

even to deny) this trend. By the end of the book, one does not know whether to expect our society to become more 'tribal' or not. Jasper has made a contribution to analytical thinking about the structure of protest movements, but he has not resolved the social scientific puzzle of the multiplication of identities in the advanced industrial world. □

Steven Yearley is in the Department of Sociology, University of York, York YO10 5DD, UK.

Current concerns

Joseph Henry: The Rise of an American Scientist

by Albert E. Moyer

Smithsonian Institution Press: 1998. Pp. 348. \$45, £34.95

Jacqueline Reynolds and Charles Tanford

One of the main research problems for nineteenth century physicists was the interconversion of electricity and magnetism, and not only from a purely theoretical viewpoint. The practical applications that were to emerge — the dynamo, the electromagnetic telegraph and the transformer — influenced the lives of everyone, not just the researcher in his laboratory.

Of the many familiar names associated with this subject, first and foremost is the incomparable Michael Faraday (1791–1867) of the Royal Institution in London, a man from a poor family, largely self-educated, mathematically illiterate but clear-thinking and imaginative. Hermann von Helmholtz said of him: "Faraday performed in his brain the work of a great mathematician without using a single mathematical formula."

However, during the same period, in the fledgling United States, another scientist paralleled Faraday's work in electromagnetism but, although eulogized by the US population at his death, is now nearly forgotten. Joseph Henry (1797–1878), both in his background and his career, was uncannily similar to Faraday.

Henry was born into a Scots Presbyterian family of little means, and what formal education he managed to acquire at the small Albany Academy in New York State was paid for by dint of his own labours. He held strong religious beliefs and through most of his research career was well removed from politics of any sort. During his years as a teacher at Albany Academy, and later as professor of natural philosophy at Princeton (then the University of New Jersey), Henry built electromagnets of great strength, generated electric currents from changing magnetic fields, discovered mutual induction and self-induction, and built a working electromagnetic telegraph, all activities engaged in by his counterpart at the Royal Institution during the same period.

But Henry differed from Faraday in many particulars. He was not blessed with a mentor of the quality of Sir Humphry Davy, nor did he have the financial support that Faraday received from the Royal Institution. As a scientist in the distant former colonies, Henry was isolated from the kind of interaction that Faraday had with his numerous friends and colleagues in the European scientific community. Most important, whereas Faraday's maxim was "work, finish, publish", Henry was slow to finish and publish his research, perhaps because of pressures of his heavy teaching responsibility, but certainly also in no small part owing to his own inertia. And herein lies the principal reason for his relative lack of credit for what were often simultaneous discoveries.

Albert E. Moyer has produced a fascinating private and public picture of Henry, based in large measure on the archives held at the Smithsonian Institution in Washington DC. The great wealth of material available — including laboratory notebooks, students' comments on his lectures, and private letters — is skilfully interwoven with descriptions of Henry's experimental activities, family life and public contacts. Moyer draws an intimate picture of a Janus-like character.

The public face was described by Spencer Fullerton Baird, his assistant and successor as director of the Smithsonian, in a biographical sketch written for the *Encyclopaedia Britannica*: "He was a man of varied culture, of large breadth and liberality of views, of generous impulses, of great gentleness and courtesy of manner, combined with equal firmness of purpose and energy of action." Many of his contemporaries thought Henry to be modest and self-effacing.

Privately, however, a different picture emerges of a man often far from modest in his own estimation and tortured by his perceived lack of appropriate recognition by the scientific community; of an individual with little ability to judge his own work objectively. Henry wrote an anonymous biography of himself for the *Princeton Review* which dwelt at length on his many accomplishments, including a list of his 22 most significant research projects and discoveries, including the first electromagnets powerful enough to lift more than a ton, the first continuously operating machine based on an electromagnet, the development of the concept and apparatus essential for electromagnetic telegraphy and the discovery of self-induction.

Another anonymous article appeared in the *Encyclopedia Americana* reviewing the advances in electricity and magnetism before 1847 in which he elevated his own work to a foremost position. "After the discovery by Dr. Faraday of the foregoing principles of galvanic induction, the most important additions to this branch of electricity have been made by Prof. Henry."

Moyer's biography regrettably deals only sparsely with the last 30 years of Henry's life, after his appointment in 1846 as secretary of the newly founded Smithsonian Institution, a position he did not seek but was honoured to accept when offered. Henry was in effect the sole director, and the job required all his energy and time. Research into the nature of electromagnetism was abandoned, and there is no indication in Moyer's book as to whether or not he followed the developments in this field. It would be intriguing to know his response to the great treatise of James Clerk Maxwell, which was published five years before Henry's death. Did he even know about it? Would he have understood it? Probably not, we suspect. □

Jacqueline Reynolds and Charles Tanford are at Tarlswold, Back Lane, Easingwold, West Yorkshire YO6 3BG, UK.

Fossil dichotomy

Palaeoecology: Ecosystems, Environments, and Evolution

by P. Brenchley and D. Harper

Chapman and Hall: 1997. Pp. 432. £29.99, \$44.95

Brian R. Rosen

The arrival of the first wholly new palaeoecological text in English for 15 years is a noteworthy event. Most palaeontologists would probably claim an interest in palaeoecology but there have been surprisingly few texts to guide them, and these provide very different accounts.

As pioneering authors in the 1960s, R. F. Hecker gave us practicalities and D. V. Ager showed that ancient natural history could be fun. A. J. Boucot showed that palaeoecology could be useful, J. W. Valentine showed that it could be seriously evolutionary, and W. S. McKerrow led a glass-bottomed boat cruise through ancient communities. J. R. Dodd and R. J. Stanton gave us rigour but at the price of a rationale — taxonomic uniformitarianism — that was too confined for dealing with long-extinct organisms. So an outsider might well think that palaeoecology is an eclectic residue of 'fascinating things you can do with the fossil record,' once you have dealt with hard-core taxonomy and evolutionary systematics.

One problem lies with palaeoecology's conflicting origins. Is it an Earth science or a life science? The mode of life of ancient organisms helps geologists to interpret past environments (Earth science), but geological evidence for past environments helps to reveal the mode of life of ancient organisms (life science). Or, as Dodd and Stanton relate in a telling anecdote: "We asked [a sedimentologist] if he could identify the depositional environment. He replied that... if we could tell him which [environments] the fossils

In retrospect by Mikhail Mina

The Gospel of Afranius: The Holy History as an Object of a Detective Inquiry

by Kirill Es'kov

Published in Russian by the author

rasn@glasnet.ru

1995

During the Soviet period in Russia, 'militant atheism' was a cornerstone of the official ideology. Scientists were ordered to be atheists, the result predictably being that even those who did not believe were in sympathy with the believers. It seemed that the fields of religion and science were different and no problem would arise if there was no trespassing from either side. Most scientists avoided participating in official antireligious campaigns, and religious activists had neither desire nor opportunity to start the brawls.

The situation changed with the fall of the communist regime. Russian scientists began to find all kinds of missionaries and mystics grazing in their kitchen garden, some of them migrants from outside, some mutated from the local stock. Now the former owners feel uneasy. It still seems unethical (and hardly possible) to kick the trespassers out, but it is also humiliating to endure the invasion silently. Such is the historical context within which *The Gospel of Afranius* should be assessed.

Kirill Es'kov is a specialist in the palaeontology and zoogeography of spiders, and a senior scientist at the Palaeontological Institute of the Russian Academy of Sciences in Moscow. The appearance of *The Gospel of Afranius* was stimulated by *The Resurrection Factor* by Josh McDowell (Thomas, 1981). McDowell maintains that he analysed all the possible materialistic explanations of events following the crucifixion of Christ as they are described in the New Testament and found none satisfactory. In his view, it is enough to conclude that here we are faced with the direct intervention of God.

Es'kov defines his own position clearly and precisely. He writes: "As for religion, I am an agnostic like many of my colleagues — naturalists. For me it has always been an axiom that there is not and cannot be a proof of God's existence in the sphere of mind. Since Protestant McDowell has rejected Tertullianus' honest 'Credo, quia absurdum' and with his own hands desacralized the text of the Gospel, he



analysing fragmentary and not very reliable data can do even in an area outside his normal domain. He does it brilliantly in the first part of the book, discovering a lot of 'logical possibilities' overlooked by the opponent even though, playing fair, he accepts 'presumption of honesty', excluding any version that implies fraud committed by Christ or the apostles.

The second part of the book contains a story written, the author assures us, by Afranius, the chief of Pontius Pilate's Secret Service, a person well known to Russian readers as a character in a popular novel, *The Master and Margarita* by Mikhail Bulgakov. The story describes an operation of the Secret Service that used Christ without his knowledge. The witty narration is excellently stylized as a modern 'spy novel' and perfectly dovetails into the *Gospel's* scenario.

The story explains how skilful professionals could stage a 'resurrection' using substitutes after Christ died on the cross and manage to convince the apostles that they had seen nobody but their resuscitated rabbi. The author says: "You wanted a materialistic explanation, didn't you? All right, here you are!" The humour is sometimes biting, but never insulting.

The manuscript was offered to several publishers but none wanted to spoil its relations with the Russian Orthodox Church, so the author had to publish the book himself. It has already won admirers. In 1997, it won the Grand Prix at the Festival of Science Fiction Authors in Odessa. There is reason to think that *The Gospel of Afranius* would find many interested readers if it were published in English.

Mikhail Mina is at the Laboratory of Postnatal Ontogeny, Institute of Developmental Biology, Russian Academy of Sciences, Vavilov St. 26, Moscow 117334, Russia.

deliberately got involved in a rather risky game on the field of the opponent. Unable to withstand the temptation I have accepted his challenge."

After that Es'kov demonstrates what a specialist accustomed to

of fossils more soundly into ancient communities, and thereby allow palaeoecology to realize its most exciting potential: unravelling the history of communities.

So there is a real dilemma in writing a palaeoecological text. Should it keep faith with its eclectic but problematic traditions, and dutifully cover everything studied in its name, or should it be based on a consistent rationale? Brenchley and Harper's contents list reveals a pragmatic solution that undoubtedly does justice to the subject as it has been studied. They give a rich range of palaeoecological case histories, organized under straightforward headings, some as Earth science (environmental indicators), some as life science (populations and communities, trace fossils), some as essential background (environmental controls, taphonomy), and just one not strictly palaeoecological at all (palaeobiogeography). The scale ranges from detailed considerations of the morphology of individual organisms to the global history of the biosphere.

The younger parts of the fossil record, and the palaeoecology of carbonate environments considering the latter's biotic richness and role in carbon burial and climate change, are not well covered, while the intriguing ecology of modular and social organisms is overlooked. And some of the references seem a little old.

Nevertheless, students and teachers will find this by far the most satisfactory palaeoecological text to date. Yet, nearly 30 years on, Lawrence's challenge still stands. □

Brian R. Rosen is in the Department of Palaeontology, The Natural History Museum, Cromwell Road, London SW7 5BD, UK.

New Journals

This year, *Nature's* annual new journals review supplement will appear in the issue of 10 September. Publishers and learned societies are invited to submit journals for review, as well as details of any eligible electronic journals, taking note of the following criteria:

- Journals must have first appeared during or after June 1996 and issued at least four separate numbers by the end of May 1998.
- Journals covering any aspect of science are eligible, although those dealing with clinical medicine and pure mathematics are excluded, as are newsletters and publications of abstracts.
- Frequency of publication must be at least three times a year.
- The main language is English.
- Deadline for submission is 5 June.

Please send at least four different issues (the first, the most recent and any two others) of each eligible title, together with full details of subscription rates, to: Peter Tallack, *Nature*, Porters South, Crinan Street, London N1 9XW, UK. Tel: +44 (0)171 843 4567. e-mail: p.tallack@nature.com

indicated, he could identify the sedimentary environment!" For marine palaeoecologists at least, the Earth science tendency has surely been uppermost, whereas D. R. Lawrence, in a seemingly long-forgotten appraisal published in 1971, reclaimed it as a life science.

This dichotomy is not all. As Lawrence also argued, palaeoecologists have relied too much on applying recent ecology to the past, "yet this methodology proves nothing since working methods presuppose static

natural histories through time". Instead, he challenges us to concentrate on the environmental indications of fossil-bearing sediments, and on the inherent evidence of the fossils themselves. In other words, for palaeoecology to go forward it has to be structured around rigorous methodologies for reconstructing the mode of life of ancient organisms, independently of simplistic uniformitarianism. I believe this is vital if we are to translate mere assemblages