

primer of cladistic methodology but also an argument for the essential role of palaeontology in pattern reconstruction, and vice versa. Smith forthrightly shows that the problems presented by fossil data represent true opportunities. Particularly perceptive are his discussions of 'species' in the fossil record, the meaning and use of higher taxa, and the role of biostratigraphical data in pattern analysis. His method is to combine beautifully worked examples (principally from the broad field

of invertebrate palaeontology) with straightforward exposition. Almost everything in this field is still controversial, but this is a book one can imagine going into several editions over the years and becoming the student's best friend. □

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## Shooting down the star of Bethlehem



WHAT was the Star of Bethlehem? Did it really exist? Or was it a device used by the gospel writers to add portent to the story of the birth of Christ? If it is more than simply a legend, what did the Wise Men really see in the sky?

These are the questions with which planetaria have been entertaining visitors for many years. A show that opened on 18 November at the new Munich planetarium has a different way of telling the tale, making the most of its high-tech computerized equipment, more advanced than that at any other planetarium.

Visitors will not get any firm answers from the show: biblical records are too inaccurate to give a precise date for the birth of Christ. But with other historical and ancient astrological documents that the planetarium's director, Thomas Krauppe, has brought into play, they are provided with a few clues.

There are some certainties, however: astronomers can describe the sky exactly as it was 2,000 years ago, and the planetarium's star-making equipment can display it. So visitors are taken through a cosmic detective story, which reveals how historians came to the conclusion that Christ was probably born between 6 bc and 8 bc. They learn about the science behind the heavenly bodies and are

encouraged to draw conclusions about the nature of the Star as evidence accumulates. And they are invited to indicate their conclusions by pressing buttons on the arms of their seats.

"Do you think the Star was a comet, a shooting star or a supernova?" visitors are asked. The majority support the notion of a comet, prompting the voice-over to comment: "An interesting result". "Do you think the Star was a comet or a convergence of planets?" it later asks, when the scientific evidence for each possibility has been described and displayed on the huge night sky projected above the audience. "An interesting result", repeats the impassive voice, when most people have switched allegiance to the notion of a conjunction of Jupiter and Saturn, which, they have now learnt, took place in 7 bc.

Aimed primarily at young teenagers, the show is didactic, absorbing and aesthetically splendid. Alexander van Bubenheim, a Munich-based musician who has worked with Bruce Springsteen and Neil Young, has written an impressive accompanying score.

"Der Stern von Bethlehem" is showing daily in the planetarium at the Deutsches Museum in Munich, Germany, until 15 January 1995. Alison Abbott

### For reference

**Companion Encyclopedia of Psychology, Volumes 1 & 2** edited by Andrew M. Colman (Routledge, pp. 1,356, £150). Aims to provide "authoritative and in-depth reference material on all major branches of psychological research and professional practice". The book contains more than 60 articles by some 70 workers, and is organized into 13 sections covering: the definitions of psychology and its historical background; biological aspects of behaviour; sensation and perception; cognition; learning and skills; emotion and motivation; individual differences and personality; developmental psychology; social psychology; abnormal psychology; special topics, including parapsychology, gender issues and health; research methods and statistics; and the professions of psychology. Complete with glossary and multi-level index.

**Encyclopedia of Virology, Volumes 1-3** edited by Robert G. Webster and Allan Granoff (Academic Press, pp. 1,600, £300). Claims to be the "largest single reference source of current virological knowledge. . . the first to bring together all aspects of the subject for a wide variety of readers". With 270 alphabetically arranged "mini-review" articles, the text covers biological, molecular and medical topics concerning viruses in animals, insects, plants and bacteria and is accompanied by more than 250 illustrations. A cross-referencing system links related articles, and comprehensive reading lists at the end of each article allow access to the primary literature.

**The Hutchinson Dictionary of Scientific Biography** edited by Roy Porter (Hutchinson, pp. 891, £50). Previously published in six volumes, this new updated edition now contains more than 1,200 profiles (averaging 850 words) of key figures, an expanded glossary of 1,800 scientific terms, lists of Nobel prizewinners and over 80 diagrams illustrating notable experiments and key discoveries. There are also seven chronological reviews of the main scientific disciplines, which place individual scientists' achievements (and misconceptions) in the context of their own time.

**Larousse Dictionary of Scientists: From the Pioneers of Science to the Innovators of Modern Research** edited by Hazel Muir (Larousse, pp. 595, £30). Some 30 British academics have contributed more than 2,200 entries (each of around 300 words). The entries, which are thoroughly cross-referenced, are also interlinked with indexes of discoveries, research topics and Nobel prizewinners.