

the current standards required for the certification of marketed pharmaceuticals. One of the cases, which is referred to numerous times throughout the book, involves an individual with a chronic bone infection who was treated by irrigation with solutions containing phage and by having phage-impregnated material placed in the open wounds. It would be interesting to compare such 'phage therapy' with the use of saline irrigations and sterile drains. Although Häusler acknowledges the need for the careful development of therapeutic agents,

along with the need for adequate control experiments, there is a danger that this book might encourage some individuals with infectious diseases to use phage in such a way.

The development of therapeutic phage will need a commitment to meet all the scientific requirements for current pharmaceutical agents. An anecdotal approach, adopted by some of the investigators described in the book and widely used in clinical medicine in the early twentieth century, may retard rather than stimulate the acceptance of therapeutic

applications. The encouraging results of animal experiments have demonstrated phage's capacity to rescue animals with life-threatening infections. Perhaps phage therapy, if carefully developed, could provide some much-needed antibacterial agents. ■

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Eeyore goes to Washington

The Beginner's Guide to Winning the Nobel Prize: A Life in Science

by Peter Doherty

Columbia University Press: 2006. 320 pp. \$24.95

Peter Parham

Soon after my appointment as an assistant professor, I was interviewed in Palm Springs for a beginner's grant given by a popular American charity. The interviewer, a bejewelled and scarily tanned doctor, looked me straight in the eyes and barked, "So, for what will you win the Nobel prize?" On hesitating to answer, my interview was doomed. I shortly crawled away, to hear nothing more of the matter. Back then, what I could have used was *The Beginner's Guide to Winning the Nobel Prize*. The book's author, Peter Doherty, knows about these things, because in 1996 he and Rolf Zinkernagel were awarded the Nobel Prize in Physiology or Medicine for their joint work on the recognition of virus-infected tissue by T lymphocytes of the immune system.

For the aspiring young scientist, or a student considering a scientific career, Doherty opens the vault to the world of science, explaining how it works and how to get on. His title is only lightly in jest, for the last chapter gives a common-sense set of 18 guiding principles to scientific success that almost any old hand would agree with. As well as continuing



Winning a Nobel prize has given Peter Doherty a platform to air his views on climate change and the environment.

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his kind, however, Doherty aims to reach a broader readership: those who learn from the movies that "scientists are always mad, bad or quaint nerds who rattle on about controlling the world".

He is not motivated by simple enthusiasm alone, however: like others in the know, Doherty has become deeply concerned with the way governments manipulate science to suit their political goals, and with the way publics at large, paradoxically, combine a pervasive suspicion of science with an equally

pervasive confidence that technology — the application of science — can alone solve all the world's problems.

Doherty is an Australian, a veterinary surgeon and a faculty member at both St Jude Children's Research Hospital in Memphis, Tennessee, and the University of Melbourne. Once described by the eminent immunologist Philippa Marrack in *The New York Times* as "a bit Eeyore-like" (Eeyore being the indomitable, if lugubrious, donkey from A. A. Milne's *The House at Pooh Corner*), Doherty says that

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"Mario Livio follows [Galois'] brief existence like a sleuth... and gives a panoramic view of the direct, as well as quite remote, applications of group theory." István Hargittai, *Nature* **437**, 34 (2005).

the Nobel prize changed his life, propelling him "into a new and different world of public advocacy for science". During the past ten years Doherty has enjoyed travelling the world, hobnobbing with politicians, governors, business leaders and authority figures from all walks of life to explain the nature of the scientific enterprise to them. In return, these interactions have provided a political education and awakening for Doherty, who now speaks out on the pressing issues of population control, global warming and environmental degradation. In his book, these themes of explaining science to the non-expert and exploring the place of science in modern society are intertwined. Each chapter is an essay that could stand alone but cleverly connects with the

others through the device of the Nobel prize.

This book, which was first published in Australia in 2005, follows *How to Win the Nobel Prize: An Unexpected Life in Science* (Harvard University Press, 2003) by J. Michael Bishop, who with Harold Varmus received the 1989 Nobel Prize in Physiology or Medicine. Despite their similar titles, size and desire to show science's human face to the public, they are very different books, making both for two good reads and an interesting comparison. Bishop's is more of a personal memoir, in which one learns all about his life and interests outside the laboratory. Contrasting with Doherty, Bishop reflects that the Nobel prize "has not enriched my life by any large measure".

Over the past month, would-be winners of a

Nobel prize have been distracted, twitchy and unable to look their fellow scientists in the eyes. That is now all over — at least until the same time next year, when another selected group will be looking forward to a wintry week in Stockholm and the celebrity status the Nobel prize brings. Meanwhile, a headline in *The New York Times* recently announced: "For Quality TV, Mad Scientist Returns". This referred to the planned re-running of a 14-year-old television programme, *Beakman's World*, which aims to introduce the next generation to the joys of science through the persona of an electric-haired, bulging-eyed mad scientist.

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Pictures from the edge of darkness

Eight photographers enter the twilight zone.

Colin Martin

"Heavenly shades of night are falling, it's twilight time," goes the song lyric. However, twilight occurs at dawn before sunrise each morning, as well as at dusk after sunset, although its effects then occur in reverse. Its duration differs for 'astronomical', 'nautical' or 'civil' twilight. It varies from roughly 120 minutes for astronomers, who need a very dark sky to see all the stars, to 90 minutes for old-style navigators, who need see only the brightest stars to use their sextants, and 60 minutes for civilians, who need street lights when it is only moderately dark.

In *Twilight: Photography in the Magic Hour*, at London's Victoria and Albert Museum until 17 December, eight contemporary photographers are exhibiting around 50 works that explore the dramatic visual effects observed in the sky during twilight. Many of these effects result from the Sun's position below the horizon, which causes Earth's atmosphere to scatter more of the shorter wavelengths of light (from the blue end of the spectrum) than it does during the hours of daylight, leaving more of the longer wavelengths (towards the red end) to reach our eyes.

How we see colour depends on light levels. Photographers always have to overcome the technical limitations of cameras and film, which cannot accommodate to the low light levels and colours of twilight with the flexibility and subtlety of the human eye and brain. They can use this distortion, however, to heighten the psychological effects of twilight, and artists have long attempted to



Photographs by Bill Henson (above) and Robert Adams reveal the remarkable qualities of twilight.

narrative sequence of twilight scenes.

Other artists use the full potential of colour photography to interpret twilight, including the digital manipulation of images. In his series of untitled photographs (2000–03), Bill Henson populates the peripheries of Australian towns with posed groups of androgynous adolescents, creating an edgier twilight zone. "It is not for nothing that twilight is [Henson's] favourite time of day," says Australian critic Peter Craven, quoted in a catalogue essay, "that time when colour still functions as an agent of definition but when it has lost the power to distract the mind with any excess of the sensuous, when everything has bled and receded."

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