Ruth DeFries: 'The Big Ratchet: How Humanity Thrives in the face of Natural Crises' (A Biography of an Ingenious Species). Basic Books, New York. 2014, 273pp.

Christian Schwägerl: 'The Anthropocene: The Human Era and How it Shapes our Planet'. Synergetic Press, Santa Fe, New Mexico. 2014, 234pp.

There is quite a high degree of overlap between the themes of these two books. Both introduce contemporary issues by way of the long history of life on the planet and both pay due regard to the individuals responsible for crucial developments in the story of human-environment relations through time, also for some of the most important scientific insights into these relationships. Schwägerl also pays justifiably warm homage to the insight, wisdom and humility of Paul Crutzen. Both books often introduce themes, chapter by chapter, with biographical vignettes of key players in their stories and both are a real pleasure to read. Throughout, they package the scientific basis of the stories in accessible indeed enjoyable prose. That said, there are important differences in the balance and emphasis of the two books to the point where they are much more complementary texts than mutually exclusive alternatives. DeFries retains a strong focus on the planet as the basis for feeding the human population throughout human history and on the sustainability of food supplies into the future. Most of the developments she considers are filtered through that vital perspective. Only to a limited degree does she embed her concerns in wider aspects of technological change. Moreover, she rarely gives sustained attention to issues such as the roles of vested commercial interests and current market-driven decision-making at the present day. Schwägerl tackles these head on in the later parts of his text.

Step by step, DeFries takes us through a chronological sequence of 'ratchets' during which human use of and pressure on environmental resources advance and increase in new ways, followed by 'hatchets' whereby the resource systems involved limit and often threaten the ratcheting developments, then followed in turn by 'pivots', whereby human ingenuity transcends the limitations and creates a new framework for human use of planetary resources. This simplification fails to capture the care and subtlety with which each successive theme is handled. At each stage, the text is informed by simple line drawings. There are 21 pages of notes (lacking numbering in the text in my advance review copy) as well as 29 pages of references, perhaps more properly regarded as chapter-by-chapter bibliographies. She starts the book with a direct, personal perspective rooted in her experience as a field ecologist and uses the Irish Potato Famine as an introductory example of the ratchet-hatchet-pivot cycle. Each succeeding cycle is considered in human terms with even-handed treatment of the key individuals involved and a tangible generosity of spirit. The later chapters have the strongest bearing on the Anthropocene as most often delimited.

The central theme of the 'Big Ratchet' that frames DeFries' concluding concerns is the accelerating shift from a dominantly farming population to a dominantly urban one – 'an urban species fed from a manipulated nature'. She considers this to be 'as transformative as any event our species has ever seen'. Some of the potential 'hatchets' are clearly identified. While she also notes some, often still modest,

current and potential ‘pivots’, she lays the primary responsibility on people in the richest countries of the ‘developed’ world and their high levels of resource use. Her final message is neither doom-laden nor optimistically hubristic: ‘..the notion that our species can apply its ingenuity to prosper in the future on a healthy planet’ she sees as possible, but, despite the many positive outcomes via the pivots in human-environment relations described in the text, she acknowledges that: ‘The outcome is yet to be seen.’

Schwägerl’s book is hugely informative, with most of his claims underpinned by almost 500 references to original sources. The writing is lively and often arresting in its insights and perspectives. He explores the origins of the term ‘Anthropocene’ as well as the various criticisms leveled at it. Around 70 percent of the book is concerned directly with the Anthropocene, whether or not formally defined, as a post-Holocene period characterized by the degree to which human activities have become integral to the functions of the Earth System over the last two centuries.

For me, Schwägerl hits many nails on the head. In his chapter Apocalypse “No”, he points out that the planet and indeed ‘civilization’ will likely survive the worst combination of circumstances currently envisaged. This helps to place all further discourse on a realistic footing by discounting the most extreme threats sometimes deployed by alarmists. He goes on to highlight the paradoxical nature of our environmentally exploitative life styles and blinkered, short-term economic priorities. As an alternative, he seeks instead to define and promote ‘scenarios for a positive, long-term future’ that includes the elimination of poverty, management of changing global climate and creation of life-sustaining ecological footprints. These admittedly idealistic aspirations he contrasts crisply and explicitly with those of the powerful vested interests responsible for many of the current problems we face. His faith in the power of people to learn lessons and respond to challenges mirrors the views of DeFries, but he goes beyond her analysis to spell out the future scenarios he favours in a future world where ‘nature becomes culture and culture becomes nature; technology becomes the environment and the environment is turning into the technosphere, the economy will become ecology and ecology will become economy’. To that extent, and in later sections acknowledging the paucity of traditionally defined wilderness and the advent of valued ecosystems through accidents and human intervention, his views resonate with, but develop well beyond the assertions of those on the ‘love your monsters’ side of the debate considered in a previous review on this blog. He does not uncritically embrace technology or the fixes those who do so may promise, nor does he see the problems arising from the use of technology as inevitable consequences, but the result rather of an economic system in which self-sufficient, frugal and truly sustainable human communities are an unwelcome nightmare. The ‘Technature’ chapter is full of this type of diagnosis and of the many ways in which priorities, policies and actions have to change. The three succeeding chapters further develop these ideas along with, for example, the dangers and opportunities posed by the extent to which we can now manipulate evolution as well as the changes in individual behaviour needed to achieve a sustainable future. These chapters are followed by a speculative scenario for a ‘Good Anthropocene’. A long sequence of changes on an increasingly global scale are triggered by a confrontation between a pollution-driven environmental

movement In China for which the eventual official response is a move towards a ‘green superpower’. Maybe the combination of an unstoppable mass-movement and a command economy is the only likely trigger for transformative future change! The final chapter hinges on a thoughtful and stimulating conversation about the future between the author and Paul Crutzen. In summary, it is not possible to illustrate the range and diversity of themes covered in the dauntingly energetic book.

These two books are authoritative and engaging. Read, enjoy and recommend them both.

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