

Dahl's discussion of the links between one local Greenlandic community, national policies and priorities, and international markets. He takes up these issues in the book's concluding chapters, arguing that 'creation of a new national Greenlandic identity has actually diminished both the significance of the local identities (-mioq) and the identity of being an ethnic Greenlander' (page 254).

This is a valuable book grounded in a materialist framework and carefully documented with statistics and tables detailing an evolving hunting mode of life in Greenland. The volume sometimes reads like an updated dissertation, certainly valuable but also bearing pitfalls of repetition, including replication of complete sentences that should have been caught by an editor. *Saqqaq* will be of great interest to Arctic specialists and raises excellent topics for discussion in any graduate or senior undergraduate anthropology class. (Julie Cruikshank, Department of Anthropology, University of British Columbia, Vancouver, British Columbia V6T 1Z1, Canada.)

**ICE BLINK: THE TRAGIC FATE OF SIR JOHN FRANKLIN'S LOST POLAR EXPEDITION.** Scott Cookman. 2000. Chichester and New York: John Wiley & Sons. xii + 244 p, illustrated, hard cover. ISBN 0-471-37790-2. \$US24.95; \$Can34.95.

Starvation, scurvy, hypothermia, and lead poisoning have been suggested as factors causing, or contributing to, the death of Sir John Franklin's men. Scott Cookman, the author of *Ice blink*, proposes yet another cause — botulism, a disease characterized by rapid development and high mortality. Botulism is caused by an anaerobic bacterium, *Clostridium botulinum*, which produces one of the most powerful toxins known. It is widespread in nature and can survive for long periods at both high and low temperatures. According to Cookman, the London merchant Stephan Goldner obtained the Admiralty contract for preserved food by misleading advertising and underbidding, then purchased meats and vegetables of inferior quality, processed them in highly unsanitary conditions, failed to cook them thoroughly, provided them in cans larger than specified (to save time and money), soldered the cans imperfectly, and delivered them late.

Goldner was faced with the challenge of making about 30,000 cans (by hand), purchasing about 45 tons of meats and vegetables (in a season when fresh produce was largely unavailable), processing the ingredients, and sealing the cans, all within a month and a half. With only two weeks to go before sailing, less than 10 per cent of the canned meat had been delivered to the victualling yard. The soups did not reach dockside until 48 hours before departure (too late for any inspection), and instead of consisting of 20,000 one-pound cans, as specified in the contract, they were packed in nine- and 12-pound cans. They were the most dangerous part of the preserved food, Cookman points out, because vegetables would have been most likely to contain soil bacteria, and because the contents of the large cans may not have been cooked through to the

centre. 'The latest patented methods leached them of nutrients but left them tainted with bacteria and viruses. The canning processes contaminated them with lead and arsenic. Soldered shut to prevent admittance of the 'atmospherics' believed to cause spoilage, they were in fact death capsules packed with *Clostridium botulinum*' (page 210).

The discussion of Goldner and his methods is based largely upon manuscript records of the Admiralty, Home Office, and Supreme Court of Judicature, including Goldner's application for British citizenship, his food-preserving patents, his price lists and testimonials, his correspondence with the Admiralty, and his contracts to supply several Arctic expeditions. Most of the material comes from records of the Victualling Department (ADM 114) in the Public Record Office. As far as I am aware, no one before has searched so extensively in these manuscripts, with the possible exception of Richard Cyriax, who in 1939 wrote the most thorough and reliable book about the expedition. Cookman did not carry out this work himself, it should be pointed out; he commissioned two professional researchers.

Having formulated this bold (and doubtless controversial) hypothesis, Cookman should have bolstered his case by thoroughly documenting every significant point. But his text of 212 pages contains only half a dozen footnotes revealing sources, and none of these relates to the historical aspects. Unless he has published a carefully documented argument elsewhere, the botulism hypothesis will not be given the attention it deserves. One is sure to ask 'what is the evidence?' As far as I could ascertain, the closest thing to evidence is that spores of another kind of *Clostridium* (not *botulinum*) were found in the intestines of one of the corpses at Beechey Island during an autopsy performed in 1986, and that these spores 'were cultured and brought back to life' (page 124). Surely this is a crucial point, so why not elaborate upon it and provide a reference?

It is not exactly clear whom the botulism is supposed to have killed, and when. Only three men died during the first two years, from other causes, and the last 105 scurvy-ridden survivors starved to death after abandoning the ships in April 1848. But between May 1847 and April 1848, 21 others died, and one presumes that these were the only alleged victims of botulism. During spring sledging trips, Cookman asserts, they had to economize on fuel and therefore undercooked their canned food. 'The horrible death scene was played out 21 times' (page 153). But this is supposition masquerading as fact. No one knows that any sledging parties (other than the one under Gore) were sent out or that they carried canned food, or that the cans contained spores causing botulism, or that the sledgers died. Educated guesswork confidently presented as fact is likely to mislead readers. Indeed, this has already happened. An article in *The Times* (30 April 2000) entitled 'Cut-price food killed off Arctic explorers,' says 'research shows the 129-strong crew of Sir John Franklin's expedition probably perished from food poisoning caused by a corrupt Whitechapel supplier,' which is simply not true.

A careful reading of Cookman's text reveals many events that 'probably,' 'possibly,' 'likely,' 'could have,' or 'may have' occurred. At other times, details are presented as fact without any such qualification. For example, he paints a revolting picture of the conditions under which Goldner processed the canned provisions in a crowded, dirty factory on Houndsditch Road in the slums of Whitechapel. 'Everything was bedlam. Bawling livestock (cattle, pigs, sheep) was packed shoulder-to-shoulder in pens, foul with manure and urine. Wagons dumped heaps of vegetables, meat scraps, and bones anywhere convenient, at all hours of the day and night. All of it sat untended, unrefrigerated, exposed to flies, rats, roaches, pigeons, and coal dust, until common laborers, as filthy as Whitechapel, could haul it inside' (page 122). He describes workers arriving at five in the morning to butcher the meat, cut up the vegetables, and fill the cans. He tells how they return from 'the single communal privy in the back alley,' their hands and clothing soiled with bacteria-laden fecal matter. He presents a vivid image of the butcher's block: the 'slimy raw wooden surface was a massive bacterial colony' (page 126).

But where does he get all these details? Are they from the report of the Parliamentary Committee on preserved foods? Are they from contemporary newspapers? Are they extrapolated from the writings of Charles Dickens or some other novelist? Or are they the product of the author's imagination? The reader is bothered by an uncomfortable question throughout the text. How much is fact and how much is fiction?

In order to demonstrate that Arctic expeditions were often plagued by rotten food, Cookman quotes from 'a typical Admiralty report on the state of provisions remaining aboard the *Lady Franklin and Sophia*' after William Penny's search voyage of 1850–51. He writes (page 42): 'All the ships' biscuit, flour, and barley was found "Mildewed and damp." The salt beef and salt pork were "Discolored, stinking and unfit." Raisins were "moldy, unfit for service," the tea "Musty, to be destroyed," and peas "Mildewed and unfit."'

But, curiously, the Admiralty records seen by this reviewer tell a quite different story. According to 'A list of provisions and other stores landed at this yard from the *Lady Franklin and Sophia*,' compiled at the Deptford Victualling Yard in October 1851 (ADM 114/17), all the flour, beef, raisins, and tea brought back on Penny's ships was actually found to be in either 'excellent,' 'good,' or 'serviceable' condition, and only about 1% of the biscuit, 12% of the barley, 13% of the peas, and 20% of the pork was said to be 'mildewed,' 'discolored and sour,' or in any way spoiled. In other words, 100% of four food items, and from 80 to 99% of the other four items mentioned, were still suitable for consumption, whereas Cookman would have us believe that nothing was fit to eat.

Cookman's summary of the crews' origins and experience is interesting but marred by contradictions. After telling us that the crews (134 men) included only '8 experienced polar hands' (page 61), he names six

individuals who had served under James Clark Ross in the Antarctic (seven appear in Appendix 4), and adds that 'many' of the petty officers 'had probably experienced an Arctic voyage' (page 64). Surely this would have added up to more than eight with polar experience. He incorrectly states (page 62) that 'not a single officer with previous polar experience volunteered for the expedition.' (Cyriax listed seven.)

Other errors detract from the credibility of the author and the impact of the book. *Ice blink* — the book's title — is said to be a word for 'mirages, caused by light reflected off the pack ice' (frontispiece), but, strictly speaking, mirages are caused by refraction of light. The journal *Arctic* is not called 'Arctic Magazine' (pages xii, 235). The Arctic Council did not include Sir John Ross (page 71). The name of the whaling captain who spoke to HMS *Erebus* and *Terror* in Baffin Bay was not 'Dannert' (page 77), but Dannet (or Dannett), and the location of this meeting was not off the northeast tip of Bylot Island (map, page 77), but approximately 200 miles farther east. Skeletal material was not found on King William Island in 1981 by Beattie and Geiger (page 176); Geiger only helped write the book. If by the term 'lower Arctic' (page 135) the author means the vicinity of King William Island, 'right whales' (or even Greenland whales) do not occur there. Lieutenant Le Vesconte is misspelled 'Lt VesContes' (page 144), 'LesVesconte' (page 227), and 'LeVescontes' (page 242). There were not 'over fifty relief expeditions' sent out to find Franklin (page 205). The steam vessel *Rattler* did not tow Franklin's ships to Disco, Greenland (pages 206, 232), or even to a position between Ireland and Iceland (map, page 68). She turned homeward near the Orkney Islands. Twenty-four officers in a total complement of 134 does not mean that one out of every four men was an officer (page 210), but one out of every 5.6.

Despite the criticisms above, *Ice blink* is worth reading. It makes a number of thought-provoking points and includes some illustrations that have not previously been published. I enjoyed the description of the ships' hull strengthening and layout of space below deck; the information on accommodation, shipboard routine, and daily rations; and the analysis of engine power, coal consumption, and the consequent problem of keeping the ships warm in winter. In reporting wages and prices, Cookman should be warmly applauded for translating pounds, shillings, and pence of 1845 into the equivalent in US dollars today, so that the information means something to the reader. Cookman, who is described on the dust jacket as a non-fiction writer in Atlanta, Georgia, who has contributed to *Field and Stream* and other magazines, writes in a colourful style. He describes the Arctic archipelago as a 'madman's maze of islands, shallows, serrated coasts, dead-end inlets, and pack ice which capriciously yawned open and snapped shut,' and calls *Lady Franklin and Sophia* Cracroft 'orchids in Sir John's shade.' But did Jane Franklin ever stand in *anyone's* shade? (W. Gillies Ross, Department of Geography, Bishop's University, Lennoxville, Quebec J1M 1Z7, Canada.)