

instance, he points out that many economists predict that US productivity could enjoy a long-term increase of some 2.5% per year. If extended for 100 years, this would make Americans 12 times richer in real terms than they are now. China, starting from a lower base and with a rather higher growth rate for a few decades, would be 20 times richer. Both these countries have prodigious appetites for more resources, notably fossil fuels. The world is not running out of fossil fuels yet, but it is running out of the atmospheric capacity to absorb pollutants. Will there be a radical shift in production patterns, triggering a parallel shift in consumption patterns — or the other way around? Will people have to countenance a change from 'more is better' to 'enough is best'?

A seismic transition of that order would raise all manner of questions about society and its values. "The forces of the near future are so large that they will inevitably change civilization. Human survivability (more cogent than sustainability) and creating new concepts of civilization are inextricably linked," Martin asserts.

Apocalyptic as some of Martin's writing is,

he preaches not so much 'doom and gloom' as 'doom or boom'. He sees humans "unlocking formidable new capabilities that could lead to more exciting lives and glorious civilizations" with "higher levels of happiness". Such rhetorical flourishes — there is purple prose at many places in the book — may not be to the taste of all readers, but the writing style is justified, Martin believes, by the nature of his message. He predicts an apogee of human creativity by the time of the grand transition, around the middle of the century, when humans could be standing on intellectual tiptoe to an extent never presaged until now. Indeed, it takes someone of Martin's vision to spell out such an exuberant prospect — hence the colourful phrasing to match the message. So persuasive is Martin that one can readily agree with him that, in the light of the sheer intensity of scientific research today, and of our apparent newfound capacity to solve whatever problems afflict us, the twenty-first century must surely rank as by far the finest time to be alive. ■

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this introduction, by reviewing, tagging and otherwise pointing the way to previously unheralded content.

Some of this content will be mainstream works that have fallen out of the public's gaze, or that may be better known in one corner of the world than another, perhaps leading a new reader to gleefully consume Jerome K. Jerome's 1889 bestseller *Three Men in a Boat*. But using the example of the amateur astronomers who observed Supernova 1987A, Anderson also argues that the ready availability of inexpensive technology is enabling many individuals to participate in areas that were previously restricted to professionals. Internet blogs, digital photos, audio programmes and video journals all add to the new marketplace of ideas.

The author has done substantial research and analysis, and refers to some earlier thinkers. However, in the chapter on the 'new producers', I was surprised that there was no reference to Alvin Toffler, whose concepts of the rise of amateur production and consumers-as-producers (which he termed 'prosumers') were presented several decades ago, notably in *The Third Wave* (Bantam, 1980). Also, an examination of the role of the public in the creation of the *Oxford English Dictionary* could have usefully contextualized the discussion of the 'Wikipedia phenomenon', in which many amateur contributors collaborate to produce encyclopaedic articles.

The concept of the long tail can be extended beyond the realm of entertainment. Anderson does this briefly, but still remains primarily in the Internet and software domains, looking at its applicability to the business of eBay and Google, among others.

I found it striking that this explosion in online content comes at a time when the world is experiencing substantial reductions in species diversity, and in a core aspect of culture — spoken languages. If the long tail can help to address this diversity crisis, it would certainly be invaluable for world culture. It seems to me that perhaps the Russian scientist

The road less travelled

The Long Tail: Why the Future of Business is Selling Less of More

by Chris Anderson

Hyperion: 2006. 256 pp. \$24.95

Richard Akerman

The Internet has changed from a communications tool available to a small number of academics to a worldwide medium for commerce and information. Initially, business learned how to use it from the academics, but perhaps now the research community can benefit from some of the consumer-driven developments.

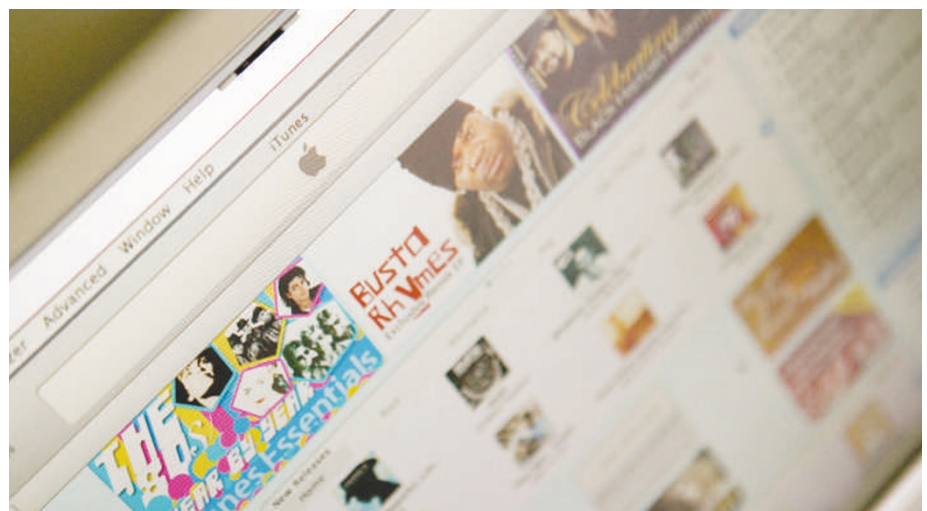
Amazon and other online retailers have discovered that there is a substantial amount of money to be made from selling a wide range of books, songs and other items that would be unprofitable or impractical to provide in physical stores, which tend to focus instead on the bestsellers. This group of less-popular content was first described by Chris Anderson as 'the long tail' in an article for *Wired* magazine in October 2004.

In his book also called *The Long Tail*, Anderson further explores the business and cultural opportunities emerging thanks to the availability and discoverability of huge amounts of entertainment and information online. He writes for and about business, and his main examples are drawn from a small number of major US Internet-centric content-distribution services including Amazon, the Rhapsody music distribution service, iTunes and the DVD rental service Netflix.

But the book also examines related Internet

developments in order to understand the multiple factors working to make the 'long tail' possible. In the electronic world, availability may be easiest of all — the cost of providing a new music track is essentially zero if a company is already storing millions of tracks. However, having provided new offerings, the company requires an audience that has somehow discovered content far beyond the heavily promoted hits they are most familiar with.

Anderson refers to this as "connecting supply and demand, introducing consumers to these new and newly available goods and driving demand down the Tail". He suggests that other consumers may be a major force in



Off the beaten track: online stores cash in by selling less-popular items as well as those by big names.

Nikolai Ivanovich Vavilov, travelling the world in the early twentieth century to amass a vast collection of plant seeds, was an early explorer of the long tail of plants.

From the perspective of scholarly communication, librarians, publishers and academic institutions have much to gain from the ideas

in this book. Scientific content, such as data sets and peer-reviewed papers, is being produced at a breathtaking pace, yet there are still gaps in terms of availability and discoverability. The techniques used to locate previously hard-to-obtain music tracks, obscure books and unexpected content relationships can be

adapted to enable researchers to discover less-cited but potentially useful data and papers. ■ Richard Akerman is at the Canada Institute for Scientific and Technical Information, Ottawa, Ontario K1A 0R6, Canada.

Supplementary links for this review are available at www.connotea.org/user/scilib/tag/longtailreview

Sensitive to modern life

Allergy: The History of a Modern Malady

by Mark Jackson

Reaktion: 2006. 256 pp. £25, \$39.95

Peter J. Barnes

The term 'allergy' was first used by the Austrian paediatrician Clemens von Pirquet in 1906. He was describing an exaggerated biological reactivity to foreign substances, which he demonstrated by means of injections. Asthma, eczema and hay fever had been recognized since antiquity, but in the early 1900s these allergic diseases were considered uncommon. Their increase in prevalence in the past century is unlikely to be due to better diagnosis, as they are usually easy to recognize. In the past 20 years in particular there has been a dramatic increase in allergic diseases of all types in industrialized countries. This is much too rapid to be accounted for by genetic changes, although we know that genetic predisposition is important in the development of allergies, so there must be an environmental cause. The increase in allergic diseases seems to relate most closely to the adoption of a Western lifestyle.

In *Allergy*, Mark Jackson, professor of the history of medicine at the University of Exeter, UK, traces the historical development of allergy, discusses possible explanations for the recent explosive increase, and concludes that it is a disease of civilization. The book provides a perceptive insight into the historical development of allergy, indicating how thinking changes. It gives fascinating vignettes of key researchers involved in the history of allergy and contains some interesting anecdotes about their lives.

Various environmental causes have been suggested for the increase in allergic diseases, including changes in diet, poorly ventilated housing, increased exposure to allergens, air pollution (commonly believed by patients to be important) and, most convincingly, reduced infections during early childhood, which favours an allergic pattern of immunity. No single factor accounts for the rise, however, which is likely to be caused by a combination of environmental factors that occur together in Western society. Asthma, allergic rhinitis (including hay fever) and eczema have all increased, suggesting that they have an underlying allergic mechanism. Many epidemiological studies have now been done, but it is still not known exactly which environmental



Masks and goggles are the order of the day as Japan struggles to cope with a rise in hay fever.

factors are important in the development of allergies in genetically predisposed patients.

The most compelling evidence for an environmental cause is the high prevalence of allergies in the former West Germany compared with a very low prevalence in the East. These differences are now disappearing in the united Germany as the environmental conditions become more similar. Other convincing evidence is the low prevalence of allergic diseases in children brought up on animal farms, where there is a high level of exposure to endotoxins, which stimulate a protective pattern of immunity. The lack of infections and endotoxin exposure associated with improved hygiene and the widespread use of antibiotics fails to stimulate this protective immunity. Jackson discusses these theories, although he does not provide much evidence for and against each idea.

Allergies are costly, in terms of medication, hospital admissions from asthma, and time taken off work. It is estimated that allergic diseases cost more than £1 billion (US\$1.9 billion) in Britain alone, excluding hospital costs. The good news is that the rise in allergic diseases seem to be slowing down. In some countries, 40–50% of allergy skin tests are positive, and this may be as high as the genetic predisposition will allow. Allergic diseases have been very profitable for pharmaceutical companies, and asthma medications are one of the fastest-growing markets in the world. But the high costs of medication have promoted a search for non-pharmacological approaches centred on changing the environment. Allergen

avoidance has usually been disappointing, as it has been impossible to completely avoid exposure, and changes in diet (more antioxidants and increased consumption of oily fish) have not been effective.

Perhaps the most promising approach to allergic disease is vaccination, which is particularly effective against hay fever and in desensitizing against insect stings. Desensitization — the administration of gradually increasing doses of an allergen to promote a long-term change in the immune response — is discussed at various points in the book. However, the treatment can sometime provoke exaggerated responses or even anaphylactic shock, prompting the search for safer approaches. Treatments placed under the tongue, rather than given as skin injections, are effective, and purified allergen proteins may be safer. In the future, DNA vaccines and T-cell peptides could provide a means of inhibiting the allergic response.

Jackson's succinct and clearly written book is aimed at the informed lay reader. He admirably avoids using jargon and scientific terminology, and gives fascinating insight into the rise in allergic diseases and how this is linked to our modern lifestyle. I recommend this book, which helps us to understand the relationship between health and the environment, and explains why modern living can be detrimental to our health. ■

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