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Cattle and colonialism: an animal-centred history of southern Africa, 1652-1980s

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Epilogue

Today, cattle are at the centre of numerous, global, existential threats to sentient life. Our present global context is marked by loud warnings and signs of environmental shifts which have the potential to reconfigure the bedrock environmental conditions of life.¹ Such warnings – like the Intergovernmental Panel for Climate Change’s report, *Global Warming of 1.5°C* (2018), which noted conservatively that humans have until 2030 to avoid irreversible climate catastrophe – usefully draw our attention to the natural world.² The natural world, of which humans and animals form an ineluctable part, and on which our existence depends, is undergoing tremendous and unprecedented shifts. Our geological era is known as the Anthropocene, distinguished in that for the first time a mass extinction event – the present, sixth mass extinction event – is driven by a single species, *Homo sapiens*.³ As human societies have developed since the agricultural revolution, and the climate has warmed, especially so since the industrial revolution, and most specifically in the last four decades, so have humans dramatically impacted the lives of animals. The World Wildlife Fund (WWF) reports that from 1970 to 2016, population sizes of mammals, fish, amphibians, birds, and reptiles have fallen by a startling 68%.⁴ In the last 25 to 30 years, in some areas, 80% of the biomass of insects has disappeared according to the largest review to date on insect populations.⁵ In the coming decades, 40% of insect species risk extinction.⁶ According to the largest report on species extinctions, produced by the Intergovernmental Science-Policy Platform on Biodiversity and

¹ IPCC, *Summary for Policymakers: Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C above Pre-Industrial Levels* (Geneva: World Meteorological Organization, 2018), <https://www.ipcc.ch/sr15/>, accessed 29 January 2019; D. Wallace-Wells, *The Uninhabitable Earth: A Story of the Future* (London: Penguin Books, 2019).

² IPCC, *Summary for Policymakers: Global Warming of 1.5°C*.

³ S. Lewis and M. Maslin, ‘Defining the Anthropocene’, *Nature* 519, 7542 (2015), 172, 174.

⁴ WWF, *Living Planet Report 2020 – Bending the Curve of Biodiversity Loss* (Gland: WWF, 2020), 6.

⁵ D. Carrington, ‘Plummeting Insect Numbers “Threaten Collapse of Nature”’, *The Guardian*, 10 February 2019, <http://www.theguardian.com/environment/2019/feb/10/plummeting-insect-numbers-threaten-collapse-of-nature>, accessed 11 February 2019. See also footnote below.

⁶ F. Sánchez-Bayo and K. Wyckhuys, ‘Worldwide Decline of the Entomofauna: A Review of Its Drivers’, *Biological Conservation* 232 (2019), 8.

Ecosystem Services (2019), 25%, or a total of one million plant and animals species face likely extinction in the coming decades.⁷

Conscious life is unavoidably premised on biodiversity. The blistering speed of species extinctions is the swiftest it has been in human history. According to WWF, agriculture is the major driver of biodiversity loss and transgressions of the planetary boundaries, in terms of nitrogen, phosphorous, freshwater use, and climate change.⁸ Within the category of agriculture, animal agriculture is by far the most environmentally treacherous. Animal agriculture is a primary site of anthropogenic climate change, species extinctions, and biodiversity loss. In particular, cattle are tightly connected to these challenges.

In August of 2019 dramatic images of the Amazon rainforest burning captured public imaginations. Brazil's National Institute for Space Research reported that 74 000 fires raged between January and August.⁹ NASA claimed that, overall, the fire activity in the Amazon for 2018 was just below average, relative to previous years.¹⁰ Then German Chancellor Angela Merkel described the fires as an 'acute emergency' and claimed that they were 'threatening...the whole world'.¹¹ The European Parliament released a special briefing called *Amazon Wildfire Crisis: Need for an International Response*, and noted that many of the fires were started intentionally.¹² Some estimate that 80% of Amazon deforestation is for cattle ranching purposes, and cattle ranching is widely recognised as the predominant driver of deforestation in the Amazon.¹³

⁷ S. Diaz., *et al.*, *Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (Bonn: IPBES, 2019), 11–12.

⁸ WWF, *Living Planet Report 2020 – Bending the Curve of Biodiversity Loss*, 20, 37, 46, 60.

⁹ BBC, 'Amazon Fires Increase by 84% in One Year – Space Agency', *BBC News*, 21 August 2019, www.bbc.com/news/world-latin-america-49415973, accessed 23 August 2019.

¹⁰ *Ibid.*

¹¹ BBC, 'Amazon Fires: Merkel and Macron Urge G7 to Debate "Emergency"', *BBC News*, 23 August 2019, <https://www.bbc.com/news/world-latin-america-49443389>, accessed 23 August 2019.

¹² E. Gómez Ramírez, 'Amazon Wildfire Crisis Need for an International Response', *European Parliamentary Research Service*, 2019, 1, [https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/644198/EPRS_BRI\(2019\)644198_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/644198/EPRS_BRI(2019)644198_EN.pdf), accessed 3 December 2019.

¹³ D. Nepstad, 'The End of Deforestation in the Brazilian Amazon', *Science* 326, 5958 (2009), 1350; F. Müller-Hansen *et al.*, 'Can Intensification of Cattle Ranching Reduce Deforestation in the Amazon? Insights From an Agent-Based Social-Ecological Model', *Ecological Economics*, 159 (2019), 198.

Then Brazilian president Jair Bolsonaro, a diehard cattle ranching supporter, approached the issue with a cavalier mentality, claiming that it was the ‘season of the queimada [burned]’.¹⁴ The BBC quoted him as saying at the time: ‘I used to be called Captain Chainsaw. Now I am Nero, setting the Amazon aflame’.¹⁵ Comprising the world’s second-largest national herd, 232 million cattle lived in Brazil in 2018, and Brazil in that year produced 9.9 million metric tons of cattle flesh, its highest ever, making Brazil the world’s largest cattle flesh exporter.¹⁶ Brazil is home to JBS, the largest animal flesh packing corporation on the planet.¹⁷ Its annual CO2 equivalent emissions are at least 280 million metric tons, which is greater than the combined emissions of the next three largest animal flesh corporations.¹⁸ It sells animal flesh and/or skins (leather) to 350 000 buyers in 150 countries.¹⁹ JBS’s 2019 annual report noted that it purchased cattle from 90 000 ‘livestock suppliers’ in Brazil.²⁰ In a foresightful summation, when philosopher Peter Singer looked at the connection between cattle ranching and deforestation in the mid-1970s, he remarked that: ‘We are, quite literally, gambling with the future of our planet – for the sake of hamburgers.’²¹

Beyond deforestation, animal agriculture, and cattle, in particular, are connected to environmental crises. In 2018 the largest-ever study on the environmental impacts of food production was published.²² In a subsequent interview, lead author Joseph Poore stated that ‘[a]griculture is a sector that spans all the multitude of environmental problems’ and that ‘[r]eally it is animal products that are responsible for so much of this’.²³ The study examined

¹⁴ BBC, ‘Amazon Fires Increase by 84% in One Year – Space Agency.’

¹⁵ *Ibid.*

¹⁶ M. Zia *et al.*, ‘Brazil Once Again Becomes the World’s Largest Beef Exporter (blog)’, *Economic Research Service U.S. Department of Agriculture*, 1 July 2020, <https://www.ers.usda.gov/amber-waves/2019/july/brazil-once-again-becomes-the-world-s-largest-beef-exporter/>, accessed 12 July 2020.

¹⁷ O. Lazarus, S. McDermid, and J. Jacquet, ‘The Climate Responsibilities of Industrial Meat and Dairy Producers’, *Climatic Change* 165, 30 (2021), 6.

¹⁸ *Ibid.*

¹⁹ D. Phillips *et al.*, ‘Revealed: Rampant Deforestation of Amazon Driven by Global Greed for Meat’, *The Guardian*, 2 July 2019, <https://www.theguardian.com/environment/2019/jul/02/revealed-amazon-deforestation-driven-global-greed-meat-brazil>, accessed 2 July 2019.

²⁰ JBS., *JBS Annual and Sustainability Report* (JBS 2019), 182, <https://www.jbs.com.br/relatorioanual2019/en/home/>, accessed 3 June 2021.

²¹ P. Singer, *Animal Liberation: A New Ethics for Our Treatment of Animals* (New York: Harper Collins, 2002 [1975]), 169.

²² J. Poore and T. Nemecek, ‘Reducing Food’s Environmental Impacts through Producers and Consumers’, *Science* 360, 6392 (2018), 987–92.

²³ D. Carrington, ‘Avoiding Meat and Dairy is “Single Biggest Way” to Reduce Your Impact on Earth’, *The Guardian*, 31 May 2018, <https://www.theguardian.com/environment/2018/may/31/avoiding-meat-and-dairy-is-single-biggest-way-to-reduce-your-impact-on-earth>, accessed 4 June 2018.

38 700 farms, 1 600 processors, and represented 90% of the food types humans typically eat.²⁴ Notably, in terms of food production, it found that ‘livestock’ comprised 18% of the calories and 37% of proteins that humans eat, but used 83% of farmland, and yielded 57% of water pollution, and 56-58% of greenhouse gas emissions.²⁵ In terms of greenhouse gas emissions, cattle flesh was found to be the most environmentally harmful commodity.²⁶ Cattle can each release between 250 and 500 litres of methane *per day*.²⁷ Methane is a powerful greenhouse gas, with a global warming potential rating 25 times stronger than carbon dioxide over 100 years, although methane only stays in the atmosphere for 9-12 years.²⁸ Thus cattle industries are a primary site of the climate and environmental breakdown. ‘Most strikingly’, the authors reported, ‘impacts of the lowest-impact animal products typically exceed those of vegetable substitutes.’²⁹ That is, according to the largest study ever conducted – in terms of greenhouse gas emissions, land use, water and air pollution, eutrophication, and freshwater withdrawals – the least environmentally harmful animal products are typically worse for the environment than the most harmful plant alternatives.

²⁴ Poore and Nemecek, ‘Reducing Food’s Environmental Impacts through Producers and Consumers’, 987.

²⁵ *Ibid*, 990.

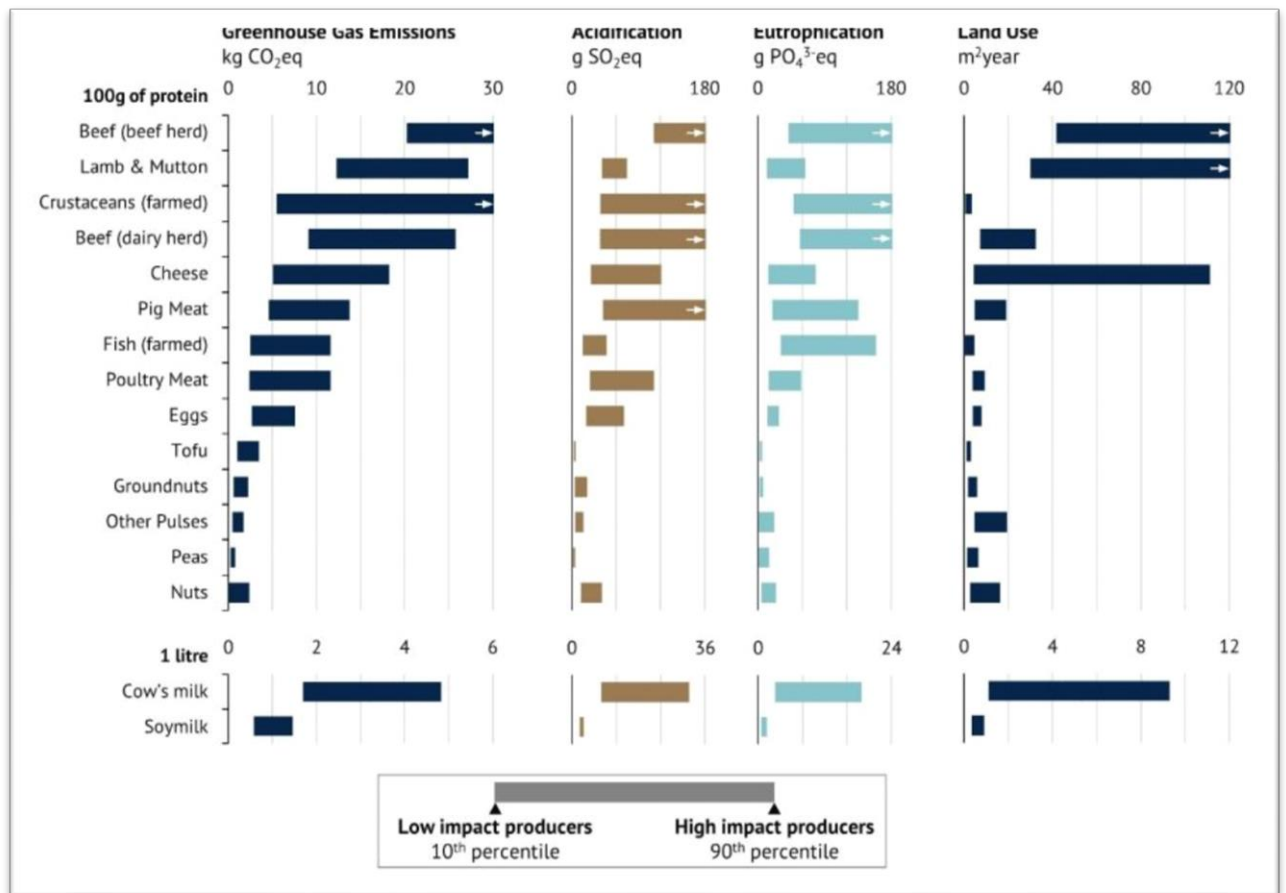
²⁶ *Ibid*, 988.

²⁷ K. Johnson and D. Johnson, ‘Methane Emissions from Cattle’, *Journal of Animal Science* 73, 8 (1995), 2483.

²⁸ Å. Wahlquist, ‘Eating Beef: Cattle, Methane and Food Production’, *Asia Pacific Journal of Clinical Nutrition* 22, 1 (2013), 16.

²⁹ Poore and Nemecek, ‘Reducing Food’s Environmental Impacts through Producers and Consumers’, 987.

Image E.1. Greenhouse gas emission, acidification, eutrophication, and land use by food type



Source: D. Carrington, 'Avoiding Meat and Dairy is "Single Biggest Way" to Reduce Your Impact on Earth', *The Guardian*, 31 May 2018, <https://www.theguardian.com/environment/2018/may/31/avoiding-meat-and-dairy-is-single-biggest-way-to-reduce-your-impact-on-earth>, accessed 31 May 2018; J. Poore and T. Nemecek, 'Reducing Food's Environmental Impacts through Producers and Consumers', *Science* 360, 6392 (2018), 987–92.

Animal agricultural industries are a primary threat to planetary sustainability and a liveable future. In terms of the 2015 Paris Climate Agreement and countries' nationally determined contributions, a recent study found that if they persist with their current trajectories, two animal agriculture companies, Fonterra in New Zealand and Nestlé in Switzerland, would each

alone emit more than their host country's total permitted emissions in the coming decade.³⁰ Denmark's Arla is alone projected to emit 60% of Denmark's total agreed emissions.³¹

In Africa, animal flesh industries are nowhere near as large as those in Europe, South America, the United States, and China.³² But Africa is following these nations' paths towards vast industrialised animal agriculture systems. Animal flesh industries are growing, and animal flesh consumption rates are rising steadily, if relatively less rapidly.³³ In Africa, one-third of the combined GDP of the continent's 54 countries comprises agricultural production.³⁴ For sub-Saharan Africa, agriculture is predicted to be a one trillion US\$ industry by 2050.³⁵

Beyond being a primary site of the anthropogenic climate breakdown, animal industries and animal agriculture present destabilising zoonotic threats. The United States' Centre for Disease Control notes that 75% of new or emerging infectious diseases in humans come from animals.³⁶ Some believe that all human infectious diseases are zoonotic, while the animal origins of the majority of major human diseases are certain or probable.³⁷ Zoonotic threats are powered by intensive animal agriculture, destruction of wildlife habitats, trade in local and exotic animals, and wet markets.³⁸

Intensive animal farming, involving large numbers of animals in crowded and unhealthy conditions, animal trading, as well as wet markets comprising excreta, urine, blood and the slaughter of diverse animals, who would never otherwise be in transmission-enabling contact, have fostered conditions for zoonoses to jump from animals to humans. For their flesh, over

³⁰ Lazarus, McDermid, and Jacquet, 'The Climate Responsibilities of Industrial Meat and Dairy Producers', 1.

³¹ *Ibid*, 13.

³² H. Ferdowsian, 'Africa's Meat and Dairy Industry: A Threat to the Continent's Future?', in R. Ebert and A. Roba (eds.), *Africa and Her Animals: Philosophical and Practical Perspectives* (Pretoria: UNISA Press, 2018), 295.

³³ *Ibid*.

³⁴ A. Roba, 'The Looming Threat of Factory Farming in Africa', in R. Ebert and A. Roba (eds.), *Africa and Her Animals: Philosophical and Practical Perspectives* (Pretoria: UNISA Press, 2018), 226.

³⁵ *Ibid*.

³⁶ Centre for Disease Control and Prevention, 'Zoonotic Diseases (blog)', *CDC*, 14 July 2017, <https://www.cdc.gov/onehealth/basics/zoonotic-diseases.html>, accessed 3 March 2020.

³⁷ J. Weber and K. Alcorn, 'Origins of HIV and the AIDS Epidemic', *MedGenMed* 2, 4 (2000), 6; N. Wolfe, C. Dunavan, and J. Diamond, 'Origins of Major Human Infectious Diseases', *Nature* 447, 7142 (2007), 282.

³⁸ WHO/FAO/OIE and Health Council of the Netherlands, *Report of the WHO/FAO/OIE Joint Consultation on Emerging Zoonotic Diseases* (Geneva: WHO/FAO/OIE, 2004), 7. 59.

70 billion farmed animals are killed each year, the majority of whom are chickens.³⁹ The number of fish killed each year by humans is uncountable, meaning that estimates are derived by the weight of catches via estimating the individual number of fish by running different inferential statistical models for which types of fish typically live in a specified area and their typical weights. 2013 estimates for the annual number of fish killed in the wild by humans range from 970 billion to 2.7 trillion.⁴⁰ To make these numbers less abstract, notice that the total number of humans who have ever existed is estimated to be 108 billion.⁴¹ The scale of humans' impacts on animals is thus difficult to contemplate.

The conditions which may have given rise to COVID-19, namely wet markets, are still in place.⁴² While there are scores of wet markets in New York, for example, the Law Library of Congress in 2020 produced a report examining the legality of wet and/or wildlife markets in 28 countries, excluding the United States, which gave a sense of how globally widespread such markets are.⁴³ They noted that there are wild animal or wet markets in Russia, Mexico, Myanmar, Thailand, Vietnam, Georgia, Argentina, South Africa, Botswana and many other countries.

In addition to zoonotic threats, antibiotic resistance is closely connected to contemporary animal industries. So that they do not become ill in intensive animal farming settings, and to propel extremely rapid body growth, farmed animals are fed vast quantities of antibiotics. Antibiotic use for these purposes has been common since the 1950s.⁴⁴ Antibiotic use is a core

³⁹ Our World in Data, 'Number of Animals Slaughtered for Meat, World, 1961 to 2018', *Our World in Data*, 26 March 2021: https://ourworldindata.org/grapher/animals-slaughtered-for-meat?country=~OWID_WRL, accessed 26 April 2021.

⁴⁰ P. Brooke and A. Mood, 'The Welfare of Fish in Commercial Fishing', *fishcount.org*, 2013, <http://www.fishcount.org.uk/published/high/fishcount-presentation1-2013HR.pdf>, accessed 26 April 2021.

⁴¹ T. Kaneda and C. Haub, 'How Many People Have Ever Lived on Earth?', *Population Research Bureau*, 23 January 2020, <https://www.prb.org/howmanypeoplehaveeverlivedonearth/>, accessed 26 April 2021.

⁴² A. Maxmen, 'WHO Report into COVID Pandemic Origins Zeroes in on Animal Markets, Not Labs', *Nature* 592 (2021), 173. For a recent alternative view, see K. Eban, 'The Lab-Leak Theory: Inside the Fight to Uncover COVID-19's Origins', *Vanity Fair*, 3 June 2021, <https://www.vanityfair.com/news/2021/06/the-lab-leak-theory-inside-the-fight-to-uncover-covid-19s-origins>, accessed 8 June 2021.

⁴³ CBS News, 'Live Animal 'Wet Markets' in New York City Face Protests amid Coronavirus Pandemic', *CBS This Morning*, May 9, 2020, <https://www.cbsnews.com/news/coronavirus-pandemic-animal-wet-market-new-york-city-protests/>, accessed 10 May 2020; Law Library of Congress, 'Regulation of Wild Animal Wet Markets in Selected Jurisdictions', *Library of Congress*, 2020, <https://www.loc.gov/law/help/wet-markets/index.php>, accessed 3 November 2020.

⁴⁴ R. Gustafson, 'Use of Antibiotics in Livestock and Human Health Concerns', *Journal of Dairy Science* 74, 4 (1991), 1428.

feature of modern animal agriculture systems. In South Africa, for example, between 2002 and 2004, 1 538 443 kilograms of antibiotics were fed to farmed animals.⁴⁵ In the United States, in 2019, the Food and Drug Administration approved 11 468 357 kilograms of antibiotics to be fed to farmed animals.⁴⁶ One drawback of antibiotic misuse is the emergence of antibiotic-resistant bacteria or antimicrobial resistance. In April 2021 the World Health Organisation reported staidly that none of the 43 antibiotics currently in clinical development can ‘sufficiently address’ extant antimicrobial bacteria.⁴⁷

In 2019 the United Kingdom’s then chief medical officer, Professor Sally Davis, warned that antibiotic resistance ‘could kill us before climate change does.’⁴⁸ Sally Davis co-convened the Interagency Coordination Group on Antimicrobial Resistance, which in 2019 submitted a report to the secretary-general of the United Nations, which warned that drug resistant diseases from overuse and misuse of antibiotics could cause 10 million deaths annually by 2050.⁴⁹ Those particularly attuned to the situation have tried to issue warnings. As bioethics philosopher David Benatar put it:

It is entirely possible that the human future will involve a return to the pre-antibiotics era, in which people died in droves from infections that have been effectively treated since the discovery of penicillin...If so, it may turn out that the antibiotics era was a brief interlude between two much longer periods in human history in which we succumbed in large numbers to bacterial infections.⁵⁰

⁴⁵ J. Moyane, A. Jideani, and O. Aiyegoro, ‘Antibiotics Usage in Food-Producing Animals in South Africa and Impact on Human: Antibiotic Resistance’, *African Journal of Microbiology Research* 7, 24 (2013), 2992.

⁴⁶ U.S FDA, *2019 Summary Report on Antimicrobials Sold or Distributed for Use in Food-Producing Animals* (U.S Food and Drug Administration, 2020), 12, <https://www.fda.gov/media/144427/download>, accessed 7 January 2021.

⁴⁷ WHO, ‘Global Shortage of Innovative Antibiotics Fuels Emergence and Spread of Drug-Resistance’, *World Health Organisation*, 15 April 2021, <https://www.who.int/news/item/15-04-2021-global-shortage-of-innovative-antibiotics-fuels-emergence-and-spread-of-drug-resistance>, accessed 15 April 2021.

⁴⁸ L. Thornton, ‘Antibiotic Resistance Could Wipe out Human Race before Climate Change’, *Mirror*, 29 August 2019, <https://www.mirror.co.uk/news/uk-news/antibiotics-resistance-could-wipe-out-19034176>, accessed 2 September 2019.

⁴⁹ Interagency Coordination Group on Antimicrobial Resistance, *No Time to Wait: Securing the Future from Drug-Resistant Infections. Report to the Secretary-General of the United Nations* (Interagency Coordination Group on Antimicrobial Resistance, 2019), 1, https://www.who.int/antimicrobial-resistance/interagency-coordination-group/IACG_final_report_EN.pdf?ua=1, accessed 3 March 2019.

⁵⁰ D. Benatar, ‘Our Cruel Treatment of Animals Led to the Coronavirus’, *The New York Times*, 13 April 2020, <https://www.nytimes.com/2020/04/13/opinion/animal-cruelty-coronavirus.html>, accessed 14 April 2020.

These five consequences of modern agriculture – biodiversity loss and species extinctions, deforestation, environmental impacts, zoonotic threats, and the potential post-antibiotic era – connect this thesis’s shift to focusing on domesticated animals, historically. It is hard for a human mind not to pass quickly over these most recent facts about our current ecological and global health position. Our ecological foundations are at existential risk. Basic, fundamental tools of the medical profession, such as penicillin and other antibiotics, may soon be obsolete. The next pandemics are plausibly a question of when not if. A million species risk extinction in the coming decades. In this context, a shift in focus towards the natural world, to the animals with whom we share this interspecies planet is timely and defensible.

