

## Current affairs

George Philander

**Currents of Change: El Niño's Impact on Climate and Society.** By Michael H. Glantz. Cambridge University Press: 1996. Pp. 194. £40, \$59.95 (hbk); £14.95, \$19.95 (pbk).

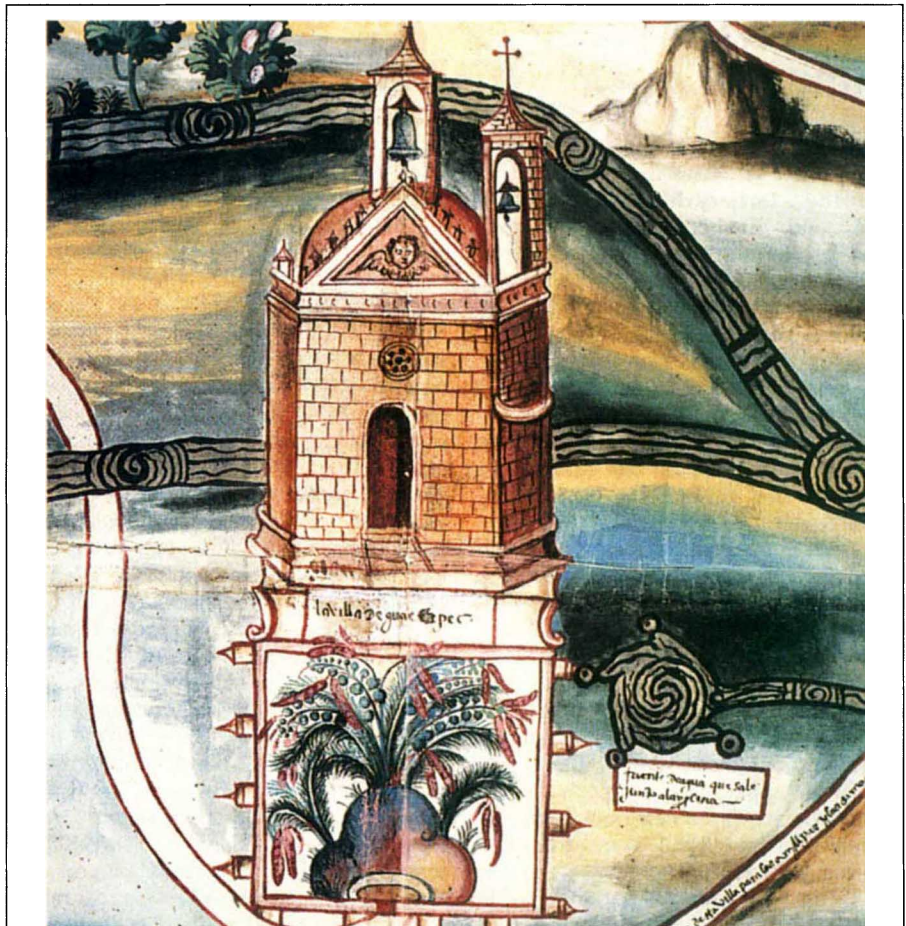
HENRY David Thoreau asserted that "men are never tired of hearing how far the wind carried men and women, but are bored if you give them a scientific account of it". If he is correct, then Michael H. Glantz has written an absorbing book. Its emphasis is on detailed descriptions of how and when El Niño has brought floods, droughts and other disasters to various parts of the globe, not on scientific explanations.

Glantz brings to the fascinating and important topic of El Niño the perspective of a social scientist, so the book is mainly concerned with the impact that this series of climatic changes has on society. Physical science is not Glantz's area and his book only hints (sometimes in a confusing manner) at the reasons why El Niño is scientifically exciting and challenging. Glantz should nonetheless be commended for his effort to bridge the gulf between scientists and those who benefit from science.

Many people have heard of El Niño because of articles in magazines as diverse as *Reader's Digest* and *Soybean Digest*, but few have more than a vague notion that it is 'something' happening in the waters 'somewhere' off the coast of Peru and Ecuador. In this well-produced book, which has many informative tables and figures, they will find much information about El Niño, the recurrent natural phenomenon that influences weather and climate globally.

The first part of the book recounts "emerging interest" in the subject. Initially scientists studied, as unrelated phenomena, the oceanic aspects of El Niño — the appearance of unusually warm surface waters off the coast of Peru and Ecuador where guano production and fisheries are adversely affected — and its atmospheric aspects which include failure of the Indian monsoon. Only in the late 1950s, when data describing sea-surface temperature patterns over the entire tropical Pacific first became available, did scientists recognize that these continually changing patterns are not only created by the atmosphere but also affect it profoundly; El Niño is a product of interactions between the tropical Pacific Ocean and the atmosphere.

Only after the devastating El Niño of 1982–83 did scientists put their research to practical use and begin activities that are leading to the routine prediction of El Niño. Such forecasts are of value



MEXICO's answer to the Domesday Book is the *Relaciones Geográficas*, a sixteenth-century survey of the country carried out by the Spanish colonialists. Barbara E. Mundy describes this feat as well as looking at the Amerindian contributions to mapmaking in *The Mapping of New Spain: Indigenous Cartography and the Maps of the Relaciones Geográficas*. University of Chicago Press, \$40, £31.95.

to everyone because El Niño affects everyone, either directly by a change in climatic conditions or indirectly because of the global nature of the economy. El Niño can decrease the harvest of anchovies off Peru and of coconuts in the Philippines, so affecting the price of commodities ranging from soaps and detergents with coconut oil as an ingredient, to fishmeal fed to chickens, and to soya beans that can provide a substitute for fishmeal. Commodities traders and brokerage firms are certainly aware that El Niño affects them but the public at large, and many government officials whose decisions affect agriculture, public health and water resources in many countries, apparently do not appreciate that El Niño predictions amount to 'usable' science.

Glantz points out that "forecasts of El Niño now abound" and is concerned about "too much emphasis... on developing an El Niño forecast capability and, at the same time, an underemphasis on the value of using existing El Niño information". He nonetheless points out that predictions of El Niño, including the most recent episodes, have been erratic. The

discussion of how predictions are made is poor, the section on computer models especially so, and there is no mention of what the future is likely to bring by way of improved forecasts.

Scientists have some skill in predicting climate changes that are common to all El Niño episodes. With fairly simple models, they anticipate variations in the sea-surface temperature of the eastern equatorial Pacific averaged by area. Forecasts for other parts of the globe are then possible on the basis of past records that indicate statistically significant correlations between that parameter and climate parameters in other regions. To do better requires the approach of weather forecasters — prediction of how spatially varying fields that describe temperature, rainfall and so on will evolve over a certain period. A report for laymen on the exciting efforts being made to start such operational climate forecasts remains to be written. □

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