

## Index

- 2001: *A Space Odyssey* (film), 33
- Achuar people, 69–72
- actor network theory, 88–90
- Adas, Michael, 71
- Alaimo, Stacy, 55, 79
- Anaconda, Montana  
 Anaconda Copper Mining Company,  
 140, 141, 171, 173  
 copper smelting, 171–3  
 Deer Lodge Valley, 143–7  
 Kohrs, Conrad. *See* Kohrs, Conrad  
 modernity of ranchers and farmers, 249–52  
 poisoning of stock animals, 140–2,  
 174–81  
 pollution mitigation efforts, 264–6  
 resistance to pollution, 249, 252–3  
 sources of social power, 160–5  
 Winter 1886–87 (“Great Die Up”), 165–8
- Anderson, Virginia DeJohn, 103, 104, 154,  
 155
- Andrews, Thomas, xii, 112, 128
- animal history, 103–5
- animals  
 tool use, 28–9
- animism, 69–72
- Annales School, 46–7  
*longue durée* 46, 109
- Anthropocene concept  
 “Great Acceleration” and, 317  
 anthropocentrism of, 311–28  
*Black Marble* 311–12  
*Blue Marble* 311–312
- coal use and, 322–3
- anthropocentrism, 15  
 Anthropocene concept and, 311–28  
 biocentrism and, 15  
 ideas of culture and, 38  
 racism as a product of, 278
- anthropology  
 postmodernism and, 51–2
- archaeology  
 materialism, 84–6  
 postprocessual theory, 50–1
- Armitage, David, 109
- arsenic, 177–8
- Arthur, W. Brian, 227, 297
- Ashikaga, Japan, 231
- Ashio, Japan  
 Furukawa Ichibei’s modernization of,  
 238–9, 292–4
- imperial expansion and, 288
- modernization of farmers, 253–8
- Mount Bizendate, 256
- pollution from copper smelting, 237–41
- pollution mitigation efforts, 263, 264–6
- resistance to pollution, 248, 257–62
- sericulture practices near, 232–7
- Shimotsuke Plain, 230, 231, 237, 240,  
 241, 247
- Shimotsuke silkworms, 231–7
- Tanaka, Shōzō, 257–62
- Tokugawa-era mining, 256
- Australopithecus afarensis* 24
- Australopithecus africanus*  
 Mrs. Ples, 24–8, 65, 330

- Bacon, Roger, 30  
 Barad, Karen, 79  
 barbed wire, 157, 160  
 Basalla, George, 300, 301  
 Bateson, Gregory, 113  
 Beck, Ulrich, 102  
 Beethoven, Ludwig van, 37  
 Bennett, Jane, xii, 81, 82, 111, 128  
 Bergen, Benjamin, xii, 7, 50, 115, 116, 117, 120, 191, *See* linguistics  
 Berkeley, George, 40  
 Berzelius, Jöns Jakob, 203  
 Besshi copper mine (Japan), 265  
 Bielenberg, John, 146, 154, 162  
 Bielenberg, Nick, 161, 174, 176, 252  
 Blake, William Phipps, 291  
 Bloch, Mark, 46, 194  
 Boas, Franz, 40  
 Boivin, Nicole, 18, 36, 47, 192, 301  
 Bostrom, Nick, 35, 296, 330  
 Brand, Stewart, 321  
 Braudel, Fernand, 46, 47  
 Bray, Francesca, 236  
 Brooke, John, 14, 98  
 Broom, Robert, 26, 65  
 bunchgrass (*Pseudoroegneria spicata*), 144
- Callon, Michel, 88  
 Capitalocene concept, 323  
 carbon  
   Anthropocene and, 328  
   organic chemistry of, 202–4  
 Carson, Rachel, i, xiii, 73, 99, 241, 258  
 Çatalhöyük, Turkey, 148, 182, 200  
 cattle  
   aurochs, 147–8  
   breeds, 157–9  
   Cattle Towns and, 170  
   coevolutionary history, 147–53, 181  
   creation of cowboy culture, 164–5  
   domestication, 149–51  
   energy capture and, 160–5  
   entropy and, 163–4  
   Longhorns, 154–7  
   power generated by, 160–5  
 Cattle Kings, 142, 258  
 Chakrabarty, Dipesh, xii, xvi, 12, 32, 73, 75  
 chaos theory, 76  
 Clark, Andy, xii, 6, 113, 133, 138  
   extended mind thesis, 112–14  
 Classen, Constance, 192–6, 200, 206
- coevolutionary history, 97–8  
   cattle and, 147–53  
   Industrial Revolution and, 105–6  
   silkworms and, 215–16  
 cognition  
   mind as computer, 34, 35  
   noösphere, 334  
   phosphorous and, 333–6  
   technological shaping of, 121–2  
 Collingwood, R. G. 11–13, 18, 36, 59, 193, 194  
 Coole, Diane, 75  
 copper  
   aluminum as substitute, 289  
   arsenic, 177–8  
   battleships and, 283–9  
   Bronze Age and, 270  
   conductivity of, 279–83  
   creativity of, 274  
   crystalline structure of, 268  
   electrification and, 276–9  
   Great Convergence and, 245–7  
   material properties of, 267–72  
   pollution created by, 174–81  
   power created by, 173–4, 267–72  
   red color of, 267  
   spatial nature of, 279–83  
   sulfur dioxide, 175–7  
   work hardening of, 244–5  
 Corbin, Alain, 194  
 Cradle of Humankind, 23–8, 64–6  
 Cronon, William, 88, 162  
 Crosby, Alfred, 94  
 Crutzen, Paul, 309, 315–20  
 culture  
   anthropocentrism and, 38  
   blank slate theory and, 53  
   ideas of, 17–18  
   materiality of, 80–1  
   nature and, 74–5, 80
- Daly, Marcus, 171, 252  
 Darwin, Charles, 27, 71, 77, 80, 103, 207, 208, 336  
   Darwinian synthesis, 208–9  
   evolutionary insights, 207–8  
 Davis, Mike, 309  
 Dawkins, Richard, 61  
 De Landa, Manuel, 77  
*De rerum natura (On the Nature of Things)*, 335

- Deacon, Terrence, 121  
 deep history, 109  
 Degler, Carl, 62  
 Deleuze, Gilles, 77, 78, 82, 88, 112  
 Descola, Philippe, xii, 41, 69, 70, 71, 74, 102  
 Deutsches Museum, Munich, 313  
 Dewey, George, 284  
 Dewey, John, 112  
 Diamond, Jared, 151, 153, 296, 299, 300, 327  
 Dijkerman, Chris, 196  
 Dutch Hunger Winter (1944–45), 95  
 Dykstra, Robert, 169
- Edison, Thomas, xi, 37, 117, 249, 276–8, 281, 294–5, 297–8  
 Edwards, Paul, 59  
 Einstein, Albert, 37  
 Eley, Geoff, 55, 62  
 Ellis, Mike, 320  
 Ellul, Jacques, 299  
 environmental determinism, 38–9  
   Grant, Madison, 39  
   Huntington, Ellsworth, 38–9  
   Semple, Ellen Church, 42–3  
 environmental history, 90–5  
 epigenetics, 5, 94–7  
   Lamarckianism and, 5  
 Epstein, Robert, 34  
 evolutionary developmental biology  
   biological innovation, 208–12  
 extended evolutionary synthesis, 6, 99–101  
 extended mind, 6, 112–14
- Febvre, Lucien, 46, 194  
 Ferguson, Eugene, 117  
 Fiege, Mark, xii, xvi, xvii, 88, 108, 109  
 Fine, Cordelia, 119  
 flat ontology, 78, 82, 88, 112  
 Foucault, Michel, 56, 57, 110  
 Frankopan, Peter, 189  
 Freeberg, Ernest, 277, 278  
 Frost, Samantha, 75  
 Furukawa, Ichibei, 238, 260, 276
- Garden of Eden, 23, 27, 29, 30, 66, 206, 271  
   Cradle of Humankind and, 64–6  
   relation to Neolithic revolution, 30  
   unnatural humans and, 30–2  
 Gat, Azar, 41
- Geertz, Clifford, 52, 89  
 genetic determinism  
   Grant, Madison, 39  
   nature-versus-nurture debate, 101  
   sociobiology, 60–1  
 Gibson, James, 113, 126  
 Gopnik, Adam, 6, 196, 197  
 Grant, Madison, 39  
 Grant-Kohrs Ranch National Historic Site, xviii, 182  
 Gray, James, 136–8, 267  
 Greenblatt, Stephen, 336  
 Grosz, Elizabeth, xii, 77, 80, 103  
 Guattari, Félix, 77, 78  
 Guldi, Jo, 109
- Hakyō, Kakizaki, 200, 201  
 Hamilton, Clive, 135, 151, 314, 317, 318  
 Hanley, Susan, 255  
 Haraway, Donna, xii, 75, 80  
 Harman, Graham, xii, 32, 76, 82, 89  
 Harris, Marvin, 41, 54  
 Harvey, David, 86  
 Havel, Vaclav, 337  
 Hayworth, Kenneth, 35, 330  
 Hegel, Georg Friedrich, 44  
 Heidegger, Martin, 299  
 Hekman, Susan, 48, 49, 55, 75, 76, 79, 80  
 history  
   cultural turn, 55–8  
   deep history, 44  
   postmodernism and, 54–8  
   sacred history, 44  
 Hodder, Ian, xii, 51, 85, 89, 102, 112, 200, 300, 323, 324  
 Hornborg, Alf, 87  
 Hoskins, Janet, 129  
 human niche construction, xv, 42, 98–9, 104  
 humanities  
   new concept of, 7  
 humans  
   ability to see red, 205–6  
   behaviorally modern, 68–9  
   cattle and, 147–53  
   chemistry of, 328–37  
   cremation of, 332–3  
   microbiome influence on, 5  
   natural-born, 67–8  
   relationship to nature, 8, 67–8  
   romanticism and, 37

- humans (cont.)  
 sense of touch, 196–8  
 technological shaping of, 121–2  
 transhumanism, 35  
 unitary idea of, 16, 101–3  
 Humboldt, Alexander von, 77  
 Huntington, Ellsworth, xviii, 38
- Ingold, Tim, xii, 80, 133
- Jackson, Michael, 41, 53, 54, 129
- Japan  
 Commodore Perry arrival, 230  
 electrification of, 276–7  
 imperialist expansion, 283–9  
 Meiji government, 248, 257  
 Meiji Restoration, 230, 238, 254, 255,  
 274, 285, 291  
 modernization of, 230–1, 253–8, 274–6  
 naval power of, 284–9  
 technological importation in, 290–4
- Jobs, Steven, 37
- Johannesburg, South Africa, xv, 23, 26, 27  
 Witwatersrand Basin gold, 26, 64–5
- Johnson, Samuel, 40
- Johnson, Walter, 108, 249
- Jorgenson, Dolly, 88
- Jorgenson, Finn Arne, 88
- Joyce, Patrick, 45, 58, 111
- Kant, Immanuel, 32
- Kantō Plain (Japan), 231
- Kauffman, Stuart, 14, 15, 210
- Keltner, Dacher, 197
- Khouribga, Morocco, 306–9
- Klein, Naomi, 326
- Kohrs, Conrad, 143–68, 172–82, 251–3  
 mansion (Helena, MT), 161
- Kreike, Emmanuel, 91, 92
- Kubrick, Stanley, 33
- Lakoff, George, xii, 7, 118, 191
- Laland, Kevin, 100
- Langston, Nancy, xii, 93, 94, 123, 188
- Larsen, Clark, 14
- Last of the Five Thousand* (painting), 166
- Latour, Bruno, xii, 9, 57, 76, 80, 82, 86, 88,  
 89–91, 112, 128, 192
- Law, John, 88
- Lévi-Strauss, Claude, 51
- Lewontin, Richard, 61, 98
- linguistics, 6  
 cognitive, 6, 115–16  
 linguistic turn, 48–50  
 Saussure, Ferdinand de, 47–8
- Longhorn cattle  
 Texas Longhorns, 154–6
- Lorenz, Edward, 76
- Lucretius, 335
- Mahan, Alfred Thayer, 283
- Malafouris, Lambros, 6, 120, 121, 164
- Malm, Andreas, 324
- Margulis, Lynn, xii, 76
- materialism  
 Marx and Engels, 44–5, 129
- matter  
 biological innovation, 208–12, 228–9,  
 241–3  
 chaos theory, 76  
 creativity of, 11, 77, 87, 103, 129, 202,  
 207–12, 273, 294–301, 336  
 culture and, 40–1  
 human biochemistry and, 328–37  
 idealism and, 36–7  
 marginalization of, 38–63  
 material environment concept, 126–8
- McCord, Edward, 130
- McLuhan, Marshall, 186
- McNeill, John, xii, xvii, xviii, 38, 91, 104,  
 300, 309
- Melosi, Martin, 106
- Mendel, Gregor, 207
- Meyer-Abich, Klaus, 77
- microbiome, 1–5  
 evolution, 4  
 Fellow Travelers, 1  
 Human Microbiome Project, 1  
 human to microbial cell ratio, 2  
 psychological effects, 3
- Miller, Daniel, 129
- Miller, Ian, xvii, 281, 302
- Mitchell, Timothy, xii, 112, 323
- Mitman, Gregg, xviii, 92
- modernity  
 accomplishments of, 338  
 nature and, 10
- Moore, Jason, 87
- Morris-Suzuki, Tessa, 229–30
- Morton, Timothy, 83
- Mumford, Lewis, 281
- Murphy, Michelle, 106

- Nash, Linda, xii, 91, 92  
 nature  
   city and, 106–7  
   Garden of Eden, 23–8  
   humans and, 17  
   ideas of, 17  
   racism and, 278  
   religion and, 31–2, 328–37  
   technology and, 17, 28  
 neo-materialism, 16  
   animal history and, 103–5  
   characteristics of, 16, 125  
   city-nature dichotomy and, 106–7  
   coevolutionary history and, 97–8  
   embodied cognition and, 118–20  
   end of anthropocentrism, 134–6  
   epigenetics and, 94–7, 122–4  
   extended evolutionary synthesis and, 99–101  
   extended mind and, 112–14  
   history of technology, 87–91  
   liberal subject and, 101–3  
   linguistics and, 115–16  
   material environment concept, 126–8  
   matter of culture concept, 132–4  
   porous body and, 92–4  
   power and, 110–12  
   science and, 86  
   theory and method, 124–36  
   thing power concept, 128–32  
 Netz, Reviel, 145, 159  
 new materialism, 75  
   feminist critical theory and, 79  
   Gilles Deleuze influence on, 77–8  
   immateriality of, 82–3  
   neo-materialism and, 16  
 Newcomen, Thomas, 296, 297, 322, 325  
 Nightingale, Andrea, 314  
 Noble, David, xii, 30, 33  
 noösphere, xviii, 330  
 Nordhaus, Ted, 317  
  
 object-oriented ontology, 83  
 Oken, Lorenz, 194  
 Olsen, Bjørnar, xii, xiv, xvii, 45, 49, 57, 84, 131, 191  
 Onaga, Lisa, xviii, 222, 225, 226  
 Ore, Janet, 106  
 organic chemistry, 202–4  
 Överkalix famine study, 95  
  
 Panjiayuan Market, Beijing, 185, 196, 207  
   silk, 185–7  
 phosphate, 178  
   mining of, 306–11  
   phosphorous fertilizers and, 307–9  
 phosphorous, 178. *See also* phosphate  
   fertilizers and, 307–9  
   great acceleration and, 310  
   human biochemistry and, 328–37  
   white phosphorous bombs, 331  
 Pinker, Steven, 32, 33, 40, 53, 62, 118  
   blank slate theory, 53  
 Pollan, Michael, 1, 206, 215  
 posthumanism, 75–6  
 postmodernism, 50–4  
   causes of, 60–3  
   critics of, 53–4, 58–9  
   feminist theory and, 55, 79  
   linguistic turn and, 48–50  
   race and ethnicity, 55–6  
   science and, 195–6  
   science wars, 37  
 Prigogine, Ilya, 76  
 Pritchard, Sara B. 88  
 Pumpelly, Raphael, 291  
  
 red-crowned cranes (*Grus japonensis*)  
   186  
 Renfrew, Colin, 120  
 Revkin, Andrew, 316  
 Rockström, Johan, 310  
 Roosevelt, Theodore, 39, 253, 264, 285  
 Russell, Edmund, xii, xv, xvii, 97, 104–6, 111, 162, 213, 215, 220, 229, 243, 300, 325  
 Ryle, Gilbert, 34  
  
 Sacks, Oliver, 332  
   chemical elements and, 331–2  
 Said, Edward, 56  
 Sass, Stephen L. 148  
 Saussure, Ferdinand de, 47  
 Schwägerl, Christian, 319, 320  
 Sei, Shōnagon, 199  
 Sellers, Christopher, 92  
 Semple, Ellen Church, 43  
 Shanks, Michael, 84  
 Shellenberger, Michael, 317  
 Shimotsuke Plain. *See* Ashio, Japan  
 silk. *See also* silkworms  
   Ainu (Hokkaido) and, 200–1

- silk (cont.)  
 chemistry of, 202–7  
 dyeing of, 205–7  
 human affinity for, 188–9, 200–2  
 human sense of touch and, 193–9  
 Japanese culture and, 221–2  
 protein structure of, 204–6  
 Roman use of, 190  
 silkroad, 189–90  
 social distinctions and, 192–3  
 thread and cloth made from, 216–17  
 words based on, 190–2
- silkworms  
*Bombyx mandarina* 213  
*Bombyx mori* 213, 214  
 Chinese sericulture, 212–15, 216–18  
 coevolution of, 215–16  
 evolution of silk synthesis, 218–20  
 hybridity and, 225  
 innovative powers of, 227–8  
 Japanese industrialization and, 229–30  
 Japanese sericulture, 221–7  
 metamorphosis and, 219–20  
 mulberry trees, 213–16  
 pébrine disease in, 226–7  
 spiders versus, 220–1  
 western sericulture, 217–18
- Smail, Daniel Lord, 12, 18, 44, 84, 122, 133, 246  
 sacred history concept, 12
- Sophocles, 191
- Sterkfontein Cave, 25, 26, 27, 65, 117, 330
- Steward, Julian, 41, 54
- Stoermer, Eugene, 315
- Stoll, Mark, 31
- Stolz, Robert, 101, 102, 227, 261
- sulfur dioxide, 175–7
- Sutter, Paul S. 86
- Tanaka, Shōzō 248, 257–62, 274, 290, 305, 311
- technology  
 animals as, 103–5  
 conservatism and, 63  
 creative power of, 294–301  
 early humans and, 28, 121–2  
 extended cognition and, 116–18  
 historical effects of, 294–302
- nature and, 107, 306–11  
 religion and, 30–6, 37  
 simultaneous inventions, 297–8  
 social construction of (SCOT), 57–8  
 Soul 2.0 concept and, 19, 32, 33, 35, 107, 241, 278
- Thomas, Julia Adeney, xii, 93, 131, 246, 248, 254, 283, 302, 303
- Timpanaro, Sebastiano, 45
- Tokyo Light Company, 276
- touch, sense of, 196–8
- transhumanism, 35
- Triantafyllou, Michael and George, 137, 138
- Tuana, Nancy, 82
- Turner, Frederick Jackson, 156, 165
- United States  
 electrification of, 276–9  
 imperialist expansion, 283–9  
 naval power of, 283–4
- Valençius, Conevery, 92
- Waal, Frans de, 28
- Wagner, Andreas, xii, 206, 208, 228, 335
- Waiting for a Chinook* (painting), 166
- Walker, Brett, xii, xvii, 178, 200, 221, 222, 230, 246, 248, 260, 261, 273, 302, 303
- Warren, Conrad Kohrs, 181
- Watanabe, Takehiro, 248, 258
- Watt, James, 296, 297
- Wenar, Leif, 65, 66, 130, 338
- Wharton, Annabel Jane, 106, 107
- Whatmore, Sarah, 58
- White, Hayden, 54
- White, Leslie, 41
- White, Lynn, 31
- White, Richard, 88, 145
- Wibaux, Pierre, 168
- Williams, Raymond, 111
- Wilson, Edward O. 60, 326, 327
- Winner, Langdon, xii, 44, 75, 274, 301
- World Systems theory, 87
- Worster, Donald, xii, xv, 76, 91
- Wrangham, Richard, 121
- Zeller, Thomas, xv, 279
- Zizzamia, Daniel, xvii, 312