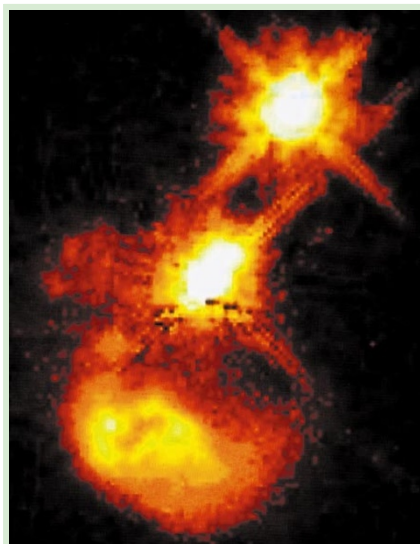


## book reviews

well-written book an enjoyable and provocative intellectual adventure.

Michael Rowan-Robinson's book represents, by comparison, down-to-earth cosmology. He discusses the key observations — past, present and future — in much greater depth, including frequent and strenuous warnings about their uncertainties, yet he does so concisely. In the penultimate chapter he discusses his own involvement in investigating the starburst-galaxy phenomenon. Although perhaps not quite as grand as the other material, it is in compensation fresh and personal. The two books are in many respects complementary and, by looking at both, a reader could get an excellent, rounded view of the exciting state of contemporary physical cosmology.

Neither of these books, with their heavy focus on the wild-and-woolly frontiers of cosmology, begins to do justice to the truly remarkable triumphs of Pythagorism closer to home. Given five pure numbers — the electron, up- and down-quark masses in units of the quantum chromodynamic scale, plus the fine-structure constant — one can accurately account for all the phenomena of chemistry, and the structure of ordinary matter. Add a couple more — Newton's gravitational and Fermi's weak-coupling constants — and essentially all of astrophysics and most of cosmology enter the charmed circle of understanding. Small parts of this



### Quasars, nebulae, and more

With the Hubble telescope quasars can be imaged in great detail, such as quasar IRAS 04505–2958, some 3 billion light years away, shown here. The image comes from *Deep Space: New Pictures From the Hubble Space Telescope* (Constable, £16.99), a collection of recent Hubble images, with an explanatory text by Simon Goodwin and John Gribbin.

great scientific success story have been told, but it has yet to find its Milton. ■

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## Arctic antics

### Ice Finders: How a Poet, a Professor, and a Politician Discovered the Ice Age

by Edmund Blair Bolles

Counterpoint: 1999, 256 pp., £16.50, \$24

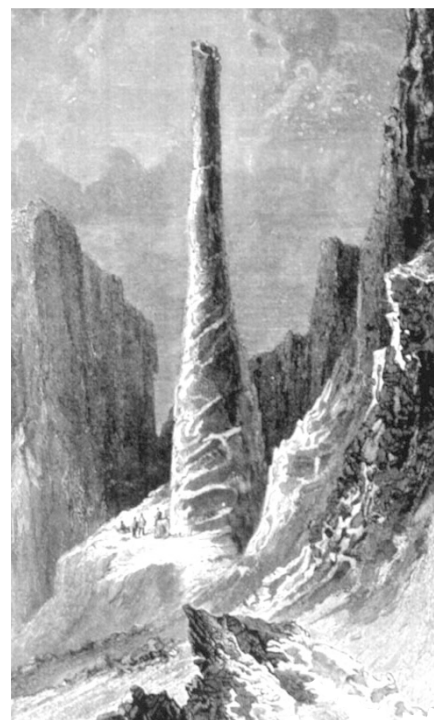
Douglas Palmer

*The Ice Finders* by Edmund Blair Bolles is about the struggle for scientific acceptance of the evidence for a recent Ice Age. Although a good idea for a popular science book, it is curiously constrained by its alliterative subtitle — the 'poet' is Elisha Kent Kane, the 'professor' Louis Agassiz and the 'politician' is Charles Lyell. Kane was, in fact, an assistant surgeon in the US Navy, who led the 1853–55 US expedition of the *Advance* in search of Sir John Franklin and the existence of an open, ice-free Arctic Ocean. Agassiz, the Swiss expert on fossil fish and glaciation, was indeed a professor at the Academy of Neuchâtel and subsequently Harvard, and the British 'encyclopaedic' geologist Lyell was one of the best-known Earth scientists of the time.

Bolles sets out his methodological 'stall', in a chapter entitled "Ignorant, ambitious men", by declaring that "the most famous law of mechanical intelligence says: Garbage in, garbage out". Consequently, Lyell's book (*The Principles of Geology*, 1830) becomes, "as far as the Ice Age was concerned ... another case of garbage in". To be fair, Bolles is writing popular science, but I find such simplistic clichés irksome. I doubt whether they are really necessary to 'hook' the reader if there is a good story to tell, and basically there is a good story here.

The conceit of the plot lies in the interweaving of the narrative of Kane's expedition with the more complicated stories of the discovery and interpretation of glacial phenomena by Agassiz, Lyell and their contemporaries at least a couple of decades earlier. Kane's story is well told, but has the feel of being shoehorned into the narrative. Presumably Bolles, an American, wanted a 'homegrown' hero as a foil to the predominance of European characters. Eventually, the strands are pulled together when Kane returns and publishes an account of his travels and scientific observations (*Arctic Explorations in the Years 1853, '54, '55, 1856*), with an encomium by Agassiz.

In order to make the Kane story more relevant to the plot, Bolles has to downplay earlier Arctic exploration and public awareness of polar ice fields. He claims that "most



Polar prominence: Kane's sketch of a column of greenstone encountered during his explorations.

people never saw, never heard of the great ice. Presumably Erik the Red and a few other Vikings who made it to Greenland had some idea." However, Clive Holland (*Arctic Exploration and Development c. 500 BC to 1915*, Garland, 1994) estimates that the Viking population of Greenland may have numbered as many as 3,000 around the first millennium. Holland also lists hundreds of expeditions to the Arctic before the 1820s by, among others, Russian, Scandinavian, French and British explorers.

As for public awareness, "The ice was here, the ice was there, / The ice was all around; / It cracked and growled, and roared and howled, ..." — Samuel Taylor Coleridge's *The Rime of the Ancient Mariner*, published in 1798, was all around as well. The poem enjoyed enormous success and subsequent influence. In addition, the *Quarterly Review* of 1817 and 1818 devoted two long articles to Arctic exploration which, along with Coleridge's poem, are thought to have stimulated Mary Shelley's use of the Arctic in her novel *Frankenstein, or, The Modern Prometheus*, published in 1818. Her explorer, Captain Robert Walton, writes that, "We are still surrounded by mountains of ice, still in imminent danger of being crushed in their conflict. The cold is excessive ... Frankenstein has daily declined in health ..." Surely, there is an interesting story here about the growing public fascination with the polar regions from the turn of the century.

The real meat of the Bolles story is the discovery and argument over the nature of glacial phenomena such as erratics, parallel roads and scratched rock surfaces. This part

FROM KANE'S ARCTIC EXPLORATIONS IN SEARCH OF SIR JOHN FRANKLIN (NELSON, 1902)

of the history documents the difficulties most scientists experience in seeing phenomena as they actually are, unfettered by preconception. The description of the way in which Agassiz, Lyell and other interested scientists such as William Buckland, Roderick Murchison and James Forbes responded to new ideas and phenomena is intriguing. Agassiz was particularly egotistical; he only welcomed Forbes' support of his ideas until the latter's acute observation and questioning threatened his pre-eminence. Generally, Bolles' 'factionalization' seems convincing, although I am not sure how professional historians of these events will respond. Asides such as "thanks to Agassiz, they (Britain's geologists) had clear illustrations and facts to help them resolve the chronology of their local formations", which promotes Agassiz's identification of fish fossils way above their worth, leaves a certain sense of unease.

It is always difficult to find the right moment to end a historical narrative. Bolles chooses 1863, when Lyell finally accepted that continental ice sheets on a vast, Greenland-like scale had occurred in Europe and North America during the Ice Age (in *The Geological Evidences of the Antiquity of Man*). But in many ways the story was just beginning. In 1855, A. C. Ramsay claimed that some Permian-age conglomerates in England had been transported by glacial action, and the following year W. T. Blanford made the same claim for contemporaneous sediments in India — the Ice Age was not unique. And in Glasgow, a brilliant, young and largely self-taught Scot, James Croll, was sowing the intellectual seeds for an explanation of ice ages. ■

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## The Osler magic revisited

### William Osler: A Life in Medicine

by Michael Bliss

Oxford University Press: 1999. 600 pp.

£27.50, \$35

### W. F. Bynum

Louis Pasteur was once described as the most perfect man ever to enter the kingdom of science. The kingdom of medicine award would undoubtedly go to Sir William Osler, certainly if English-speaking clinicians over the age of 50 constituted the electoral college. There may not be so many Osler societies, medals, lectureships, prizes and buildings as there are *rues* Pasteur, but the French have always been more susceptible to the Great Man syndrome than have the Anglo-Saxons. The wonder is that, during Osler's life and after, so much fuss was made about a man who did not discover

anything of much importance.

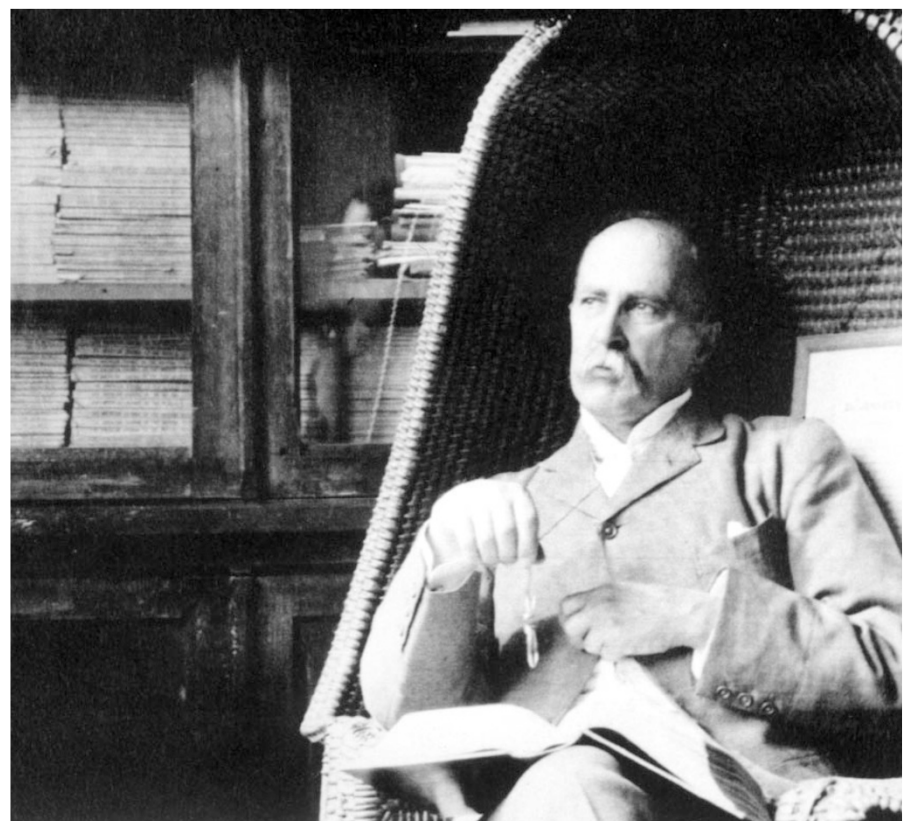
If the doctors have always adored him, historians have tended to disparage Sir William as emblematic of all that is wrong with the cosy, self-satisfied and self-serving world of élite medicine. He even seemed living proof of the cogency of his own quip that men do not achieve much of significance after the age of 40, and are all washed up by 60, when they ought to be forcibly retired, if not chloroformed. (He believed that women mature later.) His own seventh decade was spent as Regius Professor of Medicine at the University of Oxford, seeing a few private patients, sitting on committees, collecting books, delivering inspirational speeches, studying medical history, entertaining on a large scale, and making a modest medical contribution to the Allies' war effort. All very energetic and even admirable; whether it is the stuff of idolatry is not self-evident.

The vast literature on Osler has almost always been written by adoring doctors. Much of it is derivative on the massive *Life of William Osler* (1925), which won a Pulitzer prize for its author, the brilliant American neurosurgeon Harvey Cushing. Cushing had been Osler's junior colleague at Johns Hopkins University, where he had gained his surgical experience covering for his chief, William Halsted, when the latter was away operating on private patients or, more commonly, incapacitated through his severe cocaine addiction. Osler, but not Cushing, knew of Halsted's affliction, which he had

acquired experimenting with the use of cocaine as a local anaesthetic. Cushing adulated Osler and was even at Revere Osler's bedside when this only surviving offspring died of shrapnel wounds in the killing fields of the First World War.

Although Cushing's *Life* has always provided the gold standard, adoring fans have subsequently combed through almost every facet of Osler's career, personality and achievements. The bibliography of writings about Osler has gone through two editions. This vast output has been made more accessible by the Osler Library at McGill University, to which he left his magnificent collection of books and papers, and where, fittingly, his ashes rest. By contrast, Pasteur's remains lie in the research institute he created.

Michael Bliss's biography is one of the first major contributions to the Osler *oeuvre* by a professional historian. Surely he could be expected to do to Osler what the historians have done to Pasteur, Isaac Newton, Albert Einstein and numerous other scientific heroes — find the feet of clay. After all, Bliss had some sharp things to say in a previous biography about a fellow Canadian, Sir Frederick Banting (*Banting: A Biography*, University of Toronto Press, 1992). Those looking for scandal, however, will be disappointed. Bliss even scotches the rumour that Osler, who married late, might have had an affair with a cousin during his McGill days. Osler revisionism, Bliss informs us, simply does not work.



Saint William: considered by many to be the embodiment of humane, scientific medicine.

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