

nomenon characterized only by subjective description (and thus difficult to study scientifically) into a branch of physiology where objective measurement could be practised.

Ekman's own work has not been confined simply to validating the muscular changes in emotion, although this has been a major advance in the field. He has also studied both recognition and expression of emotion in every aspect, but perhaps most famously in cross-cultural studies. His finding that a core set of emotions are universal, irrespective of culture, is of course a result perfectly predicted from the Darwinian theory.

It might amuse readers to hear that Ekman set out to study emotional recognition in far-away tribes in non-literate parts of the world just to prove Darwin wrong. As the results turned out, Ekman's *a priori* cultural determinist view was refuted, Darwin's biological determinist view was upheld, and the results steered Ekman into a career that generated an enormous wealth of new data in this field.

Ekman has produced this third edition so as to bring Darwin's book into contact with this new data. Darwin's ideas were mostly based on anecdote, correspondence, some observation and speculation. Many of these ideas have been confirmed by later work, and Ekman's editorial commentary throughout the text helps the reader to sort out which of these have stood the test of time, and which Darwin simply got wrong. To ensure they are balanced, commentaries are also based on correspondence from a distinguished panel of international researchers working on emotion.

This new text is scholarship at its best. The strength of Darwin's writing still shines through, as well as his drive to explain the form of each emotional expression: why is blushing associated with embarrassment? Why do we purse our lips when we concentrate? But Darwin's own account is now properly set in the contemporary scientific context. The commentaries appear in boxes within the text, producing the effect of a dialogue between Darwin and modern science, bridging the century.

The publishers immodestly include a subtitle on the front cover that reads "Definitive Edition". This is a fair description as we leave the twentieth century, although it might be seen as a touch myopic by reviewers of future editions. Time will tell. But without doubt, this new book will be required reading for Darwin scholars of emotion. □

Simon Baron-Cohen is in the Department of Experimental Psychology, University of Cambridge, Downing Street, Cambridge CB2 3EB, UK.

Related book

A new paperback edition of Charles Lyell's *Principles of Geology* has just been published (Penguin, £9.99). Darwin constantly

referred to this work while voyaging on *The Beagle*. It has now been edited into a single volume by the historian of science James Secord, who also provides an introduction outlining Lyell's writing strategy and an explanation of the book's enormous cultural impact. A bibliography of reviews is also included.

A feast for the senses

Tibaldo and the Hole in the Calendar

by Abner Shimony

Copernicus: 1998. Pp. 165. \$21, £15.50

Stephen Battersby

Tibaldo Bondi lives in Bologna, Italy, in the late sixteenth century. In 1582 (the year is significant), we find him at the age of 11 studying at the school of St-Joseph-in-the-Corner, hoping one day to become a great doctor. He is very intelligent and very sensible; a little too good, perhaps. But one day in a Latin dictation he translates a proclamation from the Pope that horrifies him: Gregory XIII has decided to replace the Julian calendar, whose imprecision means that calendar holidays are gradually slipping from their proper season, with a better one concocted by a commission of astronomers.

This is sensible, and satisfies Tibaldo. But, to make up the difference in time accumulated over one-and-a-half millennia, there will be no 15–25 October that year — there will be a hole in the calendar, and Tibaldo's twelfth birthday will fall through it. He becomes obsessed, and sets out with great resourcefulness to fight the calendar and get his birthday back.

This is a lovely book. It is an Improving Tale for children, but not excessively moralistic; it is written in an austere style, but one that allows for some dry humour. And it is beautifully produced, with a cover and illustrations drawn in stylized Renaissance cartoon fashion by the author's son, Jonathan Shimony. They, too, are often playful, and worth lingering over.

On the whole it is also an adult book — Abner Shimony writes about the power of propaganda and the details of childbirth, and he doesn't avoid using difficult words where they are needed. The aim is unashamedly to teach, but the story allows the author to do this naturally: the problem of constructing a consistent calendar leads us to astronomy, especially the astronomy of the late Renaissance. Tibaldo's studies lead us to the medical science of the time; and his quest takes us into the politics.

In every case, we are shown the virtues of common sense. At a time when the natural philosophers of Europe were beginning to appreciate the power of experiment and



observation, many of Shimony's ordinary people already have a practical sense that can almost be equated with empirical science.

We see this in the early description of Tibaldo's father, Lorenzo, at work. Once the distinguished professor of medicine, Turisanus, has given his pompous and meaningless diagnosis (which Shimony describes ironically as "the most important part of the treatment"), Lorenzo sets about helping the patient. He cleans and dresses wounds, or sets bones — the things that he and his predecessors have learned from experience. More explicitly, Tibaldo's older sister Anna Maria, a midwife, advises him "to observe which treatments work, and which do not". Tibaldo is very lucky to be surrounded by such a sensible family, disdainful of superstition, and benefiting from a few centuries of authorial hindsight. Yet somehow the result isn't implausible.

But what about the story? Does Tibaldo succeed in his quest, repair the hole in the calendar and enjoy his birthday feast after all? Or must he grow up and abandon his obsession? I'm not telling. Read it. □

Stephen Battersby is an assistant editor at Nature.

