who Medicates Together,” *Elle*, April 18, 2012, www.elle.com/life-love/sex-relationships/advice/a14208/the-couple-who-medicates-together-654677/. **All that scientists can say at this point:** Fisher and Thomson, “Lust, Romance, Attachment,” 269. **According to the U.S. Centers:** Jo Jones, William Mosher, and Kimberly Daniels, “Current Contraceptive Use in the United States, 2006–2010, and Changes in Patterns of Use since 1995,” *National Health Statistics Reports* 60 (2012): 1–25. **Combined methods work by suppressing:** S. Storck, “Birth Control Pills Overview,” in *A.D.A.M. Medical Encyclopedia*, U.S. National Library of Medicine, 2014. **As women who use birth control know:** Margaret F. McCann and Linda S. Potter, “Progestin-Only Oral Contraception: A Comprehensive Review: X. Common Side Effects,” *Contraception* 50, no. 6 (1994): S114–S138. **Some forms of hormonal birth control:** Mary Wood Littleton, “The Truth about ‘The Pill’ and Your Sex Drive,” *WebMD*, January 28, 2015, www.webmd.com/sex/birth-control/features/the-pill-and-desire. **While the libido-altering effects:** See, e.g., Alexandra Alvergne and Virpi Lummaa, “Does the Contraceptive Pill Alter Mate Choice in Humans?” *Trends in Ecology and Evolution* 25, no. 3 (2010): 171–79. See also Trond Viggo Grøntvedt, Nicholas M. Grebe, Leif Edward Ottesen Kennair, and Steven W. Gangestad, “Estrogenic and Progestogenic Effects of Hormonal Contraceptives in Relation to Sexual Behavior: Insights into Extended Sexuality,” *Evolution and Human Behavior* 38, no. 3 (2017): 283–92. For a recent review and discussion, see Santiago Palacios and Mariella Lilue, “Hormonal Contraception and Sexuality,” *Current Sexual Health Reports* 10, no. 4 (2018): 345–52. **One common theory goes:** Karl Grammer, Bernhard Fink, and Nick Neave, “Human Pheromones and Sexual Attraction,” *European Journal of Obstetrics and Gynecology and Reproductive Biology* 118, no. 2 (2005): 135–42; however, see Wendy Wood, Laura Kressel, Priyanka D. Joshi, and Brian Louie, “Meta-analysis of Menstrual Cycle Effects on Women’s Mate Preferences,” *Emotion Review* 6, no. 3 (2014): 229–49, which is largely non-supportive of this view. **For example, women who are using oral:** S. Craig Roberts and Anthony C. Little, “Good Genes, Complementary Genes and Human Mate Preferences,” *Genetica* 132, no. 3 (2008): 309–21. See also S. Craig Roberts, “Effect of

Birth Control on Women's Preferences," in *Encyclopedia of Evolutionary Psychological Science*, ed. Todd K. Shackelford and Viviana Weekes-Shackelford (Cham, Switzerland: Springer, 2019); and Andrea C. Gore, Amanda M. Holley, and David Crews, "Mate Choice, Sexual Selection, and Endocrine-Disrupting Chemicals," *Hormones and Behavior* 101 (2018): 3–12. **The psychologist S. Craig Roberts:** S. Craig Roberts, Kateřina Klapilová, Anthony C. Little, Robert P. Burriss, Benedict C. Jones, Lisa M. DeBruine, Marion Petrie, and Jan Havlíček, "Relationship Satisfaction and Outcome in Women Who Meet Their Partner While Using Oral Contraception," *Proceedings of the Royal Society of London B: Biological Sciences* 279, no. 1732 (2012): 1430–36. **Their study found that women who:** Roberts et al., "Relationship Satisfaction and Outcome in Women," 1430. **Curiously, "the same women:** Roberts et al., "Relationship Satisfaction and Outcome in Women," 1430. **Either way, the authors concluded:** Roberts et al., "Relationship Satisfaction and Outcome in Women," 1430. For an up-to-date discussion of findings (and non-findings) in this area, see Patrick Jern, Antti Kärnä, Janna Hujanen, Tatu Erlin, Annika Gunst, Helmi Rautaheimo, Emilia Öhman, S. Craig Roberts, and Brendan P. Zietsch, "A High-Powered Replication Study Finds No Effect of Starting or Stopping Hormonal Contraceptive Use on Relationship Quality," *Evolution and Human Behavior* 39, no. 4 (2018): 373–79. See also Ruben C. Arslan, Katharina M. Schilling, Tanja M. Gerlach, and Lars Penke, "Using 26,000 Diary Entries to Show Ovulatory Changes in Sexual Desire and Behavior," *Journal of Personality and Social Psychology*, August 27, 2018, online ahead of print, <http://psycnet.apa.org/record/2018-41799-001>. **In her article:** All quotes from Kamps, "Couple Who Medicates Together"

Chapter 5: Good-Enough Marriages

In her book *Marriage Confidential*: This paragraph is adapted with permission from Brian D. Earp, “Love and Enhancement Technology,” in *The Oxford Handbook of Philosophy of Love*, ed. Christopher Grau and Aaron Smuts (Oxford, UK: Oxford University Press, 2019). **It isn’t high distress:** Pamela Haag, *Marriage Confidential* (New York: HarperCollins, 2011), xi. **Instead, she says, it’s relatively:** This characterization is from marriage researcher Paul R. Amato and colleagues. See, e.g., Paul Amato and Bryndl Hohmann-Marriott, “A Comparison of High-and Low-Distress Marriages That End in Divorce,” *Journal of Marriage and Family* 69, no. 3 (2007): 621–38. **Something like what we described:** This paragraph, and other material following in this chapter, is adapted from Earp, “Love and Enhancement Technology...” **In these marriages:** Paul R. Amato, quoted in Karen S. Peterson, “The Good in a Bad Marriage,” *USA Today*, June 21, 2001, <http://lists101.his.com/pipermail/smartmarriages/2001-June/000689.html>. **If you are a spouse with:** Haag, *Marriage Confidential*, xiii. **or “the problem that has no name”:** ... Betty Friedan, *The Feminine Mystique* (New York: Norton, 2010). **Yet there are life values:** This paragraph is adapted from Brian D. Earp. “The Ethics of Infant Male Circumcision,” invited lecture, Uehiro Seminar Series from University of Oxford, Oxford, England, June 7, 2013. **Ethical approaches based on:** Eva Feder Kittay, “The Ethics of Care, Dependence, and Disability,” *Ratio Juris* 24, no. 1 (2011): 49–58. **Our ability to be autonomous:** Bruce Jennings, “Reconceptualizing Autonomy: A Relational Turn in Bioethics,” *Hastings Center Report* 46, no. 3 (2016): 11–16; Carol Gilligan, “Hearing the Difference: Theorizing Connection,” *Hypatia* 10, no. 2 (1995): 120–27; Virginia Held, *Justice and Care: Essential Readings in Feminist Ethics* (New York: Routledge, 2018). **In a nutshell:** Paul R. Amato, “Good Enough Marriages: Parental Discord, Divorce, and Children’s Long-Term Well-Being,” *Virginia Journal of Social Policy and the Law* 9 (2001): 71–94, 71. **Of course, women are usually:** Sarah Schoppe-Sullivan, “Dads are More Involved in Parenting, Yes, but Moms Still Put in More Work,” *The Conversation*, February 2, 2017, <https://theconversation.com/dads-are-more-involvedin-parenting-yes->

but-moms-still-put-in-more-work-72026; Suman Bhattacharyya, “Women Still Do the Lion’s Share of the Housework, but the Gap Is Narrowing,” *Fiscal Times*, June 26, 2016, www.thefiscaltimes.com/2016/06/26/Women-Still-Do-Lion-s-Share-Housework-Gap-Narrowing. For a recent discussion of the importance of publicly provided childcare for gender justice, see Vidhi Chhaochharia, “The Tale of Two Germanies Highlights How Childcare Provision Benefits Women,” *LSE Business Review* (2018), <http://eprints.lse.ac.uk/89466/1/businessreview-2018-04-19-the-tale-of-two-germanies-highlights-how.pdf>. See also Mi Young An and Ito Peng, “Diverging Paths? A Comparative Look at Childcare Policies in Japan, South Korea and Taiwan,” *Social Policy and Administration* 50, no. 5 (2016): 540–58. **Sometimes they become oblivious:** Judith S. Wallerstein, Julia M. Lewis, and Sandra Blakeslee, *The Unexpected Legacy of Divorce: A Twenty-Five Year Landmark Study* (New York: Hyperion, 2000), xx. Research in this area is of course controversial; see Michelle Jaffee, “Experts Split over Divorce’s Legacy for Children,” *Chicago Tribune*, August 15, 2004, www.chicagotribune.com/news/ct-xpm-2004-08-15-0408150450-story.html. For a fascinating discussion of some of the deeper philosophy of science (e.g., methodological and epistemological) issues, see Elizabeth Anderson, “Uses of Value Judgements in Science: A General Argument, with Lessons from a Case Study of Feminist Research on Divorce,” *Hypatia* 19, no. 1 (2004): 1–24. **Many of them fear:** Wallerstein et al., *Unexpected Legacy of Divorce*, xiii. **For some children:** Amato, “Good Enough Marriages” 73–74.

Chapter 6: Ecstasy as Therapy

As she later told a journalist: Mike Sheffield, “Could MDMA Save Your Relationship?” *Complex Magazine*, February 17, 2016, www.complex.com/life/2016/02/how-molly-could-help-your-relationship. All quotes from Autumn are from this source. **In the 1980s, before it:** Ben Sessa, “Is There a Case for MDMA-Assisted Psychotherapy in the UK?” *Journal of Psychopharmacology* 21, no. 2 (2017): 220–24. Please note that the next several paragraphs and some other portions of this chapter are adapted from Brian D. Earp, “Psychedelic Moral Enhancement,” *Royal Institute of Philosophy Supplement* 83 (2018): 415–39. **Writing in the Journal of Psychoactive:** George R. Greer and Requa Tolbert, “A Method of Conducting Therapeutic Sessions with MDMA,” *Journal of Psychoactive Drugs* 30, no. 4 (1998): 371–79, 375. **“We never recommended:** Greer and Tolbert, “Method of Conducting, ” 372. **Through their own research:** Torsten Passie, “The Early Use of MDMA (‘Ecstasy’) in Psychotherapy (1977–1985),” *Drug Science, Policy and Law* 4, (2018): 1–19. **Especially at lower doses:** Patrick Vizeli and Matthias E. Liechti, “Safety Pharmacology of Acute MDMA Administration in Healthy Subjects,” *Journal of Psychopharmacology* 31, no. 5 (2017): 576–88. **They were caused by the clients:** Greer and Tolbert, “Method of Conducting, ” 378. **In his 1954 essay:** Peter N. Jones, “The Native American Church, Peyote, and Health: Expanding Consciousness for Healing Purposes,” *Contemporary Justice Review* 10, no. 4 (2007): 411–25; John H. Halpern et al., “Psychological and Cognitive Effects of Long-Term Peyote Use among Native Americans,” *Biological Psychiatry* 58, no. 8 (2005): 624–31. **Mescaline and MDMA have:** Harold Kalant, “The Pharmacology and Toxicology of ‘Ecstasy’ (MDMA) and Related Drugs,” *Canadian Medical Association Journal* 165, no. 7 (2001): 917–28. **“The mescaline experience is:** The quote finishes with “to everyone, but especially intellectuals.” Aldous Huxley, *The Doors of Perception* (London: Chatto and Windus, 1954). See page 53 of the online version, http://nacri.us/media/text/the_doors_of_perception.pdf. **It unlocks a door:** William A. Richards, “Understanding the Religious Import of Mystical States of Consciousness Facilitated by Psilocybin,” in *The Psychedelic Policy Quagmire: Health, Law, Freedom, and Society*,

ed. J. Harold Ellens and Thomas B. Roberts (Denver: Praeger, 2015), 139–44. **More than a century ago:** William James, “Subjective Effects of Nitrous Oxide,” *Mind* 7, no. 1 (1882): 186–208. **subjective changes “may determine attitudes:** William James, *The Varieties of Religious Experience* (Mineola, NY: Dover, 1902). **Think of a magnifying glass:** Thanks to Ole Martin Moen for this analogy. **One woman told us:** This is a fictional story based on conversations we have had with actual people. **In 1985 the U.S. government:** National Institute of Drug Abuse, “What Is the History of MDMA?” 2017, www.drugabuse.gov/publications/research-reports/mdma-ecstasy-abuse/what-is-the-history-of-mdma. **On July 27, 1984:** The account here, through “catch-22” is closely paraphrased from Passie, “Early Use of MDMA...,” 11–12. **The FDA based its reasoning for:** Passie, “Early Use of MDMA...,” 14. **And it really is a sorry situation:** Ben Sessa, *The Psychedelic Renaissance: Reassessing the Role of Psychedelic Drugs in 21st Century Psychiatry and Society* (Herndon, VA: Muswell Hill Press, 2012). See also Evan Wood, Daniel Werb, Brandon D. L. Marshall, Julio S. G. Montaner, and Thomas Kerr, “The War on Drugs: A Devastating Public-Policy Disaster,” *The Lancet* 373, no. 9668 (2009): 989–90. **One such story comes from:** Don Lattin, “Marriage Is Driving Some to Drugs and It May Not Be a Bad Thing,” *California Magazine*, February 13, 2017, <https://alumni.berkeley.edu/california-magazine/just-in/2017-02-14/marriage-driving-some-drugs-and-it-may-not-be-bad-thing>. The subsequent quotes from George Greer are also from this source. **Specifically, we risk “falsifying:** Leon R. Kass et al., *Beyond Therapy: Biotechnology and the Pursuit of Happiness* (Washington, DC: President’s Council on Bioethics, 2003), 227. **Of course, the way our emotions work.** Thanks to Kelsi Lindus for this example. **“Where I live, they love fireworks:** “‘Like a Hug from Everyone Who Loves You’—How MDMA Could Help Patients with Trauma,” *Pharmaceutical Journal* 301, no. 7918 (October 2018), www.pharmaceutical-journal.com/news-and-analysis/features/like-a-hug-from-everyone-who-loves-you-how-mdma-could-help-patients-with-trauma/20205586.article?firstPass=false. All subsequent quotes from Lubecky are also from this source. Please note that the original punctuation in the quote beginning “I wouldn’t talk about the

trauma” has been edited for ease of readability. **In fact, the journalist Mike Sheffield:** Sheffield, “Could MDMA Save Your Relationship?” **The thought here is that:** As Julian and our colleague Anders Sandberg wrote in the very first paper on relationship neuroenhancement back in 2008: In the case of love between two people, there is usually some form of compatibility, some shared values, some event or aspect of personality that enables and leads to the love. The feeling has an “autobiographical anchor,” making it authentic. Again, it is important to distinguish between the use of love potions to create new love and to foster existing love. The use of drugs to instill a new love is more likely to create inauthentic love, since the causal reasons for the love may lie in the drug (and external events surrounding the situation), rather than the particular person loved. This would not be the case in an established loving relationship that is losing its momentum. (Julian Savulescu and Anders Sandberg, “Neuroenhancement of Love and Marriage: The Chemicals Between Us,” *Neuroethics* 1, no. 1 [2008]: 31–44, 40) Please note that some of this chapter is also adapted from this essay. **Another concern about authenticity:** Portions of this section are adapted from Brian D. Earp, Anders Sandberg, and Julian Savulescu, “The Medicalization of Love,” *Cambridge Quarterly of Healthcare Ethics* 24, no. 3 (2015): 323–36. **We recently did some research on:** Brian D. Earp, Joshua Skorburg, Jim A. C. Everett, and Julian Savulescu, “Addiction, Identity, Morality,” *AJOB: Empirical Bioethics* 10, no. 2 (2019): 136– 53, preprint available at <https://psyarxiv.com/evm84/>. See also Kevin P. Tobia, “Personal Identity and the Phineas Gage Effect,” *Analysis* 75, no. 3 (2015): 396–405; Kevin P. Tobia, “Personal Identity, Direction of Change, and Neuroethics,” *Neuroethics* 9, no. 1 (2016): 37–43; and Kevin P. Tobia, “Changes Becomes You,” *Aeon*, September 19, 2017, <https://aeon.co/essays/to-be-true-to-ones-self-means-changing-to-become-that-self>. **The philosopher Marya Schechtman:** Marya Schechtman, “Empathic Access: The Missing Ingredient in Personal Identity,” *Philosophical Explorations* 4, no. 2 (2001): 95–111. For more work on transformative experiences, see L. A. Paul, *Transformative Experience* (Oxford, UK: Oxford University Press, 2014). We wish to thank Rebecca Bamford for first alerting us to Schechtman’s work in this context; Rebecca Bamford, “Unrequited: Neurochemical Enhancement of Love,” *Cambridge*

Quarterly of Healthcare Ethics 24, no. 3 (2015): 355–60, 359. **Some people have had horrible:** Andrew C. Parrott, Luke A. Downey, Carl A. Roberts, Cathy Montgomery, Raimondo Bruno, and Helen C. Fox, “Recreational 3, 4–Methylenedioxymethamphetamine or ‘Ecstasy’: Current Perspective and Future Research Projects,” *Journal of Psychopharmacology* 31, no. 8 (2017): 959–66. **Some have died from:** John A. Henry, K. J. Jeffreys, and Shelia Dawling, “Toxicity and Deaths from 3, 4–Methylenedioxymethamphetamine (‘Ecstasy’),” *The Lancet* 340, no. 8816 (1992): 384–87. **“Recreational Ecstasy is often taken with:** Ben Sessa, pers. comm., September 27, 2017. Quoted with consent. All subsequent quotes from Sessa are from this interview, except for those attributed to his published article. **In a recent article:** Sessa, “Is There a Case for MDMA-Assisted Psychotherapy...,” 223. **Even so, he concludes that:** Sessa, “Is There a Case for MDMA-Assisted Psychotherapy...,” 223, emphasis in original.

Chapter 7: Evolved Fragility

This fundamental mismatch: The basic argument in this chapter is adapted primarily from Julian Savulescu and Anders Sandberg, “Neuroenhancement of Love and Marriage: The Chemicals Between Us,” *Neuroethics* 1, no. 1 (2008): 31–44. For further related discussion, see Martin Daly and Margo I. Wilson, “The Evolutionary Psychology of Marriage and Divorce,” in *The Ties That Bind: Perspectives on Marriage and Cohabitation*, ed. Linda J. Waite et al. (New York: De Gruyter, 2000), 91–110. See also Daphne Blunt Bugental, “Acquisition of the Algorithms of Social Life: A Domain-Based Approach,” *Psychological Bulletin* 126, no. 2 (2000): 187–219. **Rather, our ancestors evolved:** We can make this more precise. Strictly speaking, our ancestors didn’t “evolve” anything; rather, the blind process of natural selection, faced with slowly changing circumstances over an incredible stretch of time, eventually favored the survival to reproduction of ancestral parents that tended to stick together rather than mate-and-run, and who passed that tendency on to offspring as part of their genetic inheritance. We use agential, anthropomorphic language for evolution purely for the sake of expediency. **Until the last one hundred years:** This section (including the next several paragraphs) draws heavily from Dario Maestriperi, “The Seven Year Itch: Theories of Marriage, Divorce, and Love,” *Psychology Today*, February 3, 2012, www.psychologytoday.com/us/blog/games-primates-play/201202/the-seven-year-itch-theories-marriage-divorce-and-love. His book covering similar material is *Games Primates Play: An Undercover Investigation of the Evolution and Economics of Human Relationships* (New York: Basic Books, 2012). **Human babies are particularly vulnerable:** For a theoretical overview, see Mart R. Gross, “The Evolution of Parental Care,” *Quarterly Review of Biology* 80, no. 1 (2005): 37–45. For more recent discussions and alternative perspectives, see Kristina M. Durante, Paul W. Eastwick, Eli J. Finkel, Steven W. Gangestad, and Jeffrey A. Simpson, “Pair-Bonded Relationships and Romantic Alternatives: Toward an Integration of Evolutionary and Relationship Science Perspectives,” *Advances in Experimental Social Psychology* 53, no. 1 (2016): 1–74; and James F. O’Connell, Kristen Hawkes, Frank W. Marlowe, and Nicholas G. Blurton Jones, “Paternal Investment and Hunter-Gatherer

Divorce Rates,” in *Adaptation and Human Behavior*, ed. Napoleon Chagnon (Abingdon, UK: Routledge, 2017), 69–90. **To that end, modern hunter-gatherers:** For an overview, see Kristen Hawkes, James O’Connell, and Nicholas Blurton Jones, “Hunter-Gatherer Studies and Human Evolution: A Very Selective Review,” *American Journal of Physical Anthropology* 165, no. 4 (2018): 777–800. **It has been speculated that:** Maestriperi, “Seven Year Itch.” As Geoffrey Miller pointed out to us, !Kung live in fairly marginal environments with poor resources. Typical ancestral interbirth intervals may have been more like 2–3 years in more propitious environments. Miller, pers. comm., November 3, 2018. **In the late 1980s, the anthropologist:** Helen Fisher, *Anatomy of Love: A Natural History of Mating, Marriage, and Why We Stray* (New York: Norton, 2016). **She found that when committed partners:** Maestriperi, “Seven Year Itch.” See also Helen Fisher, “Evolution of Human Serial Pairbonding,” *American Journal of Physical Anthropology* 78, no. 3 (1989): 331–54. **One interpretation of this finding:** Maestriperi, “Seven Year Itch.” **albeit a controversial one:** Daly and Wilson have forcefully criticized Fisher’s “four-year itch” theory, finding the evidence in support of it to be thin and unconvincing. See Daly and Wilson, “Evolutionary Psychology of Marriage and Divorce,” 103. Fisher has defended her theory in various subsequent articles and books, including Helen Fisher, “Planned Obsolescence? The Four-Year Itch,” Edge.org, 2008, www.edge.org/response-detail/11507; and Fisher, *Anatomy of Love*. **Human appetite [is] surprisingly elastic:** Michael Pollan, *The Omnivore’s Dilemma* (New York: Penguin, 2012), excerpt from the text available at www.pbs.org/pov/foodinc/excerpt-michael-pollans-the-omnivores-di-lemma/. **Consider Playboy:** David M. Buss, *The Evolution of Desire* (New York: Basic Books, 2016), 103–4. **What Playboy-purchasing men:** Buss, “Evolution of Desire.” **For monogamous relationships:** Andrew Greeley, “Marital Infidelity,” *Society* 31, no. 4 (1994): 9–13. For a related discussion, see Jennifer S. Hirsch, Sergio Meneses, Brenda Thompson, Mirka Negroni, Blanca Pelcastre, and Carlos Del Rio, “The Inevitability of Infidelity: Sexual Reputation, Social Geographies, and Marital HIV Risk in Rural Mexico,” *American Journal of Public Health* 97, no. 6 (2007): 986–96. See also Padmanabha Ramanujam, Yugank Goyal, and Sriya Sridhar, “Cultural Institutions in New Technology:

Evidence from Internet Infidelity,” in *Internet Infidelity*, ed. Sanjeev P. Sahni and Garima Jainpp (Singapore: Springer Nature Singapore, 2018), 45–67. **Divorce has now overtaken death:** See Savulescu and Sandberg, “Neuroenhancement of Love and Marriage.” See also Kirsten Gravningen, Kirstin R. Mitchell, Kaye Wellings, Anne M. Johnson, Rebecca Geary, Kyle G. Jones, Soazig Clifton, et al., “Reported Reasons for Breakdown of Marriage and Cohabitation in Britain: Findings from the Third National Survey of Sexual Attitudes and Lifestyles (Natsal-3),” *PLOS ONE* 12, no. 3 (2017): e0174129. **As somebody once said:** This quote is from page 80 of the 2016 edition of Helen Fisher’s *Anatomy of Love*. She attributes it to Oscar Wilde, perhaps because it sounds like something Wilde would have said, but the closest thing we could find is from George Bernard Shaw’s 1903 drama, *Man and Superman*, spoken by the character Mendoza: “There are two tragedies in life. One is to lose your heart’s desire. The other is to gain it.” But the plot thickens! According to *Wikiquote* (which may or may not be a reliable source), this line is apparently derived from a *different* quote by Oscar Wilde, from Act 3 of *Lady Windermere’s Fan* (1892), spoken by the character Dumby: “In this world there are only two tragedies. One is not getting what one wants, and the other is getting it.” That’s still not the same thing as what Fisher attributes to Wilde, but some mash-up of the two is pretty close. As an aside, we wonder how many Oscar Wilde quotes have been misattributed to George Bernard Shaw and vice versa. **Once we realize how implausible:** These points are well expressed by Esther Perel, *Mating in Captivity* (New York: HarperCollins, 2007), xiv. **As the anthropologist Donald Symons:** Donald Symons, “Darwinism and Contemporary Marriage,” in *Contemporary Marriage*, ed. Kingsley Davis (New York: Russell Sage, 1985), 133–55. **Divorce rates are notoriously hard:** They also vary considerably depending on individual difference variables, such as age at marriage and education level. According to Geoffrey Miller, college-educated people who get married after their mid-twenties, before they have kids, have divorce rates under 25 percent. Higher IQ also predicts lower divorce rate. Geoffrey Miller, pers. comm., November 3, 2018. See also Paul R. Amato, “Research on Divorce: Continuing Trends and New Developments,” *Journal of Marriage and Family* 72 (2010): 650–66. Please note that this paragraph is adapted from Brian D. Earp, Anders Sandberg, and Julian

Savulescu, “Natural Selection, Childrearing, and the Ethics of Marriage (and Divorce): Building a Case for the Neuroenhancement of Human Relationships,” *Philosophy and Technology* 25, no. 4 (2012) 561–87. **This ratio, at least in recent:** Belinda Luscombe, “Are Marriage Statistics Divorced from Reality?” *Time*, May 24, 2010, www.time.com/time/magazine/article/0,9171,1989124,00.html. **Basically, there are about twice:** Other ways at arriving at the 50percent statistic depend on projections from data collected in the 1970s, 1980s, and 1990s based on the questionable assumption that those earlier trends would continue into the present day. Some experts think that divorce rates have been declining in recent years; others think they are rising. But when you take everything together, as the marriage researcher Paul Amato has recently stated, the 50 percent figure “appears to be reasonably accurate.” Quoted in Luscombe, “Are Marriage Statistics Divorced”

Passion, at least, was often: Perel, *Mating in Captivity*, 8. According to Geoffrey Miller, this view of marriage may be distorted by historical bias. He wrote to us: “Among the wealthy elites, marriage was often for political and resource reasons. Among the majority of folks who never make it into the history books, however—e.g., medieval serfs, townspeople, settlers, factory workers, etc., I suspect that falling in love was a very common reason for marriage.” Geoffrey Miller, pers. comm., November 3, 2018. Quoted with consent. **and marriage was more about connecting:** Stephanie Coontz, *Marriage: A History* (New York: Penguin, 2005),6. **In other words, right up until:** Coontz, *Marriage*, 9. **It was too important an economic:** Coontz, *Marriage*, 9. **Four factors have led to:** Coontz, *Marriage*, 307–8. **If they wanted a long-lasting:** Coontz, *Marriage*, 308. **We seem to have created a paradox:** Paraphrased from Perel, *Mating in Captivity*, 8. **By dismantling them, we:** Perel, *Mating in Captivity*, 8–9. **As Coontz notes, we can no:** Coontz, *Marriage*, 308. **“In today’s world it’s easy:** Judith S. Wallerstein and Sandra Blakeslee, *The Good Marriage* (Boston: Houghton-Mifflin, 1995), 5.

Chapter 8: Wonder Hormone

For almost a decade: All quotes are from, or within, Ed Yong, “One Molecule for Love, Morality, and Prosperity?” *Slate*, July 17, 2012, <https://slate.com/technology/2012/07/oxytocin-is-not-a-love-drug-dont-give-it-to-kids-with-autism.html>. This chapter is adapted with permission from Olga A. Wudarczyk, Brian D. Earp, Adam Guastella, and Julian Savulescu, “Could Intranasal Oxytocin Be Used to Enhance Relationships? Research Imperatives, Clinical Policy, and Ethical Considerations,” *Current Opinion in Psychiatry* 26, no. (2013): 474–84. **On Amazon you can buy:** See www.amazon.com/OxyLuv-Oxytocin-unnatural-preservatives-fillers/dp/B00MEV8BMM. **Still, a range of products:** See www.amazon.com/Attrakt-Oxytocin-Pheromone-Spray-Cologne/dp/B00N2600OK. **Critical studies have manipulated:** Mary M. Cho, A. Courtney DeVries, Jessie R. Williams, and C. Sue Carter, “The Effects of Oxytocin and Vasopressin on Partner Preferences in Male and Female Prairie Voles (*Microtus ochrogaster*),” *Behavioral Neuroscience* 113, no. 5 (1999): 1071–79; Thomas R. Insel and T. J. Hulihan, “A Gender-Specific Mechanism for Pair Bonding: Oxytocin and Partner Preference Formation in Monogamous Voles,” *Behavioral Neuroscience* 109, no. 4 (1995): 782–89; Jessie R. Williams, Thomas R. Insel, Carol R. Harbaugh, and C. Sue Carter, “Oxytocin Administered Centrally Facilitates Formation of a Partner Preference in Female Prairie Voles (*Microtus ochrogaster*),” *Journal of Neuroendocrinology* 6, no. 3 (1994): 247–50; James T. Winslow, Nick Hastings, Carol Sue Carter, Carroll R. Harbaugh, and Thomas R. Insel, “Pair Bonding in the Monogamous Prairie Vole: A Role for Central Vasopressin,” *Nature* 365 (1993): 545–48. **In other studies, infusing:** L. J. Young, M. M. Lim, B. Gingrich, and T. R. Insel, “Cellular Mechanisms of Social Attachment,” *Hormones and Behavior* 40, no.2 (2001): 133–38. **But several researchers have argued:** Helen E. Fisher, Arthur Aron, and Lucy L. Brown, “Romantic Love: A Mammalian Brain System for Mate Choice,” *Philosophical Transactions of the Royal Society B: Biological Sciences* 361, no. 1476 (2006): 2173–86; Zoe R. Donaldson and Larry J. Young, “Oxytocin, Vasopressin, and the Neurogenetics of Sociality,” *Science* 322, no. 5903 (2008): 900–904. **Mothers who observe a**

photograph of: Andreas Bartels and Semir Zeki, “The Neural Correlates of Maternal and Romantic Love,” *NeuroImage* 21, no. 3 (2004): 1155–66; F. Loup, Elaine Tribollet, M. Dubois-Dauphin, and Jean Jaques Dreifuss, “Localization of High-Affinity Binding Sites for Oxytocin and Vasopressin in the Human Brain: An Autoradiographic Study,” *Brain Research* 555, no. 2 (1991): 220–32. **This effect is amplified:** Lane Strathearn, Peter Fonagy, Janet Amico, and P. Read Montague, “Adult Attachment Predicts Maternal Brain and Oxytocin Response to Infant Cues,” *Neuropsychopharmacology* 34, no. 13 (2009): 2655–66. **Similar activation patterns happen in adults:** Fisher, Aron, and Brown, “Romantic Love,” 58–62. **Although none of these findings:** Anne Campbell, “Oxytocin and Human Social Behavior,” *Personality and Social Psychology Review* 14, no. 3 (2010): 281–95. **Using a simple nasal spray to:** Ted J. Kaptchuk, “The Double-Blind, Randomized, Placebo-Controlled Trial: Gold Standard or Golden Calf?” *Journal of Clinical Epidemiology* 54, no. 6 (2001): 541–49; see also Brian D. Earp, “Mental Shortcuts,” *Hastings Center Report* 46, no. 2 (2016), inside front cover; Brian D. Earp, “The Unbearable Asymmetry of Bullshit,” *Health Watch* 101 (Spring 2016): 4–5. **In just the last year or so:** Anthony Lane, Oliver Luminet, Gideon Nave, and Moira Mikolajczak, “Is There a Publication Bias in Behavioural Intranasal Oxytocin Research on Humans? Opening the File Drawer of One Laboratory,” *Journal of Neuroendocrinology* 28, no. 4 (2016): 1–15; Simon Oxenham, “Everything You’ve Heard about Sniffing Oxytocin Might Be Wrong,” *New Scientist*, May 16, 2016, www.newscientist.com/article/2088200-everything-youve-heard-about-sniffing-oxytocin-might-be-wrong; Gideon Nave, Colin Camerer, and Michael McCullough, “Does Oxytocin Increase Trust in Humans? A Critical Review of Research,” *Perspectives on Psychological Science* 10, no. 6 (2015): 772–89. **Accordingly, “the remarkable reports that:** Hasse Walum, Irwin D. Waldman, and Larry J. Young, “Statistical and Methodological Considerations for the Interpretation of Intranasal Oxytocin Studies,” *Biological Psychiatry* 79, no. 3 (2016): 251–57, 257. **This has become a big issue:** For discussions by Brian and his colleagues, see Brian D. Earp and David Trafimow, “Replication, Falsification, and the Crisis of Confidence in Social Psychology,” *Frontiers in Psychology* 6 (2015): 621; Jim A. C. Everett and Brian D. Earp, “A Tragedy of the

(Academic) Commons: Interpreting the Replication Crisis in Psychology as a Social Dilemma for Early-Career Researchers,” *Frontiers in Psychology* 6, no. 1152 (2015): 1–4; David Trafimow and Brian D. Earp, “Badly Specified Theories Are Not Responsible for the Replication Crisis in Social Psychology: Comment on Klein,” *Theory and Psychology* 26, no. 4 (2016): 540–48; Brian D. Earp, Jim A. C. Everett, Elizabeth N. Madva, and J. Kiley Hamlin, “Out, Damned Spot: Can the ‘Macbeth Effect’ Be Replicated?” *Basic and Applied Social Psychology* 36, no. 1 (2014): 91–98; Brian D. Earp, “Falsification: How Does It Relate to Reproducibility?” *Key Concepts in Research Methods*, ed. Jean-François Morin et al. (Abingdon, UK: Routledge, in press); and Etienne LeBel, Randy J. McCarthy, Brian D. Earp, Malte Elson, and Wolf Vanpaemel, “A Unified Framework to Quantify the Credibility of Scientific Findings,” *Advances in Methods and Practices in Psychological Science* 1, no. 3, 389–402. **And it isn’t just OT research:** John P. Ioannidis, “Why Most Published Research Findings Are False,” *PLOS Medicine* 2, no. 8 (2005): e124; Open Science Collaboration, “Estimating the Reproducibility of Psychological Science,” *Science* 349, no. 6251 (2015): aac471; Brian D. Earp, “What Did the OSC Replication Initiative Reveal about the Crisis in Psychology?” *BMC Psychology* 4, no. 28 (2016): 1–19; Brian A. Nosek and Timothy M. Errington, “Making Sense of Replications,” *Elife* 6, (2017): e23383. See also Florian Cova, Brent Strickland, Angela Abatista, Aurélien Allard, James Andow, Mario Attie, James Beebe, et al., “Estimating the Reproducibility of Experimental Philosophy,” *Review of Philosophy and Psychology* (2018): 1–36 (online publication). **The most famous study:** Beate Ditzen, Marcel Schaer, Barbara Gabriel, Guy Bodenmann, Ulrike Ehlert, and Markus Heinrichs, “Intranasal Oxytocin Increases Positive Communication and Reduces Cortisol Levels during Couple Conflict,” *Biological Psychiatry* 65, no. 9 (2009): 728–31. **The headline finding was:** In terms of the replication issue, at least one recent study has shown similar effects, namely, a reduction in cortisol (among women) following a dyadic conflict task: Julianne C. Flanagan, Melanie S. Fischer, Paul J. Nietert, Sudie E. Back, Megan Moran-Santa Maria, Alexandra Snead, and Kathleen T. Brady, “Effects of Oxytocin on Cortisol Reactivity and Conflict Resolution Behaviors among Couples with Substance Misuse,” *Psychiatry Research* 260 (2018): 346–52. Of

course, we don't know how big the "file drawer" is for studies of this kind (that is, the number of studies with a similar design that failed to show an effect and were therefore never submitted for publication), so the need for healthy skepticism remains. **As Ditzen noted about the research:** Quoted in Jayne Dawkins, "Oxytocin: Love Potion #1?" *Elsevier Press Release*, April 29, 2009, www.elsevier.com/about/press-releases/research-and-journals/oxytocin-love-potion-1. The subsequent quotes in this paragraph are also from this source. **Specifically, it has been shown:** Markus Heinrichs, Thomas Baumgartner, Clemens Kirschbaum, and Ulrike Ehlert, "Social Support and Oxytocin Interact to Suppress Cortisol and Subjective Responses to Psychosocial Stress," *Biological Psychiatry* 54, no. 12 (2003): 1389–98; Peter Kirsch, Christine Esslinger, Qiang Chen, Daniela Mier, Stefanie Lis, Sarina Siddhanti, Harald Gruppe, Venkata S. Mattay, Bernd Gallhofer, and Andreas Meyer-Lindenberg, "Oxytocin Modulates Neural Circuitry for Social Cognition and Fear in Humans," *Journal of Neuroscience* 25, no. 49 (2005): 11489–493; Gregor Domes, Markus Heinrichs, Jan Philipp Gläscher, Christian Büchel, Dieter F. Braus, and Sabine C. Herpertz, "Oxytocin Attenuates Amygdala Responses to Emotional Faces Regardless of Valence," *Biological Psychiatry* 62, no. 10 (2007): 1187–90. **increase trust, eye contact:** Adam J. Guastella, Philip Bowden Mitchell, and Mark R. Dadds, "Oxytocin Increases Gaze to the Eye Region of Human Faces," *Biological Psychiatry* 63, no. 1 (2008): 3–5. **mind reading:** Gregor Domes, Markus Heinrichs, Andre Michel, Christoph Berger, and Sabine C. Herpertz, "Oxytocin Improves 'Mind-Reading' in Humans," *Biological Psychiatry* 61, no. 6 (2007): 731–33. **and empathy:** René Hurlemann et al., "Oxytocin Enhances Amygdala-Dependent, Socially Reinforced Learning and Emotional Empathy in Humans," *Journal of Neuroscience* 30, no. 14 (2010): 4999–5007. **and make it easier to remember the good parts:** Markus Heinrichs, Gunther Meinlschmidt, Werner Wippich, Ulrike Ehlert, and Dirk H. Hellhammer, "Selective Amnesic Effects of Oxytocin on Human Memory," *Physiology and Behavior* 83, no. 1 (2004): 31–38; Adam J. Guastella, Phillip B. Mitchell, and Frosso Mathews, "Oxytocin Enhances the Encoding of Positive Social Memories in Humans," *Biological Psychiatry* 64, no. 3 (2008): 256–58. **In a recent study, OT enhanced:** Ann-Kathrin Kreuder, Lea Wassermann, Michael

Wollseifer, Beate Ditzen, Monika Eckstein, Birgit StoffelWagner, Jürgen Hennig, René Hurlmann, and Dirk Scheele, "Oxytocin Enhances the Pain-Relieving Effects of Social Support in Romantic Couples," *Human Brain Mapping* (2018), online ahead of print, <https://onlinelibrary.wiley.com/doi/full/10.1002/hbm.24368>. **In a relationship therapy context:** John C. Norcross, *Psychotherapy Relationships That Work* (Oxford, UK: Oxford University Press, 2011); Sandra Murray, John G. Holmes, Dale Wesley Griffin, "The Benefits of Positive Illusions: Idealization and the Construction of Satisfaction in Close Relationships," *Journal of Personality and Social Psychology* 70, no. 1 (1996): 79–98. **They also had less of a reflexive:** Dirk Scheele, Nadine Striepens, Onur Güntürkün, Sandra Deutschlander, Wolfgang Maier, Keith M. Kendrick, and Rene Hurlmann, "Oxytocin Modulates Social Distance between Males and Females," *Journal of Neuroscience* 32, no. 46 (2012): 16074–79. **If these findings hold up:** Markus Heinrichs, Gunther Meinschmidt, Werner Wippich, Ulrike Ehlert, and Dirk H. Hellhammer, "Selective Amnesic Effects of Oxytocin on Human Memory," *Physiology and Behavior* 83, no. 1 (2004): 31–38. **In line with this view:** Christian Unkelbach, Adam J. Guastella, and Joseph P. Forgas, "Oxytocin Selectively Facilitates Recognition of Positive Sex and Relationship Words," *Psychological Science* 19, no. 11 (2008): 1092–94. **More generally, OT may make:** Jennifer A. Bartz, Jamil Zaki, Niall Bolger, Eric Hollander, Natasha N. Ludwig, Alexander Kolevzon, and Kevin N. Ochsner, "Oxytocin Selectively Improves Empathic Accuracy," *Psychological Science* 21, no. 10 (2010): 1426–28. **As the neuroscientist Nadine Striepens:** Nadine Striepens, Keith M. Kendrick, Wolfgang Maier, and Rene Hurlmann, "Prosocial Effects of Oxytocin and Clinical Evidence for Its Therapeutic Potential," *Frontiers in Neuroendocrinology* 32, no. 4 (2011): 426–50, 445. **OT seems to have a dark side:** Ed Yong, "The Dark Side of Oxytocin, Much More Than Just a 'Love Hormone,'" *National Geographic*, November 29, 2010, <http://phenomena.nationalgeographic.com/2010/11/29/the-dark-side-of-oxytocin-much-more-than-just-a-love-hormone/>. **OT can increase feelings of envy and:** Simone Shamay-Tsoory, Meytal Fischer-Shofty, Jonathan Dvash, Hagai Harari, Nufar Perach-Bloom, and Yechiel Levkovitz, "Intranasal Administration of Oxytocin Increases Envy and Schadenfreude (Gloating)," *Biological Psychiatry* 66, no.

9 (2009): 864–70. **It also seems that people behave more:** Carolyn H. Declerck, Christophe Boone, and Toko Kiyonari, “Oxytocin and Cooperation under Conditions of Uncertainty: The Modulating Role of Incentives and Social Information,” *Hormones and Behavior* 57, no. 3 (2010): 368–74. **And there is even evidence that:** Carsten K. W. De Dreu, Lindred L. Greer, Gerben A. Van Kleef, Shaul Shalvi, and Michel J. J. Handraaf, “Oxytocin Promotes Human Ethnocentrism,” *Proceedings of the National Academy of Sciences* 108, no. 4 (2011): 1262–66. **These results suggest that OT could:** Greg Miller, “The Promise and Perils of Oxytocin,” *Science* 339, no. 6117 (2013): 267–69, 269. **People with borderline personality disorder:** Jennifer Bartz, Daphne Simeon, Holly Hamilton, Suah Kim, Sarah Crystal, Ashley Braun, Victor Vicens, and Eric Hollander, “Oxytocin Can Hinder Trust and Cooperation in Borderline Personality Disorder,” *Social Cognitive and Affective Neuroscience* 6, no. 5 (2011): 556–63. **And people with an anxious or insecure attachment:** Jennifer A. Bartz, Jamil Zaki, Kevin N. Ochsner, Niall Bolger, Alexander Kolevzon, Natasha Ludwig, and John Lydon, “Effects of Oxytocin on Recollections of Maternal Care and Closeness,” *Proceedings of the National Academy of Sciences* 107, no. 50 (2010): 21371–75. **Finally, OT seems to improve empathic:** Bartz et al., “Effects of Oxytocin,” 21371–75. **How it influences thoughts:** Miller, “Promise and Perils...,” 269. See also Adam J. Guastella and Colin Macleod, “A Critical Review of the Influence of Oxytocin Nasal Spray on Social Cognition in Humans: Evidence and Future Directions,” *Hormones and Behavior* 61, no. 3 (2012): 410–18, 416. For a more recent study looking at a moderating influence of intimate partner violence, see Amber Jarnecke, Eileen Barden, Sudie E. Back, Kathleen Brady, and Julianne C. Flanagan, “Intimate Partner Violence Moderates the Association between Oxytocin and Reactivity to Dyadic Conflict among Couples,” *Psychiatry Research* 270 (2018): 404–11. **Couples would have to be screened for:** That said, it would be premature to conclude that oxytocin should never be administered in such “problematic” cases. Rather, the existence of possible risk factors for certain individuals suggests that greater initial effort may be required to determine what sort of psychotherapeutic contexts and treatment paradigms would be needed to ensure that such administration resulted in net benefits rather than net harms. In other

words, the possibility that oxytocin could prove advantageous (on balance) even for individuals with “risky” profiles—by, for example, facilitating the development of healthier relationship schemas with the guidance of a counselor or therapist—should not be ruled out in advance of attempting the necessary research. This note is adapted from Wudarczyk, Earp, Guastella, and Savulescu, “Could Intranasal Oxytocin Be Used to Enhance Relationships?” **Guastella tells us that data analysis:** Quoted in Luciana Gravotta, “Be Mine Forever: Oxytocin May Help Build Long-Lasting Love,” *Scientific American*, February 12, 2013, www.scientificamerican.com/article/be-mine-forever-oxytocin/. To be clear, the quote is from the *Scientific American* article; however, we also checked with Adam Guastella more recently, and he confirmed that the data have still not been analyzed; pers. comm., April 12, 2017. **Based on previous findings, the hope:** Gravotta, “Be Mine Forever...” **“Oxytocin can elicit loving behaviors”:** Gravotta, “Be Mine Forever...” **Assuming that Guastella’s findings support his:** Gravotta, “Be Mine Forever...” **OT can apparently increase:** Michael Kosfeld, Markus Heinrichs, Paul J. Zak, Urs Fischbacher, and Ernsnt Fehr, “Oxytocin Increases Trust in Humans,” *Nature* 435, no. 7042 (2005): 673–76. **It can also increase cooperation:** *Ibid.* **Future research should look at whether:** G. J. H. Dumont, Fred C. G. J. Sweep, R. Van der Steen, Cornelus C. Hermsen, Rogier Donders, Daan J. Touw, Joop M. Van Gerven, Jan Buitelaar, and R. J. Verkes, “Increased Oxytocin Concentrations and Prosocial Feelings in Humans after Ecstasy (3, 4–Methylenedioxymethamphetamine) Administration,” *Social Neuroscience* 4, no. 4 (2009): 359–66. **Some bioethicists argue that:** Rebecca Bamford, “Unrequited: Neurochemical Enhancement of Love,” *Cambridge Quarterly of Healthcare Ethics* 24, no. 3 (2015): 355–60, 358. **In real life, people make their decisions about therapy:** Susan Dodds, “Choice and Control in Feminist Bioethics,” in *Relational Autonomy: Feminist Perspectives on Autonomy, Agency and the Social Self*, ed. Catriona Mackenzie and Natalie Stoljar (Oxford, UK: Oxford University Press, 2000), 213–35.

Chapter 9: Anti-love Drugs

References crop up in the writings: William Fitzgerald, “Lucretius Cure for Love in the ‘De Rerum Natura,’” *The Classical World* 78, no. 2 (1984): 73–86. **Ovid:** J. Lewis May, trans., *The Love Books of Ovid: The Amores, Ars Amatoria, Remedia Amoris, and Medicamina Faciei Femineae of Publius Ovidius Naso* (Whitefish, MT: Kessinger, 2010). **Shakespeare:** William Shakespeare, *As You Like It* (London: Methuen, 1623/1975). **The playwright George Bernard Shaw:** Bernard Shaw, *The Doctor’s Dilemma: Getting Married, and The Shewing-Up of Blanco Posnet* (Edinburgh: Constable & Co., 1911), 34. **Ancient cures for love:** Lawrence Babb, “The Physiological Conception of Love in the Elizabethan and Early Stuart Drama,” *Publications of the Modern Language Association of America* 56, no. 4 (1941): 1020–35. **Or if Harry Potter is more your style,:** As shown in the video game adaptation of J. K. Rowling, *Harry Potter and the Half Blood Prince* (London: Bloomsbury, 2005). See http://harrypotter.wikia.com/wiki/Love_Potion_Antidote. **The following year, writing in:** Larry J. Young, “Being Human: Love: Neuroscience Reveals All,” *Nature* 457, no. 7226 (2009): 148. **As Young sees it, love is:** Young, “Being Human...,” 148. **He argues that “drugs that:** Young, “Being Human,” 148, emphasis added. **Rabbis and marriage counselors:** Yair Ettinger, “Rabbi’s Little Helper,” *Haaretz*, April 6, 2012, www.haaretz.com/1.5212045. **In another example, a Christian man suffering:** J. Michael Bostwick and Jeffrey A. Bucci, “Internet Sex Addiction Treated With Naltrexone,” *Mayo Clinic Proceedings* 83, no. 2 (2008): 226–30. **And American sex offenders:** Louis J. Gooren, “Ethical and Medical Considerations of Androgen Deprivation Treatment of Sex Offenders,” *Journal of Clinical Endocrinology and Metabolism* 96, no. 12 (2011): 3628–37. *Eternal Sunshine of the Spotless Mind:* For a thorough and very interesting discussion of the ethics of memory modification as dealt with in this film, see Christopher Grau, “*Eternal Sunshine of the Spotless Mind* and the Morality of Memory,” *Journal of Aesthetics and Art Criticism* 64, no. 1 (2006): 119–33. We don’t think we’d be able to improve on his analysis, so we aren’t going to try. Basically, Grau argues that there are serious costs and other moral issues at stake in artificially manipulating

one's memories, but that in some cases it could be justified. While the possibility of memory erasure is clearly relevant to our general theme in this chapter, a full analysis would take us too far afield of our focus on lust, attraction, and attachment—that is, the predisposing biological factors for potential (harmful) relationships, as well as the psychological glue holding together current (harmful) relationships. The only thing we'll say here is that if a person had already “cured” themselves of their emotional attachment to, for example, an abusive partner (perhaps by using one of the interventions we explore in the book), there might be less of a perceived need to delete the partner from their memory as well. For readers who are interested in the science and ethics of memory modification, in addition to the discussion by Grau we recommend the following essays: Reinoud De Jongh, Ineke Bolt, Maartje Schermer, and Berend Olivier, “Botox for the Brain: Enhancement of Cognition, Mood and Pro-social Behavior and Blunting of Unwanted Memories,” *Neuroscience and Biobehavioral Reviews* 32, no. 4 (2008): 760–76; Adam J. Kolber, “Therapeutic Forgetting: The Legal and Ethical Implications of Memory Dampening,” *Vanderbilt Law Review* 59 (2006): 1561–2053; and Erik Parens, “The Ethics of Memory Blunting and the Narcissism of Small Differences,” *Neuroethics* 3, no. 2 (2010): 99–107. Please note that this note and much of this chapter is adapted with permission from Brian D. Earp, Olga A. Wudarczyk, Anders Sandberg, and Julian Savulescu, “If I Could Just Stop Loving You: Anti-love Biotechnology and the Ethics of a Chemical Breakup,” *American Journal of Bioethics* 13, no. 11 (2013): 3–17. **As Gondry recounts:** Quoted in Jessica Lack, “Eraserhead,” *The Guardian*, September 5, 2008, <https://www.theguardian.com/film/2008/sep/06/1>. **reports of a real-life technique for memory modification in response to heartbreak:** Pauline Bock, “How a PTSD Expert Developed a Viable Cure for Heartbreak,” *WIRED*, June 26, 2019, <https://www.wired.co.uk/article/ptsd-and-heartbreak>. All quoted material in the remainder of this section of the chapter is from this source. **More than 70 percent of participants in a 2018 study:** This statistic comes from the *WIRED* article cited in the previous note; however, it is unclear whether the study has been published or whether the author was sharing preliminary results. We did find a 2018 study by Brunet and others that describes a similar technique, but no

mention is made of romantic betrayal; rather, the patients are simply characterized as having PTSD. See Alain Brunet, Daniel Saumier, Aihua Liu, David L. Streiner, Jacques Tremblay, and Roger K. Pitman, "Reduction of PTSD Symptoms with Pre-reactivation Propranolol Therapy: a Randomized Controlled Trial," *American Journal of Psychiatry* 175, no. 5 (May 2018): 427–33. **As Helen Fisher and her colleagues:** Helen E. Fisher, Debra Mashek, Arthur Aron, Haifang Li, and Lucy L. Brown, "Defining the Brain Systems of Lust, Romantic Attraction, and Attachment," *Archives of Sexual Behavior* 31, no. 5 (2002): 413–19. **For example, testosterone can stimulate:** See Helen Fisher, "Lust, Attraction, Attachment: Biology and Evolution of the Three Primary Emotion Systems for Mating, Reproduction, and Parenting," *Journal of Sex Education and Therapy* 25, no.1 (2002): 96–104. **But this sort of finely tuned technology:** Zack Lynch, "Neurotechnology and Society (2010–2060)," *Annals of the New York Academy of Sciences* 1013, no. 1 (2004): 229–33. **We can also add a few household:** David M. Nudell, Mara M. Monoski, and Larry I. Lipshultz, "Common Medications and Drugs: How They Affect Male Fertility," *The Urologic Clinics of North America* 29, no. 4 (2002): 965–73. **These include almost all blood:** Howard LeWine, "Sexual Side Effects from Blood Pressure Medicine Can Affect Both Men and Women," *The Medicine Cabinet*, August 2, 2017, <https://tribunecontentagency.com/article/sexual-side-effects-from-blood-pressure-medicine-can-affect-both-men-andwomen/>. **pain relievers containing butalbital:** Xiulu Ruan, "Drug Related Side Effects of Long-Term Intrathecal Morphine Therapy," *Pain Physician* 10, no. 2 (2007): 357. **statin cholesterol drugs:** Laurens De Graaf et al., "Is Decreased Libido Associated with the Use of HMG-CoA-reductase Inhibitors?" *British Journal of Clinical Pharmacology* 58, no. 3 (2004): 326–28. **certain acid blockers:** Armon B. Neel Jr., "7 Meds That Can Wreck Your Sex Life," AARP, 2012, www.aarp.org/health/drugs-supplements/info-04-2012/medications-that-can-cause-sexual-dysfunction.html. **the hair loss drug finasteride:** Michael S. Irwig, and Swapna Kolukula, "Persistent Sexual Side Effects of Finasteride for Male Pattern Hair Loss," *Journal of Sexual Medicine* 8, no. 6 (2011): 1747–53. **and seizure medications:** Arthur C. Grant and Hyunjue Oh, "Gabapentin-Induced Anorgasmia in Women," *American Journal of*

Psychiatry 159, no. 7 (2002): 1247. **Focusing on this hormone:** Glenn R. Cunningham, Max Hirshkowitz, Stanley G. Korenman, and Ismet Karacan, "Testosterone Replacement Therapy and Sleep-Related Erections in Hypogonadal Men," *Journal of Clinical Endocrinology and Metabolism* 70, no. 3 (1990): 792–97. **One study, for example, reported that cutting:** Ariel Rösler and Eliezer Witztum, "Treatment of Men with Paraphilia with a Long-Acting Analogue of Gonadotropin-Releasing Hormone," *New England Journal of Medicine* 338, no. 7 (1998): 416–22. **Likewise, the neuroscientist Till Amelung:** Till Amelung, Laura F. Kuhle, Anna Konrad, Alfred Pauls, and Klaus M. Beier, "Androgen Deprivation Therapy of Self-Identifying, Help-Seeking Pedophiles in the Dunkelfeld," *International Journal of Law and Psychiatry* 35, no. 3 (2012): 176–84. **These included pedophilia, voyeurism:** Richard B. Kruger and Meg S. Kaplan, "Depot-Leuprolide Acetate for Treatment of Paraphilias: A Report of Twelve Cases," *Archives of Sexual Behavior* 30, no. 4 (2001): 409–22. The other quotes in this paragraph are also from this source. **Around that time, the Finnish anthropologist:** Edward Westermarck, *The History of Human Marriage* (New York: Macmillan, 1921). **Although the exact mechanism underlying:** Mark A. Schneider and Lewellyn Hendrix, "Olfactory Sexual Inhibition and the Westermarck Effect," *Human Nature* 11, no. 1 (2000): 65–91; Glenn E. Weisfeld, Tiffany Czilli, Krista A. Phillips, James A. Gall, and Cary M. Lichtman, "Possible Olfaction-Based Mechanisms in Human Kin Recognition and Inbreeding Avoidance," *Journal of Experimental Child Psychology* 85, no. 3 (2003): 279–95. **Whatever the mechanism, some:** Liqun Luo, "Is There a Sensitive Period in Human Incest Avoidance?" *Evolutionary Psychology* 9, no. 2 (2011): 285–95. **which raises the intriguing possibility:** Takao K. Hensch and Parizad M. Bilimoria, "Re-opening Windows: Manipulating Critical Periods for Brain Development," in *Cerebrum: The Dana Forum on Brain Science* (Dana Foundation, 2012). **The idea was that the "same lack:** As summarized in Kayt Sukel, *Dirty Minds: How Our Brains Influence Love, Sex, and Relationships* (New York: Free Press, 2012), 35. **As Marazziti and her coauthors conclude:** D. Marazziti, H.S. Akiskal, A. Rossi, and G. B. Cassano, "Alteration of the Platelet Serotonin Transporter in Romantic Love," *Psychological Medicine* 29, no. 3 (1999): 741–45. **Indeed, retesting**

the lovers: Marazziti et al., “Alteration of the Platelet Serotonin Transporter,” 744. **As it happens, patients with OCD:** See, e.g., Stuart A. Montgomery, “Long-Term Treatment of Depression,” *British Journal of Psychiatry* 165, no. S26 (1994): 31–36; and Joseph Zohar and Thomas R. Insel, “Drug Treatment of Obsessive-Compulsive Disorder,” *Journal of Affective Disorders* 13, no. 2 (1987): 193–202. **80 percent of SSRI-using patients:** Adam Opbroek as quoted in Tara Parker-Pope, “Where Is the Love? Antidepressants May Inadvertently Blunt Feelings of Romance,” *Wall Street Journal*, February 14, 2006, www.wsj.com/articles/SB113987710213672933. **Again, if you’re trying to maintain:** We are not suggesting anyone take SSRIs to help pull off a breakup. For one thing, you would need a prescription from your doctor, and saying “I hope the drugs will help me care less about my partner’s feelings” is not going to cut it. We are talking just about effects and mechanisms right now, not the ethics of off-label drug use. **There is, however, compelling evidence:** See, e.g., Thomas R. Insel and Larry J. Young, “The Neurobiology of Attachment,” *Nature Reviews Neuroscience* 2, no. 2 (2001): 129–36; and Thomas R. Insel, Larry J. Young, and Zuoxin Wang, “Central Oxytocin and Reproductive Behaviours,” *Reviews of Reproduction* 2, no. 1 (1997): 28–37. **In one study, injecting female prairie voles:** Y. Liu and Z. X. Wang, “Nucleus Accumbens Oxytocin and Dopamine Interact to Regulate Pair Bond Formation in Female Prairie Voles,” *Neuroscience* 121, no. 3 (2003): 537–44. **As Larry Young put it:** Quoted in John Tierny, “A Love Vaccine?” *New York Times*, January 12, 2009, <https://tierneylab.blogs.nytimes.com/2009/01/12/love-vaccine/>. **Likewise, pair-bonded male prairie:** Brandon J. Aragona, Yan Liu, Y. Joy Yu, J. Thomas Curtis, Jacqueline M. Detwiler, Thomas R. Insel, and Zuoxin Wang, “Nucleus Accumbens Dopamine Differentially Mediates the Formation and Maintenance of Monogamous Pair Bonds,” *Nature Neuroscience* 9, no. 1 (2006): 133–39. **As we mentioned before, most scientists who:** See Larry J. Young, “The Neural Basis of Pair Bonding in a Monogamous Species: A Model for Understanding the Biological Basis of Human Behavior,” in *Offspring: Human Fertility Behavior in Biodemographic Perspective*, ed. Kenneth W. Wachter and Rodolfo A. Bulato (Washington, DC: National Academies Press, 2003), 91–103. **Consider a recent headline in**

VICE magazine: Sirin Kale, “How to Bio-Hack Your Brain to Have Sex Without Getting Emotionally Attached,” *VICE*, August 25, 2016, https://www.vice.com/en_us/article/59mmzq/how-to-bio-hack-your-brain-to-have-sex-without-getting-emotionally-attached. The quotes from Larry Young in the following paragraphs are also from this source. **Research shows that prolonged eye contact causes the release of oxytocin:** Even between humans and dogs! See Miho Nagasawa, Shouhei Mitsui, Shiori En, Nobuyo Ohtani, Mitsuaki Ohta, Yasuo Sakuma, Tatsushi Onaka, Kazutaka Mogi, and Takefumi Kikusui, “Oxytocin-gaze Positive Loop and the Coevolution of Human-Dog Bonds,” *Science* 348, no. 6232 (2015): 333–36. **Young and his collaborators allowed male prairie voles:** Allison Anacker, Todd H. Ahern, Caroline M. Hostetler, Brett D. Dufour, Monique L. Smith, Davelle L. Cocking, Ju Li, Larry J. Young, Jennifer M. Loftis, and Andrey E. Ryabinin, “Drinking Alcohol has Sex-dependent Effects on Pair Bond Formation in Prairie Voles,” *Proceedings of the National Academy of Sciences* 111, no. 16 (2014): 6052–57. **When given the choice to huddle:** Allison Anacker et al., “Drinking Alcohol,” 6052. **Another, more speculative lead:** J. Capgras and J. Reboul-Lachaux, “L’illusion des ‘Sosies’ dans un délire systématisé chronique,” *History of Psychiatry* 5, no. 17 (1994): 119–33. **Patients suffering from this condition:** Hadyn D. Ellis and Andrew W. Young, “Accounting for Delusional Misidentifications,” *British Journal of Psychiatry* 157, no. 2 (1990): 239–48. **One explanation for this phenomenon:** Hadyn D. Ellis, Andrew W. Young, Angela H. Quayle, and Karel W. De Pauw, “Reduced Autonomic Responses to Faces in Capgras Delusion,” *Proceedings of the Royal Society B: Biological Sciences* 264, no. 1384 (1997): 1085–92. **They do this by obscuring the emotional layer:** Walter Glannon, “Psychopharmacology and Memory,” *Journal of Medical Ethics* 32, no. 2 (2006): 74–78; S. Matthew Liao and Anders Sandberg, “The Normativity of Memory Modification,” *Neuroethics* 1, no. 2 (2008): 85–99. **One question this raises, then:** We thank John Danaher for pushing us on this. John Danaher, “The Vice of In-Principlism and the Harmfulness of Love,” *American Journal of Bioethics* 13, no. 11 (2013): 19–21. **Sometimes the evidence concerning appropriate:** Madlen Gazarian, Maria Kelly, John R. McPhee, Linda V. Graudins, Robyn L. Ward, and Terence J.

Campbell, “Off-Label Use of Medicines: Consensus Recommendations for Evaluating Appropriateness,” *Medical Journal of Australia* 185, no. 10 (2006): 544–48.

Chapter 10: Chemical Breakups

After a trifling incident early: Quoted in Susan McClelland, “When Love Hurts: The Story of an Abused Woman,” *Canadian Living*, October 27, 2006, www.canadianliving.com/life-and-relationships/relationships/article/when-love-hurts-the-story-of-an-abused-woman. All subsequent quotes from Bonnie are from this interview. **Bonnie’s experience of what she:** When we first submitted the paper this chapter is based on, a reviewer wrote: “This is Bonnie’s experience—how she conceptualizes what she feels. However, a psychiatrist or psychologist may say that what she feels is not actually love but an obsessive attachment to the abuser, or an emotional allegiance from the perspective of a criminologist, [or] a mental disorder.” This is undoubtedly true: one person’s “love” may certainly be thought of as “insanity” by someone else—or a delusion, or none of the above. But we want to be careful about deciding for other people what their own experience should properly be called, as we explained in Chapter 1. A psychiatrist, for example, might certainly want to define “true” love as being something intrinsically healthy, positive, and good for one’s well-being; on that definition, we would have to conclude that Bonnie was mistaken about her own feelings or was using the word “love” incorrectly. Yet other definitions abound. The philosopher Simon May discusses conceptions of “true” love according to which it may sometimes be destructive, even to the point of death. Simon May, *Love: A History* (New Haven: Yale University Press, 2011). Yet whatever position one takes on the question of labeling, the moral analysis remains similar. Are the feelings harmful? Why? By virtue of what? And how might they best be tempered or resolved? This note, and much of the current chapter, is adapted with permission from Brian D. Earp, Olga A. Wudarczyk, Anders Sandberg, and Julian Savulescu, “If I Could Just Stop Loving You: Anti-love Biotechnology and the Ethics of a Chemical Breakup,” *American Journal of Bioethics* 13, no. 11 (2013): 3–17. **Such cases may even represent:** Josph M. Carver, *Love and Stockholm Syndrome: The Mystery of Loving an Abuser* (Kenmore: Mental Health Matters, 2007). **Harmful relationships can be literally:** Stanton Peele and Archie Brodsky, “Love Can Be an Addiction,” *Psychology Today*, 1974, 22–26; Stanton Peele and Archie Brodsky, *Love and Addiction* (New York:

Broadrow, 1975). See also Brian D. Earp, Olga A. Wudarczyk, Bennett Foddy, and Julian Savulescu, "Addicted to Love: What Is Love Addiction and When Should It Be Treated," *Philosophy, Psychiatry, and Psychology* 24, no.1 (2017): 77–92. **“About 10 months ago: TEENADVOCATEDAN**, “How Do I Stop Loving the Abuser,” *Feministing*, 2009, <http://feministing.com/2009/10/20/how-do-i-stop-loving-the-abuser/>. Please note that the quote has been slightly edited for readability. **(unrequited love)**: For a discussion of the ethics of “treating” unrequited love, see Francesca Minerva, “Unrequited Love Hurts,” *Cambridge Quarterly of Healthcare Ethics* 24, no. 4 (2015): 479–85. **(erotomania)**: See J. Reid Meloy, “Unrequited Love and the Wish to Kill: Diagnosis and Treatment of Borderline Erotomania,” *Bulletin of the Menninger Clinic* 53, no. 6 (1989): 477–92. **form voluntary BDSM relationships**: BDSM stands for bondage/discipline, domination/submission, sadism/masochism. For a thoughtful discussion, see Meg Barker, “Consent Is a Grey Area? A Comparison of Understandings of Consent in ‘Fifty Shades of Grey’ and on the BDSM Blogosphere,” *Sexualities* 16, no.8 (2013): 896–914. See also Rebecca Kukla, “That’s What She Said: The Language of Sexual Negotiation,” *Ethics* 129, no. 1 (2018): 70–97. **It is a history of coercively applying**: Thomas Szasz, *Coercion as Cure: A Critical History of Psychiatry* (Piscataway, NJ: Transaction, 2009). **The primary goal then should be**: We thank Diana Aurenque and Christopher McDougall for highlighting this issue. See Diana Aurenque and Christopher W. McDougall, “Amantes Sunt Amantes: Pathologizing Love and the Meaning of Suffering,” *American Journal of Bioethics* 13, no. 11 (2013): 34–36, 35. **“Life became hell**: Quoted in McClelland, *When Love Hurts...* **We do not wish to blame the victim**: Again, we are grateful to Diana Aurenque and Christopher McDougall for raising the concern that an earlier version of our argument could be misinterpreted that way. We must also credit them for the important point that some individuals may fear putting their children in danger by leaving an abusive relationship. **2. The person wants to use biotechnology**: In the original paper on which this chapter is based we had three conditions; after reflecting on various criticisms and thinking through the scenario a bit more, we have decided that we now prefer these two. **Although the case of pedophiles**: Aurenque and McDougall, “Amantes Sunt

Amentes, ”35–36. **You could dwell on all the ways:** As Ovid advised long ago in his *Remedia amoris*: “Tell yourself often what your wicked girl has done, and before your eyes place every hurt you’ve had. Impress your mind with whatever’s wrong with her body, and keep your eyes fixed all the time on those faults.” See J. Lewis May, trans., *The Love Books of Ovid: the Amores, Ars Amatoria, Remedia Amoris, and Medicamina Faciei Femineae of Publius Ovidius Naso* (Whitefish, MT: Kessinger, 2010). **“A skin contusion or broken bone:** Neil McArthur, “The Heart Outright: A Comment on ‘If I Could Just Stop Loving You,’” *American Journal of Bioethics* 13, no. 11 (2013): 24–25, 24. The subsequent quotes in this paragraph are from the same source. **“I think, in a way,” he said:** Ben Sessa, pers. comm., September 27, 2017. Quoted with consent. **“With suffering comes understanding”:** Erik Parens, “On Good and Bad Forms of Medicalization,” *Bioethics* 27, no. 1 (2013): 28–35, 32. **“We should be slower to imagine:** Parens, “On Good and Bad Forms, ” emphasis added. **But even if some drugs do introduce:** Christopher Grau, “*Eternal Sunshine of the Spotless Mind* and the Morality of Memory,” *Journal of Aesthetics and Art Criticism* 64, no. 1 (2006): 119–33, 133. **“Policymakers, doctors, and individuals:** McArthur, “Heart Outright, ” 24.

Chapter 11: Avoiding Disaster

Instead, the harms that might come: Nick Bostrom and Rebecca Roache, “Ethical Issues in Human Enhancement,” in *New Waves in Applied Ethics*, ed. Jesper Ryberg (New York: Palgrave Macmillan, 2008), 120–52. **The basic idea is that some:** Caroline M. Parker, Jennifer S. Hirsch, Morgan M. Philbin, and Richard G. Parker, “The Urgent Need for Research and Interventions to Address Family-Based Stigma and Discrimination against Lesbian, Gay, Bisexual, Transgender, and Queer Youth,” *Journal of Adolescent Health* 63, no. 4 (2018): 383–93. **If we are going to get on board with:** Kristina Gupta, “Protecting Sexual Diversity: Rethinking the Use of Neurotechnological Interventions to Alter Sexuality,” *AJOB Neuroscience* 3, no. 3 (2012): 24–28. **In essence, they would be forced:** For an extended discussion of this kind of worry, see Candice Delmas and Sean Aas, “Sexual Reorientation in Ideal and Nonideal Theory,” *Journal of Political Philosophy* 26, no. 4 (2018): 463–85. **The practice of so-called conversion therapy:** Timothy F. Murphy, “Redirecting Sexual Orientation: Techniques and Justifications,” *Journal of Sex Research* 29, no. 4 (1992): 501–23. **And as late as 2012:** Evan Halper, “Judge Blocks Ban on Gay ‘Conversion’ Therapy,” *Los Angeles Times*, December 3, 2012, <http://latimesblogs.latimes.com/california-politics/2012/12/judge-blocks-ban-on-gay-conversion-therapy.html>. Please note that since this ruling, some individual states have in fact passed bans or instituted strict regulations concerning sexual orientation change efforts: Susan Miller, “Record Number of States Banning Conversion Therapy,” *USA Today*, April 17, 2018, www.usatoday.com/story/news/nation/2018/04/17/states-banning-conversion-therapy/518972002/. **It is still being performed in:** Julie Moreau, “Thousands of Teens Will Undergo ‘Conversion Therapy’ in Near Future, Study Estimates,” *NBC News*, January 26, 2018, www.nbcnews.com/feature/nbc-out/80-000-teens-will-undergo-conversion-therapy-near-future-study-n841356. **Historical efforts to modify:** David B. Cruz, “Controlling Desires: Sexual Orientation Conversion and the Limits of Knowledge and Law,” *Southern California Law Review* 72 (1998): 1297–1400; Douglas C. Haldeman, “Gay Rights, Patient Rights: The Implications of Sexual Orientation Conversion Therapy,” *Professional Psychology*

Research and Practice 33, no. 3 (2002): 260–64; Charles E. Moan and Robert G. Heath, “Septal Stimulation for the Initiation of Heterosexual Behavior in a Homosexual Male,” *Journal of Behavior Therapy and Experimental Psychiatry* 3, no. 1 (1972): 231N127–2630; Udo Schüklenk, Edward Stein, Jacinta Kerin, and William Byne, “The Ethics of Genetic Research on Sexual Orientation,” *Hastings Center Report* 27, no. 4 (1997): 6–13. Please note that this paragraph and some other portions of this chapter are adapted with permission from Brian D. Earp, Anders Sandberg, and Julian Savulescu, “Brave New Love: The Threat of High-Tech ‘Conversion’ Therapy and the Bio-oppression of Sexual Minorities,” *AJOB Neuroscience* 5, no. 1 (2014): 4–12. **Psychiatric drugs are being given to Orthodox:** Yair Ettinger, “Rabbi’s Little Helper,” *Haaretz*, April 6, 2012, www.haaretz.com/1.5212045. For a related discussion, see Batya Ungar-Sargon, “Healing Hasidic Adulterers with Psychiatric Drugs,” *The Establishment*, September 7, 2016, <https://medium.com/theestablishment/healing-hasidic-adulterers-with-psychiatric-drugs-8e4fa663c035>. **In the United States in 2015:** Valerie Jarrett, “Petition Response: On Conversion Therapy,” The White House, April 8, 2015, <https://obamawhitehouse.archives.gov/blog/2015/04/08/petition-response-conversion-therapy>. Please note that this portion and some other sections of the chapter are adapted with permission from Brian D. Earp and Andrew Vierra, “Sexual Orientation Minority Rights and High-Tech Conversion Therapy,” in *Handbook of Philosophy and Public Policy*, ed. D. Boonin (Basingstoke, UK: Palgrave Macmillan, 2018), 535–50. Additional material is adapted from Andrew Vierra and Brian D. Earp, “Born This Way? How High-Tech Conversion Therapy Could Undermine Gay Rights,” *The Conversation*, April 21, 2015, <https://theconversation.com/born-this-way-how-hightech-conversion-therapy-could-undermine-gay-rights-40121>. **The Human Rights Campaign made:** “The Lies and Dangers of Efforts to Change Sexual Orientation or Gender Identity,” Human Rights Campaign, www.hrc.org/resources/the-lies-and-dangers-of-reparative-therapy. **Specifically, the physical, mental:** “Report of the Task Force on Appropriate Therapeutic Responses to Sexual Orientation,” American Psychological Association, 2009, www.apa.org/pi/lgbt/resources/therapeutic-response.pdf. **And apart from a smattering of:** Robert L. Spitzer,

“Can Some Gay Men and Lesbians Change Their Sexual Orientation? 200 Participants Reporting a Change from Homosexual to Heterosexual Orientation,” *Archives of Sexual Behavior* 32, no. 5 (2003): 403–17; Jack Drescher, “Can Sexual Orientation Be Changed?” *Journal of Gay and Lesbian Mental Health* 19, no. 1 (2015): 84–93; American Psychological Association, “Report of the Task Force” **Could such efforts be morally permissible:** For a classic discussion of these questions, see Timothy F. Murphy, *Gay Science: The Ethics of Sexual Orientation Research* (New York: Columbia University Press, 1997). **Based on current trends in research:** See Earp, Sandberg, and Savulescu, “Brave New Love” **(For example, what is the sexual orientation of:** Robin A. Dembroff, “What Is Sexual Orientation?” *Philosophers’ Imprint* 16, no. 3 (2016): 1–27. **“Same Love”:** Featuring Mary Lambert. See <https://genius.com/Macklemore-and-ryan-lewis-same-love-lyrics>. For a classic critique of the argument from immutability, see Janet E. Halley, “Sexual Orientation and the Politics of Biology: A Critique of the Argument from Immutability,” *Stanford Law Review* 46, no. 3 (1994): 503–68. **and now even “transracial” identities are being discussed:** Rebecca Tuvel, “In Defense of Transracialism,” *Hypatia* 32, no. 2 (2017): 263–78; Tina Botts, “Race and Method: The Tuvel Affair,” *Philosophy Today* 62, no. 1 (2018): 51–72; Rogers Brubaker, *Trans: Gender and Race in an Age of Unsettled Identities* (Princeton: Princeton University Press, 2016); Cressida J. Heyes, “Changing Race, Changing Sex: The Ethics of Self-Transformation,” *Journal of Social Philosophy* 37, no. 2 (2006): 266–82; Christine Overall, “Transsexualism and ‘Transracialism,’” *Social Philosophy Today* 20 (2004): 183–93; Jimmie Manning and Jennifer C. Dunn, “Rachel Dolezal, Transracialism, and the Hypatia Controversy: Difficult Conversations and the Need for Transgressing Feminist Discourses,” in *Transgressing Feminist Theory and Discourse*, ed. J. Manning and J. C. Dunn (Abingdon, UK: Routledge, 2018), 21–33; Kris Sealey, “Transracialism and White Allyship: A Response to Rebecca Tuvel,” *Philosophy Today* 62, no. 1 (2018): 21–29. Please note that with respect to transitions in identity based on gender this does not necessarily describe the experience of many transgender individuals, who state that they are discovering or manifesting a gender they have always had (sometimes supplemented by changes in bodily sex characteristics), rather than that

they are *changing* from one gender to another. However, some transgender and gender-fluid individuals do feel that their gender identity or gender experience can and does change through time. These issues should be kept conceptually distinct. **“The timeline of events in history:** Mark Bailey, quoted in Brian D. Earp, “Choosing One’s Own (Sexual) Identity: Shifting the Terms of the ‘Gay Rights’ Debate,” *Practical Ethics*, January 26, 2012, <http://blog.practicaethics.ox.ac.uk/2012/01/can-you-be-gay-by-choice/>. **And just like people with heterosexual desires:** Simon LeVay, *Gay, Straight, and the Reason Why: The Science of Sexual Orientation* (Oxford, UK: Oxford University Press, 2016). **All of us deserve to live, love:** Paraphrased from Tia Powell, Sophia Shapiro, and Ed Stein, “Transgender Rights as Human Rights,” *AMA Journal of Ethics* 18, no. 11 (2016): 1127–31, 1129. **Can you choose to be gay?:** This portion of the chapter is adapted from Brian D. Earp, “Can You Be Gay by Choice?” in *Philosophers Take on the World*, ed. David Edmonds (Oxford, UK: Oxford University Press, 2016), 95–98. **“I gave a speech recently:** Cynthia Nixon, quoted in Alex Witchell, “Life after ‘Sex,’” *New York Times Magazine*, January 19, 2012, www.nytimes.com/2012/01/22/magazine/cynthia-nixon-wit.html. All quotes from Nixon are from this source. **Noone can get inside your head:** The following paragraph is adapted from Earp, “Choosing One’s Own (Sexual) Identity” **neither sex nor gender are such simple binaries:** For a nice introduction, see Claire Ainsworth, “Sex Redefined,” *Nature* 518 (2015): 288–91; see also Diana Elena Moga, “So What Is Gender Anyway? And Who’s Having Sex with Whom?” *Journal of the American Psychoanalytic Association* 66, no. 3 (2018): 527–43. **our sexual orientations** are, as far as scientists can tell: For an overview and general discussion, see J. Michael Bailey, Paul L. Vasey, Lisa M. Diamond, S. Marc Breedlove, Eric Vilain, and Marc Epprecht, “Sexual Orientation, Controversy, and Science,” *Psychological Science in the Public Interest* 17, no. 2 (2016): 45–101. **But even Cynthia Nixon, if she:** For a critical assessment of this claim, see William S. Wilkerson, “Is It a Choice? Sexual Orientation as Interpretation,” *Journal of Social Philosophy* 40, no.1 (2009): 97–116. See also E. Díaz-León, “Sexual Orientation as Interpretation? Sexual Desires, Concepts, and Choice,” *Journal of Social Ontology* 3, no. 2 (2017): 231–48. **“Even if sexual orientation is not chosen:** Tia Powell and Edward Stein, “Legal and

Ethical Concerns about Sexual Orientation Change Efforts,” *Hastings Center Report* 44, no. s4 (2014): S32–S39, S36–S37.

“Religious conservatives go on TV: Dan Savage, “Ben Carson: Being Gay Is a Choice and Prison Proves It,” *The Stranger*, March 4, 2015, www.thestranger.com/blogs/slog/2015/03/04/21827375/republican-idiot-being-gay-is-a-choice-and-prison-proves-it. All quotes from Savage in this chapter are from this source. **Few human traits are:** Powell and Stein, “Legal and Ethical Concerns,” S35. **We will focus on the case of the yeshiva:** Much of the rest of this chapter is adapted from Earp and Vierra, “Sexual Orientation Minority Rights and High-Tech Conversion Therapy” **“Some behaviors put Haredim:** Quoted in Ettinger, “Rabbi’s Little Helper” **Second, we believe that what:** For some arguments why, concerning an analogous case, see Brian D. Earp, “The Ethics of Infant Male Circumcision,” *Journal of Medical Ethics* 39, no. 7 (2013): 418–20; see also Brian D. Earp and Robert Darby, “Circumcision, Sexual Experience, and Harm,” *University of Pennsylvania Journal of International Law* 37, No. 2 (online) (2017): 1–56, especially 45–47. **“Homophobic attitudes have been:** Douglas C. Haldeman, “The Practice and Ethics of Sexual Orientation Conversion Therapy,” *Journal of Consulting and Clinical Psychology* 62, no. 2 (1994): 221. **Indeed, this is exactly the approach:** Sarah L. Schulz, “The Informed Consent Model of Transgender Care: An Alternative to the Diagnosis of Gender Dysphoria,” *Journal of Humanistic Psychology* 58, no. 1 (2018): 72–92. **Primarily, this is because such procedures:** For some recent, related evidence and discussion, see Hillary Nguyen, Alexis Chavez, Emily Lipner, Liisa Hantsoo, Sara L. Kornfield, Robert D. Davies, and Cynthia Neill Epperson, “Gender-Affirming Hormone Use in Transgender Individuals: Impact on Behavioral Health and Cognition,” *Current Psychiatry Reports* 20, no. 110 (2018): 1–9. **“clinicians would often be permitted, and sometimes even required:** Sean Aas and Candice Delmas, “The Ethics of Sexual Reorientation: What Should Clinicians and Researchers Do? *Journal of Medical Ethics* 42, no. 6 (2016): 340–47, 341. **In fact, Delmas and Aas have argued that:** Candice Delmas, “Three Harms of ‘Conversion’ Therapy,” *AJOB Neuroscience* 5, no. 2 (2014): 22–23. See also more recently Delmas and Aas, “Sexual Reorientation in Ideal and Non-ideal Theory,” *Journal of Political*

Philosophy 26, no. 4 (2018): 463–85. Note that in this paper they discuss a fourth harm, which is that the power of the “born this way” argument for gay rights would be weakened by the availability of HCT, an issue we covered earlier in the chapter. **In this world, where nonheterosexuality is:** Delmas, “Three Harms...,” 22. See also, generally, Delmas and Aas, “Sexual Reorientation...” **This harm, they suggest, could manifest:** Delmas and Aas, “Sexual Reorientation...” **According to Delmas and Aas, such a situation:** Delmas and Aas, “Sexual Reorientation...” **Just as bisexual people are sometimes expected:** Delmas and Aas, “Sexual Reorientation...” **or even the erasure of their “kind” of person:** Assuming that they identify as members of a human “kind” based on sexual orientation. For a related discussion, see Jason Behrmann and Vardit Ravitsky, “Turning Queer Villages into Ghost Towns: A Community Perspective on Conversion Therapies,” *AJOB Neuroscience* 5, no. 1 (2014): 14–16. **Taken together, they think, the harms make:** Delmas, “Three Harms,” 22. **According to the English writer and:** Julie Bindel, “My Sexual Revolution,” *The Guardian*, January 30, 2009, www.theguardian.com/lifeandstyle/2009/jan/30/women-gayrights. **The book did not insist that women:** Bindel, “My Sexual Revolution” **This sets us up for a dilemma:** Peter Murphy, “Help the Patient, But Be Complicit with Homophobic Social Norms? Four Issues,” *AJOB Neuroscience* 5, no. 1 (2014): 13–14. **We might think that for the sake of:** Felicitas Kraemer, “A Technological Fix for the Self? How Neurotechnologies Shape Who We are and Whom We Love,” *AJOB Neuroscience* 5, no. 1 (2014): 1–3. **Anyone accused of being complicit:** This analogy is from Thomas Murray, “Enhancement,” in *The Oxford Handbook of Bioethics*, ed. Bonnie Steinbock (Oxford, UK: Oxford University Press, 2007), 491–515, 511. **Feminist philosophers such as Margaret Olivia Little:** Margaret Olivia Little, “Cosmetic Surgery, Suspect Norms, and the Ethics of Complicity,” in *Enhancing Human Traits: Ethical and Social Implications*, ed. Erik Parens (Washington, DC: Georgetown University Press, 1998), 162–76. **sacrificed on the altar:** This phrase is from the introduction to Erik Parens, ed., *Surgically Shaping Children: Technology, Ethics, and the Pursuit of Normality* (Baltimore: Johns Hopkins University Press, 2006). **Ultimately, Little splits the difference:** As summarized by Thomas Murray,

“Enhancement,” 512. **“Ideally the individual ultimately integrates:** Douglas Haldeman, “Gay Rights, Patient Rights: The Implications of Sexual Orientation Conversion Therapy,” *Professional Psychology Research and Practice* 33, no. 3 (2002): 260–64, 263. **how can we use new technologies for good:** See Anders Sandberg, “Cognition Enhancement: Upgrading the Brain,” in *Enhancing Human Capacities*, ed. Julian Savulescu, Ruud ter Meulen, and Guy Kahane (Oxford, UK: Wiley-Blackwell, 2011). **Chapter 12: Choosing Love “Our meddling intellect”:** William Wordsworth, *The Major Works* (Oxford, UK: Oxford University Press, 2008). **Carrie Jenkins, the philosopher who:** Carrie Jenkins, *What Love Is: And What It Could Be* (New York: Basic Books, 2017), 6, of the advance copy. **As Jenkins argues, treating love:** Jenkins, *What Love Is*, 9. **Here is an analogy:** We think this analogy comes from an interview with Helen Fisher, but we can’t remember when or where, so we will just give our own version. **Significantly, he concludes with:** Quoted in Erik Parens, “On Good and Bad Forms of Medicalization,” *Bioethics* 27, no. 1 (2013): 28–35, 33. Note that the paper by Evans has not yet been published, so we must rely on Erik Parens’s reading of the passage. However, we wish to point out that as quoted, it is unclear whether the claim that “we can all fear the medicalization of love” is one that Evans himself would endorse, or whether, as a sociologist, he is intending only to illustrate the sort of complaint that might be raised by critics of medicalization generally. Thus, our argument should be interpreted as being a response to the claim (and the sorts of worries that we think might be lying behind it), rather than as a rebuttal to Evans. **In our research, we have identified four:** Peter Conrad, *The Medicalization of Society: On the Transformation of Human Conditions into Treatable Disorders* (Baltimore: Johns Hopkins University Press, 2008). **Medicalization can transform ordinary:** Conrad, *Medicalization of Society*, 148. **Medicalization can expand the influence of:** David Armstrong, “The Rise of Surveillance Medicine,” *Sociology of Health and Illness* 17, no. 3 (1995): 393–404. **It can also create openings for:** Conrad, *Medicalization of Society*, 49–151. **Medicalization can reframe social problems:** Conrad, *Medicalization of Society*, 152. See also Barbara Wootton, *Social Science and Social Pathology* (New York: Macmillan, 1959). **This can lead to an undue emphasis on:** Erik Parens, “Toward a

More Fruitful Debate about Enhancement,” in *Human Enhancement*, ed. Julian Savulescu and Nick Bostrom (Oxford, UK: Oxford University Press, 2009), 184. **Unwanted pregnancy, for example, is not a disease:** Parens, “On Good and Bad Forms of Medicalization,” 33. **Hypoactive sexual desire disorder appears to be:** The account in this section draws heavily from Antonie Meixel, Elena Yanchar, and Adriane Fugh-Berman, “Hypoactive Sexual Desire Disorder: Inventing a Disease to Sell Low Libido,” *Journal of Medical Ethics* 41, no. 10 (2015): 859–62. For a more recent discussion, see Maxime Charest and Peggy J. Kleinplatz, “A Review of Recent Innovations in the Treatment of Low Sexual Desire,” *Current Sexual Health Reports* 10, no. 4 (2018): 281–86. **This is not to deny that pharmacological:** Kristina Gupta, “Protecting Sexual Diversity: Rethinking the Use of Neurotechnological Interventions to Alter Sexuality,” *AJOB Neuroscience* 3, no. 3 (2012): 24–28, 26. In the case of Addyi, the key question facing the FDA was whether the benefits outweighed the side effects of the drug. Some 21 percent of women taking Addyi experienced a form of depression (fatigue, somnolence, or sedation) while 11 percent experienced dizziness, somnolence, or nausea. There was also the risk of fainting, accidental injury, and depression, as well as potential adverse interactions with alcohol and common medications, including antidepressants (SSRIs) and hormonal contraceptives. People need to be informed of these risks. But in the end it is they who should decide if the risks outweigh the benefits in light of their own situation and values when they are paying for the drug. **First, the drugs we have given:** See, however, the investigative reporting by Olivia Goldhill, “A Millionaire Couple Is Threatening to Create a Magic Mushroom Monopoly,” *Quartz*, November 8, 2018, <https://qz.com/1454785/a-millionaire-couple-is-threatening-to-create-a-magic-mushroom-monopoly/>. **Current pharmacological approaches in psychiatry:** Ben Sessa, pers. comm., September 27, 2017. The other quotes from Sessa in this chapter are also from this interview. Quoted with permission. **In its place an approach is emerging:** Matthis Synofzik, “Ethically Justified, Clinically Applicable Criteria for Physician Decision-Making in Psychopharmacological Enhancement,” *Neuroethics* 2, no. 2 (2009): 89–102, 90; see also Lauren C. Heathcote, Daniel S. Goldberg, Christopher Eccleston, Sheri L. Spunt, Laura E. Simons, Louise

Sharpe, and Brian D. Earp, “Advancing Shared Decision Making for Symptom Monitoring in People Living beyond Cancer,” *Lancet Oncology* 19, no. 10 (2018): e556–e553. **In addition, the power of pharmaceutical companies:** For other examples, see Ben Goldacre, *Bad Pharma: How Drug Companies Mislead Doctors and Harm Patients* (New York: Random House, 2013). **Social movements, grassroots efforts:** Joseph E. Davis, “Medicalization, Social Control, and the Relief of Suffering,” in *The New Blackwell Companion to Medical Sociology*, ed. William C. Cockerham (Singapore: Wiley-Blackwell, 2010), 211–41,216. **The ethicist Kristina Gupta:** Kristina Gupta, “Protecting Sexual Diversity,” *AJOB Neuroscience* 2, no. 3 (2012): 27. To these measures Rebecca Bamford would add the following: (1) regular retraining for healthcare providers and revisiting of the possible effects of unconscious biases;(2) monitoring of those licensed to supply the relevant technologies; (3)accountability to nongovernmental agencies involving members of relevant minority communities; (4) widening other aspects of diversity education and training to incorporate attention to economic, ethnic, religious, age, disability, and linguistic diversity; (5) increasing public understanding of the value of arts and humanities education and research to understanding the diversity of conceptions of love as these are relevant to health; and(6) increasing government funding for such research. Rebecca Bamford, “Unrequited: Neurochemical Enhancement of Love,” *Cambridge Quarterly of Healthcare Ethics* 24, no. 3 (2015). **Recognizing this, ethicists are:** Synofzik, “Ethically Justified, Clinically Applicable Criteria...” **The old specter of pervasive medical surveillance:** This paragraph and some others in this chapter are adapted from Brian D. Earp, Anders Sandberg, and Julian Savulescu, “The Medicalization of Love,” *Cambridge Quarterly of Healthcare Ethics* 24, no. 3 (2015): 323–36. **For example, by focusing completely:** Conrad, *Medicalization of Society*, 152. **Framing complex psychological phenomena:** The following text is adapted from Julian Savulescu and Brian D. Earp, “Neuroreductionism about Sex and Love,” *Think* 13, no. 38 (2014): 7–12. **Here is a passage:** “Libido Problems: Brain Not Mind,” *BBC News*, October 26, 2010, www.bbc.com/news/health-11620971. **For example, a brain tumor may cause an increase:** Charles Choi, “Brain Tumor Causes Uncontrollable Paedophilia,” *New Scientist*, October

21, 2002, www.newscientist.com/article/dn2943-brain-tumour-causes-uncontrollablepaedophilia/#.U3EBgF%205H1fM. **So even if the cause is biological:** Synofzik, “Ethically Justified, Clinically Applicable Criteria...,” 95. **The mode or type of intervention:** Julian Savulescu, Anders Sandberg, and Guy Kahane, “Well-Being and Enhancement,” in *Enhancing Human Capacities*, ed. Julian Savulescu, Ruud ter Meulen, and Guy Kahaner (Oxford, UK: Wiley-Blackwell, 2011), 3–18. **I feel so much better:** Jonah Lehrer, “Depression’s Upside,” *New York Times Sunday Magazine*, February 28, 2010, as cited in Parens, “On Good and Bad Forms of Medicalization.” **As the philosophers Diana Aurenque:** Diana Aurenque and Christopher W. McDougall, “Amantes Sunt Amentes: Pathologizing Love and the Meaning of Suffering,” *American Journal of Bioethics* 13, no. 11 (2013): 34–36, 35. **Similarly, the feminist bioethicist Laura Purdy:** Laura Purdy, “Medicalization, Medical Necessity, and Feminist Medicine,” *Bioethics* 15, no. 3 (2001): 248–61, 256. **And when that is the case:** Purdy, “Medicalization,” 255. **Combined with efforts to address the social factors:** Kristina Gupta, “Anti-love Biotechnologies: Integrating Considerations of the Social,” *American Journal of Bioethics* 13, no. 11 (2013): 18–19, 19. **The point of the experiment was to see:** Arthur Aron, Edward Melinat, Elaine N. Aron, Robert Darrin Vallone, and Renee J. Bator, “The Experimental Generation of Interpersonal Closeness: A Procedure and Some Preliminary Findings,” *Personality and Social Psychology Bulletin* 23, no. 4 (1997): 363–77. **They invited the entire lab:** Mandy Len Catron, “To Fall in Love with Anyone, Do This,” *New York Times*, January 9, 2015, www.nytimes.com/2015/01/11/fashion/modern-love-to-fall-in-love-with-anyone-do-this.html. **Catron’s article went viral:** For the TED talk, see <https://tinyurl.com/y86rhy4s>. **In his 1956 masterpiece:** Erich Fromm, *The Art of Loving* (New York: Harper Brothers, 1956). **As we quoted in the book’s epigraph:** Fromm, *Art of Loving*, 56.

Epilogue: Pharmacopeia

Modern psychiatry is characterized by: Ben Sessa, *The Psychedelic Renaissance: Reassessing the Role of Psychedelic Drugs in 21st Century Psychiatry and Society* (Herndon, VA: Muswell Hill Press, 2012), 3. **He argues that the current “pharmacopeia”:** Sessa, *Psychedelic Renaissance*. **Because it’s only medicalization that:** Ben Sessa, pers. comm., September 27, 2017. Quoted with consent. **“Half the things I prescribe to people:** Quoted in Natasha Preskey, “Could MDMA Save Your Relationship?” *Elle*, July 21, 2017, www.elleuk.com/life-and-culture/culture/longform/a36937/could-mdma-save-your-relationship/.