

Book Reviews

EDWARD WILSON'S NATURE NOTEBOOKS. D.M. Wilson and C.J. Wilson. 2004. Cheltenham: Reardon Publishing. 168 p, illustrated, hard cover. ISBN 1-873877-70-6.
doi:10.1017/S0032247405214626

For the average member of the reading public the name of Dr Edward Adrian Wilson (1872–1912) is commonly associated with Captain Robert Falcon Scott's Antarctic expeditions of 1901–04 and 1910–13, on the latter of which Wilson perished on the return from the South Pole. Today he is best remembered for his skills as an illustrator of Antarctica and its wildlife. Less well-known and greatly exceeding his polar output is his British artwork, a selection of which it has been the self-appointed task of the two Wilson brothers, great nephews of the artist, to assemble in this beautifully presented volume. In their introduction the compilers take pains to correct the notion propagated by some critics that, had Wilson survived the ill-fated South Pole journey, he might well have become a British wildlife artist of merit. This statement, they assert, is a nonsense, because, they state, 'this is precisely what he was.' During his relatively short lifetime, Wilson's natural-history art, which far exceeded in quantity his Antarctic work, was arranged scientifically in volumes known as his 'stock in trade,' all carefully indexed and 'exploding with drawing, notes and paintings.' Wilson's ambition was eventually to see them all published.

Following Wilson's death, it fell to his wife to sort into order the natural-history illustrations, by now 'in something of a mess,' and offer them to appropriate recipients. Two volumes in particular were reserved for the father of the two authors, Michael Wilson. These came to be known as the 'Nature Notebooks,' much treasured by the family and admired by visitors. Other notebooks were widely distributed; the 'British Mammals,' for example, was presented to the British Museum. The pictures selected for publication were then cleaned, photographed, and arranged chronologically so as to illustrate Wilson's development as an artist, in short 'a biography in pictures.' To enable the reader to view Wilson's Antarctic work as a part of his continuing development, two much abridged, illustrated accounts are included.

The main body of the text is divided into two parts subdivided into chronological periods. Part 1 covers the main episodes in Wilson's career up to the departure of the British National Antarctic Expedition in July 1901. Following the introductory matter, there follows a sequence of two-page accounts of Wilson's gradual progress from the nursery years onward to a time when his father, a local family doctor who, the authors assert, 'had a profound influence on his son's artistic activity teaching the importance of observing from nature itself.'

And nature was to be found in abundance in the local Gloucestershire countryside. Again and again throughout this book illustrations appear of these long-remembered and much-sketched scenes.

As a natural science student at Caius College, Cambridge, Wilson was presented with five volumes of Ruskin as a prize for passing his degree with first-class honours. Ruskin's views greatly influenced him. He determined to follow a medical career and accepted a post at St George's Hospital, London, where his talents were put to good use illustrating a volume on diseases of the liver. His depictions of the London scene, here reproduced, reflect a perhaps unexpected affection for the place. Much time was spent in art galleries studying the great artists, especially Turner, whose style he emulated. Eventually pressure of medical work and his numerous outside activities caused Wilson's health to deteriorate. Pulmonary tuberculosis was diagnosed and he was eventually dispatched to Norway and subsequently Switzerland to recuperate. A sequence of birds, beasts, and scenery are splendid souvenirs of this period of Wilson's life. Shortly after his return to London, he became engaged to Oriana Souper, whom he married prior to his departure for the Antarctic on Scott's *Discovery* expedition.

Following the return of the expedition in 1904, an exhibition was held in London's fashionable Bruton Galleries to celebrate the expedition's achievements. Wilson's pictures proved a major attraction, and from this time onward the public and the art world began to take a serious interest in his work, from which followed numerous commissions. One of these was concerned with research into a disease afflicting the Scottish grouse population, a labour that was to occupy Wilson until well after his departure on Scott's fatal last Antarctic expedition in 1910. Sadly, the compilers have been unable to trace the original plates and so have had to employ the far from satisfactory published work. A well-earned family holiday in Ireland resulted in some 12 pages of Wilson's pencil and watercolour sketches, eloquent examples of his increasing prowess and arguably his debt to Turner. The book concludes with a selection of Wilson's artwork for G. Barrett-Hamilton's *History of British mammals* (published 1910–21) and for Eagle-Clarke's revised version of Yarrell's *History of British birds*. Eagerly accepted by the publishers, Oliver & Boyd, it was subsequently rejected, no reason being given. The originals still await the interested scholar.

The book concludes with a select bibliography of recommended reading, including reports by Wilson, followed by a list of illustrations along with their provenance and date. Though modestly described by its authors as 'unashamedly non-academic,' this is a book that deserves to be placed in all appropriate libraries, public or private.

It constitutes a major contribution to our understanding of Wilson's artistic development and is very relevant to the art of the history of exploration. May we hope that these dedicated descendants of the artist may be moved to authoring a fresh and much-needed 'life.' (H.G.R. King, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER.)

THE FIRST RUSSIAN VOYAGE AROUND THE WORLD: THE JOURNAL OF HERMANN LUDWIG VON LÖWENSTERN (1803–1806). Translated by Victoria Joan Moessner. 2003. Fairbanks: University of Alaska Press. xxx + 482 p, illustrated, hard cover. ISBN 1-889963-45-3.

doi:10.1017/S0032247405224622

Letters and diaries appear to be the most authentic sources used in the history of science to trace the motives of different activities, experiences, and feelings of people living in the nineteenth century. Such sources are particularly valuable, as there are few of them available. That is why this reviewer, a historian of geography, is particularly glad that Victoria Joan Moessner, professor of German at the University of Alaska, Fairbanks, took up a very time-consuming work and translated into English the diary of the naval officer Hermann Ludwig von Löwenstern (1771–1836), who participated in the first Russian circumnavigation under the command of Captain Adam Johann von Krusenstern (1803–06). A manuscript version of this, in a mixture of several languages, is deposited in the Estonian Historical Archives in Tartu. This is not, however, the original version of the diary, but a rewritten copy of it. As the original has not been found, it is impossible to determine the state of the authenticity of the one preserved in Tartu. In the introduction, Moessner provides a brief account of the prehistory of Krusenstern's expedition and an excursus to the biography of Löwenstern, which is scattered and thus makes the obtaining of a true picture complicated. Moessner gives considerably more attention to the life and career of Löwenstern's sisters and brothers — who are not so important to the reader — than to the author and his diary.

Numerous official travel accounts as well as non-official information (correspondence, excerpts from the diaries of those having taken part in the expedition, etc) have been published on the voyage, but the diary by Löwenstern has and will always have a special place among them. It is a detailed document that contains important information on nations, ports, and marine regions of call upon the circumnavigation. It is a valuable source to cultural and scientific historians of different countries. Thus, it is understandable why interest in the publication of the very hard-to-read diary is so great. After many years, the first fruits, at last, are available to readers. Simultaneously with Moessner's translation, the Russian version of the diary (translated by Tamara Shafranovskaia) was published in Russia (Levenshtern

2003). A German version with extensive comments by Renate von Rappard is in a publishing house in Germany. In addition, the part of Löwenstern's diary concerning Japan is being translated into Japanese, and in Estonia there are people eager to publish it in Estonian.

Is this only of interest to historians of science? Definitely not. The diary of Löwenstern is also fascinating to readers who have no interest in the history of science, as the information provided is incredibly perceptive concerning the individuals and situations on the Russian flagship *Nadezhda* during the trip. It is also very exciting reading material for those who want to know how 61 men with various social backgrounds, educational levels, and differing ambitions managed to live together in a limited space for three years. But not all the members of the crew *were* suited to live together, and thus, during the long voyage, it is not surprising that altercations sometimes arose even for the most petty of reasons.

Tensions on the ship were not always caused by personal contradictions, but sometimes because of political uncertainty. Who was the actual leader of the trip? Was it Krusenstern, who was the initiator of the expedition, or Nikolai Rezanov, who represented the interests of the Russian-American Company? German-language scholarly publications (especially Baltic German ones) accept Krusenstern as the leader (compare, for example, Krusenstjern 1991). In the Russian-language literature, supporters of both Krusenstern (Paseckij 1974) and Rezanov can be found (Avdyukov and others 1995; compare also page 441, endnote 1).

In the introduction, Moessner does not provide a clear answer to the questions concerning the expedition's leadership. This is, in part, due to indications that Russian censors — on the orders of Tsar Alexander I — crossed out anything related to conflict on the ship in the writings of Krusenstern and Yuri Lisianski, the captain of *Neva*, in order not to damage the 'reputation of Russia in Europe' (page x). On the other hand, there is little cited knowledge of German and Russian sources. Although the tsar was almighty in the Russian Empire, the statement that conflicts were initially described by Krusenstern and Lisianski requires unambiguous proof.

The author of this review does not know whether questions about the leadership of the expedition could legitimately be answered or not. But insufficient disclosure of the reasons, nature, and results of the conflict produces an impression to an English-language reader that Löwenstern was completely on the side of Krusenstern in the conflict. Thus, it would be helpful if light could have been shed upon the situation.

Krusenstern compiled a plan for the circumnavigation in 1799 and presented it to the Minister of the Navy in 1800. Although the latter was not interested in the project, aspects of the plan became known to others in high naval circles. When Tsar Alexander I came into power in 1801, the circumstances regarding the higher authorities changed. In 1802, Krusenstern presented his project to the Russian Admiralty for the second time, emphasising the

importance of increasing trade with China and India. The plan required regular supply of Kamchatka and Russian Alaska by sea and not overland through Siberia as in the eighteenth century.

The new Minister of the Navy was most positive, particularly about the scientific grounds of the project, and informed the Minister of Commerce, Duke Nikolai Rumyantsev, about it. The latter believed that such expeditions and the development of trade contacts with China and India would help keep Russian America and Kamchatka under control, which otherwise might be difficult. Thus things began to happen very quickly.

Rumyantsev informed the leaders of the Russian-American Company about Krusenstern's plan. However, simultaneously a second plan for a circumnavigation had been submitted to the Russian-American Company. Its author was Gavriila Sarychev, and its concept was to send an expedition with vast amounts of supplies around Cape Horn with the aim of developing Okhotsk, the only port on the coast of the Sea of Okhotsk. Through this port, the Russians would establish trade contacts with Japan and China (Ioffe and Spiridonova 1994: 32–34).

Alexander I preferred Krusenstern's plan, as did Rumyantsev. On 7 August 1802, the tsar signed a ukase according to which Krusenstern was to become the commander of the first Russian circumnavigation, to be financed equally by the government and the Russian-American Company. This ukase spoiled the relationship between Krusenstern and ambitious Sarychev forever, whereupon Sarychev succeeded in taking his revenge. In short order, the plan of the circumnavigation drawn up by Krusenstern was changed by high officials. A new item, the establishment of diplomatic relations with Japan — which had been put forward in the project by Sarychev — was included in the expedition instructions of February 1803 at the initiative of Rezanov, representative plenipotentiary and main stockholder of the Russian-American Company, and with the consent of Rumyantsev (Levenshtern 2003: 485). The tsar appointed Rezanov the leader of the diplomatic mission to Japan in June 1803 and, according to the instruction of 10 July 1803 compiled by Rumyantsev and confirmed by Alexander I, he was appointed the general leader of the expedition (Levenshtern 2003: 488). On 26 July, the expedition departed.

Thus, the voyage had from its beginnings the makings of major problems, as Krusenstern — who was responsible for the ships and safety of the voyage — had to contend with Rezanov, who was his superior in authority and rank. Today one might marvel how such a situation could have been allowed to be created, as Rumyantsev was one of the most faithful supporters of Krusenstern. In my opinion, the only reasonable explanation is that Rumyantsev — who was an educated and clear-sighted politician, but who appointed Rezanov the leader of the expedition — had never been to sea and, consequently, was not aware of the common rules of power and conduct that apply on a ship. He did not know what kind of

consequences the delegation of power to Rezanov would bring about. The latter, undoubtedly, wanted the power and considered himself the natural leader. That kind of power, however, was useful neither to Rezanov nor to the expedition as a whole.

Although Rezanov was officially appointed the expedition leader, the author of this review maintains that the real leader was Krusenstern, captain of the expedition ships. He had put forward the idea of the expedition and, regardless of the difficulties and stress, successfully carried it out. Although Rumyantsev later showed his belief in Krusenstern by appointing him his right-hand man for resolving a variety of geographical problems (such as that of the Northwest Passage), Alexander I never recognised the significance of the role he played. The reader of this English version of Löwenstern's diary learns about the many consequences of having two men in such conflict aboard the expedition ship, but also about many interesting matters such as personal relationships, surveys of cultural information obtained, and various surrounding events in the nineteenth century.

In conclusion, it should be pointed out that, differently from numerous books in English, Moessner has retained the original spelling of the personal names of Baltic German seafarers (for example, Krusenstern, not Kruzenshtern as transliterated from Russian). This is a quite rare, but much appreciated, practice in English-language literature about the subject. (Erki Tammiksaar, Baer-Museum, Veski Str. 4, EE51005 Tartu, Estonia.)

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POLAR CASTAWAYS: THE ROSS SEA PARTY (1914–17) OF SIR ERNEST SHACKLETON. Richard McElrea and David Harrowfield. 2004. Christchurch, NZ: Canterbury University Press; Montreal and Kingston: McGill-Queen's University Press. 315 p, illustrated, hard cover. ISBN 1-877257-26-5.
doi:10.1017/S0032247405234629

This book is much the fullest account to date of that paradigm of Antarctic misery: all that befell Shackleton's other men on his Imperial Trans-Antarctic Expedition, the support party from *Aurora* on the far side of Antarctica. It presents the grim chapters of accidents and mistakes of the party that successfully laid depots of food and fuel in flagged cairns eight feet in height, expecting Shackleton and his sledging party from the Weddell Sea to arrive from the Pole on the last stage of the trek to 'secure for the British flag the honour of being the first carried across the South Polar Continent.' The intention was also for them to chart, sound, and survey the Ross Sea quadrant. The story of their fate was initially overshadowed on their return by the world's preoccupation with the closing stages of the Great War and then again by the terrible glamour of the story of the *Endurance* party and their heroic rescue by Shackleton. The authors say that the men were effectively made castaways a second time in this way by forgetful history; they aim to give the Ross Sea party a full and truthful history with honour at last. This thorough and meticulously referenced piece of research has been in the writing since the 1970s, and has remarkably good maps. The book claims to fill one of the last major gaps in the literature of the 'Heroic Age' of polar exploration, which ended on the return to Wellington of Shackleton's Ross Sea rescue mission on 9 February 1917.

Shackleton dedicated *South* (1919) to his three Ross Sea 'comrades' who 'fell in the white warfare of the south' and to those who later fell in 'the red fields of France and Flanders'; he also devoted a quarter of his narrative to the Ross Sea party. They achieved their objective in spite of *Aurora* being swept away by a blizzard from its winter moorings in May 1915 after it was beset in the ice and they feared it would be crushed. John King Davis, the formidable and remarkable captain of the relief voyage, later said that he thought Captain Joseph Russell Stenhouse of *Aurora* had shown inexperience and lack of judgment in making the decision to steam home after drifting 490 miles dodging bergs and growlers. The men on *Aurora* improvised in the course of this journey a remarkable jury-rigged rudder to replace the smashed one. The supply ship had unloaded a futile Girling motor sledge, but went adrift with much essential clothing for the men and food for the depots (and all their tobacco). The ship's cargo was already missing some of the original supplies, such as boots, which had not been stowed at Hobart, and they had to scrounge supplies (still inadequately) from what was left in Scott's and Shackleton's huts by the *Discovery*, *Nimrod*, and *Terra Nova* expeditions.

Shackleton wrote that there was 'no more remarkable story of human endeavour' than their six-month-long march returning from the 80°S depot, the unspeakable calamitous sledge journey over the hellish autumnal Barrier. This was 'the dead dog trail,' with frost-bite, scurvy, snow-blindness, and 'the utter weariness of overtaxed bodies' resulting in both the tragic death of the sensitive and intelligent 'Padre,' Arnold Spencer-Smith, just 20 miles — or a day's journey — from Hut Point, and the collapse of Aeneas Mackintosh. Spencer-Smith had been ordained five days before the expedition and was appointed as chaplain and photographer. 'Fiat voluntas Dei,' he wrote in his dying entries in his diary. The party set out at the end of January 1916, and had had no fresh food since 9 October the previous year. Ernest Wild suffered excruciating pain on putting his frost-bitten finger over the lighted Primus, and one of his ears turned pale green. Ernest Joyce published from his sledging diaries one of the most remorseless and harrowing books in the world, *The South Polar trail*, in 1929, now a rare book.

The veteran survivor of the Ross Sea party, Dick Richards — who died at the age of 91 in 1985 — wrote himself on their experiences, corresponded with Roland Huntford, gave much original material for Lennard Bickel's lively journalistic narrative with dialogue, *Shackleton's forgotten argonauts*, and again contributed greatly to the information in this new academic study and saw some early drafts. Kelly Tyler is now also at work on a new book about the Ross Sea party.

Shackleton in *South* glossed over his dramatic disagreements with the New Zealand and Australian authorities who were organising the *Aurora* relief expedition, and the account of these at the end of the new book is fascinating. He declared in *South* that he 'had not anticipated that the work [of the Ross Sea party] would present great difficulties' on the route he had pioneered in 1908. However, his experience on the relief party, the three deaths, and the men's stories gave him deep anguish. The current book shows how cavalier he was in expecting the New Zealand and Australian governments to foot bills and perhaps (though grievously debt-ridden) in accepting their help. He accepted the inevitable, however: although *Aurora* was still legally owned by him, he had to agree with the government to 'sign on' under Davis for the relief expedition, and to take charge of shore operations alone, which he did with good grace.

Shackleton did not record in detail the moving scene of the rescue of the Ross Sea party and four of the 26 dogs, an ironic contrast to the Elephant Island rescue. Shackleton and two others in the rescue party, Morton Moyes and Frederick Middleton, lay down by prearranged signal to indicate the number of the dead to Davis, who was watching the scene through a telescope back on *Aurora*. In discussing the misfortunes of the party, Shackleton put his finger on the lack of training before they set out to lay depots — their given time to lay the depots was too short, these authors conclude — and inexperience with the dogs. The men underestimated the dogs' diet and carried

twice the weight on the sledges that Amundsen took; Shackleton's phrase for them, 'not in the best of training,' is understated, as he must have known. The dogs should initially have had three weeks to recover their feet, raw after the sea journey. Shackleton wrote to his wife that 'Mackintosh seemed to have had no idea of discipline or organisation and it required all the tact I possessed to square things up. He had made a very bad impression in Australia by the way things were run at the start, but poor chap he is dead through his own carelessness and I wont [sic] say any more' (quoted in Huntford 1985: 642).

Only Joyce, Mackintosh, and Ernest Wild had previous Antarctic experience. Wild was, of course, Frank Wild's brother, and both were plucky and optimistic; Ernest was said to be 'always merry and bright.' Hayward had worked as a dog-driver on Canadian ranches. There was no surgeon — Macklin was originally on the Ross Sea list — although John Lachlan Cope, a Cambridge botanist (who became deranged) was said inaccurately to be a Bachelor of Medicine by the *Sydney Morning Herald*. All had to learn to put up the tents (designed by George Marston) on the spot.

Davis judged the expedition as 'haphazard and badly disorganised.' Blame for the mistakes that compounded the bad luck of the party seems now to lie with lack of experience and the headstrong and weak leadership of Mackintosh, and in particular his folly in the loss of his own and Hayward's life. They crossed new sea ice four inches in depth too late in the day from Hut Point and ran into a blizzard that swept them out to sea; from this book their motive seems to have been to find less squalid quarters in the hut at Cape Evans. The others told Mackintosh he was taking a risk and felt that they had dragged the two back from death only to lose them by this foolhardy attempt. The men fell out badly over the making of decisions, particularly about sledging weights and distances; from the account of the very first few days they were taking risks that one cannot imagine Shackleton allowing to happen. Shackleton undoubtedly made a mistake in appointing Mackintosh (who was originally down to cross the continent with Shackleton from *Endurance*) to lead the party. There is a suggestion that he did this in the knowledge that Mackintosh's poor judgment almost cost two lives on the *Nimrod* expedition, and in recompense for Mackintosh's loss of his right eye from a cargo hook when second officer on *Nimrod* in 1908. A grotesque detail from this book is that on the trail his glass eye froze over, and had to be taken out. Shackleton certainly also seriously undermined the welfare of the party by providing insufficient funds. That he felt responsibility as well as extreme grief for the deaths is shown here.

The book seems mostly dispassionate and balanced, but suffers from an unfair bias against Ernest Joyce, whose *The South Polar trail* admittedly presents him in an exaggeratedly good light. The authors seize on a discrepancy between Joyce's account of the chain of command, and of the exact terms of his appointment by

Shackleton and its responsibilities, and the version given in a contemporary newspaper. I am not so convinced that Shackleton would be entirely consistent, and this would also mean that Joyce forged Shackleton's letter printed at the beginning of *The South Polar trail*. When a photograph of Joyce appears in the section of illustrations the authors' caption reads: 'Joyce seriously misrepresented the terms of his appointment to the Ross Sea Party'; for anybody who casually picks up this book and glances through the picture section, this information would stick in their mind while the noble endurance and leadership shown by this explorer, of whom it was said that he should have lived 'in the time of Drake,' becomes interred with his bones.

A more general failure of this book is not to bring us a more generous sense of the characters in the party, for example by more quotation and telling anecdotes. The book cannot be faulted, as far as I can tell, for its painstaking establishing of facts; the authors have read and compared every scrap of the surviving records, spread far and wide, including a diary and letters in a shed in New Zealand and some that were formerly 'under strict embargo.' The authors in their aim to be 'definitive' record the name of the firm that supplied a solar-radiation thermometer and mention a gift of a dozen eggs on their setting out; more attention to the protagonists would have made this a more genial book. The story picks up, unsurprisingly, after its account of the wretched final months spent in the hut with the return of Shackleton, determined to relieve his men, fighting against New Zealanders and Australians who were determined not to let him take command with his reputation for irresponsible finance; there are moments of comedy at this point. The many resentments and quarrels among the party had involved an element of tension between the British members of the party and the New Zealanders and Australians; the authors cannot conceal traces of chauvinism. Richards wrote in a letter to Huntford that the Australians 'heard a lot about Shacks when we were marooned. The British contingent were loud in his praise but we Australians would not have a bar of this hero worship. We had heard a good deal of the muddle in Sydney and we were not impressed with his choice of Mackintosh as leader . . .' but 'when we met him and were exposed to the full force of his personality we became as staunch admirers of Shackleton as the others from England' (quoted in Huntford 1985: 640).

Small points to tidy up for a second edition: 'consuming pemmican' (page 106); 'there they were laid up there for a week' (page 146); and 'Lady Emily Shackleton' (page 210). (J.R. Piggott, Dulwich College, London.)

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ARCTIC ECOLOGICAL RESEARCH FROM MICROWAVE SATELLITE OBSERVATIONS.

Gennady I. Belchansky. 2004. Boca Raton, Florida: CRC Press. 231 p, illustrated, hard cover. ISBN 0-415-26965-2. US\$99.95.

doi:10.1017/S0032247405244625

Microwave remote sensing has been applied since the 1940s when the military began using it for navigation and target location. Beginning as early as the late 1960s, however, the use of microwave remote sensing for different ecological research became more apparent, and several systems such as airborne microwave and side-looking radar were being used for studies involving sea-ice surface, vegetation, terrain, and integrated landscape analysis. This was expanded upon in the early to mid-1970s with the launch of the NIMBUS, GOES, and DMSP satellites, and the RADSCAT radiometer on Skylab. These have since been followed by 'next' generation microwave and active radar satellites such as the US SEASAT; European ERS-1, ERS-2, and ENVISAT; Canadian RADARSAT-1; Japanese JERS-1; and the US Space Shuttle Imaging Radars. Until relatively recently, most of the microwave systems that were known to the general scientific world were those produced by the western nations, with little known about those from Russia. As such, this book by Gennady Belchansky offers new light into the types of Russian data not normally available or known about to most western scientists.

As a whole, most chapters were written almost as stand-alone entries that could be used independently of the others, and, for the most part, a reader interested in any one chapter could obtain information about the subject matter without having to read the others. In some places, the author utilizes both microwave and visible and infrared sensor channels in the example studies being described. It should be noted that readers of this text should have a strong fundamental background in remote sensing, or better, microwave and radar systems.

Chapter 1 begins by presenting a very brief introduction to Arctic ecological problems and the role satellite remote sensing can have for monitoring of Arctic ecosystems, and provides a good introduction to the subject matter. It offers good definitions of most terms used in microwave and radar remote sensing but is lacking in others. As a prelude to future chapters, it contains a mixture of complex formulas and descriptive text about microwave and radar processing.

Chapter 2 provides a very good overview of Russian satellites, which is not easily found in the general literature where satellite systems of other countries are normally described. This chapter provides a summary of the main characteristics and applications of the KOSMOS-

OKEAN, ALMAZ, and RESURS-ARKTIKA Russian satellite series. To a lesser extent, it also describes and compares the characteristics of western satellites such as the US Nimbus-7 Scanning Multi-channel Microwave Radiometer (SSMR); the Defense Meteorological Satellite Program Special-Sensor Microwave Imager (SSM/I); and the National Oceanic and Atmospheric Administration (NOAA), Advanced Very High Resolution Radiometer (AVHRR) satellites. The chapter also describes the US SEASAT satellite and the different US Space Shuttle Imaging Radars (SIR). All of these are of particular interest to the Arctic and boreal research community, except for the SIR C/X synthetic aperture radar, which is unavailable north of 57° latitude because of the orbital pattern of the shuttle.

Chapter 3 describes the use of the Russian OKEAN satellite with ground base data to monitor sea-ice concentrations and temperatures in relationship to movements of polar bears over the Arctic sea ice. Without a strong mathematical background, this chapter is a little hard to follow but otherwise represents some results of how these types of data can be correlated to movements of polar bears.

Chapter 4 provides examples of Arctic sea-ice variability studies using active radar and passive microwave satellite measurements taken by the Russian KOSMOS, OKEAN-01, and ALMAZ satellites. Methods for sea-ice concentration are mentioned to a limited extent, but the chapter deals primarily with temporal trends (20 years) of the minimum and maximum sea-ice extent in the Barents and Kara seas. Although useful for a number of ecological studies (for example, maximum and minimum sea-ice extents in relationship to sea bird and mammal research), little is mentioned in that regard.

Chapter 5 gives the comparative analysis of multi-sensor satellite monitoring of Arctic sea-ice habitat using OKEAN-01, SSM/I, and AVHRR satellite instruments. The chapter provides a fair amount of information and a good overview of system data processing and comparisons between sensor outputs, perhaps more than needed for an ecological review of the uses of the data. Although a strong background in radar remote sensing may be necessary to understand this chapter completely, it does provide a good review of different systems for monitoring sea-ice conditions, albeit little to no information on actual use of the data is presented.

Chapter 6 offers an example of a boreal-forest habitat study using OKEAN-01 satellite data. Algorithms are used to classify satellite multi-spectral and microwave data into groups corresponding to a minimal number of broad boreal-forest types. Many of the graphics would be more usable in color or in more distinguishable black-and-white classes; as such, much detail was lost in their reproduction. The chapter does, however, allude to the potential uses of these types of data in boreal ecosystems.

Chapter 7 describes the evaluation of the relative information content of ALMAZ-1, ERS-1, JERS-1, SAR, and Landsat-TM multi-spectral satellite data for identifying wet tundra habitats. This chapter provides some useful

information about the ability of SAR data to separate tundra classes. Results indicate that some data types work better than others, thereby providing the scientist with an indication of the pros and cons of using the data; it would have been nice if the author pointed this out in the conclusions. A missing piece of information is apparent in one of the figures, where an output from the ERS data does not show any water on the image, but is shown on other image examples.

Chapter 8 describes the influence of data-focusing parameters on the efficiency of mapping tundra habitat using ALMAZ, ERS, JERS, and RADARSAT SAR imagery in northern Alaska. The focusing algorithm allows for the control of spatial resolution by means of multiple-look techniques and provides a set of window functions for the flexible adjustment return patterns. It points out the improvement that filters and look angles provide to the images and their use. This would have been better presented as one of the initial chapters in the book, because it breaks up the flow as one reads the book.

Chapter 9 is one of the better chapters on using satellite microwave imagery and radar data for ecological analysis. It describes radio tracking of polar bears using satellite telemetry to determine their locations throughout the year in relationship to changes in the parameters of Arctic sea-ice parameters (drifting pack ice movement and direction). Image data used in the project were collected by Russian OKEAN-01 and US DMSP SSM/I instruments.

Chapter 10 is an odd ending to the book. It is interesting in terms of vegetation classification using the Braun-Blanquet system, it provides no direct links to microwave remote sensing, except for one sentence in the introduction where the need for multi-angle data is mentioned. Unfortunately, there is no mention of its use for identifying the vegetation types described, and it should not be part of the book in its current form.

The book's title appears to offer at face value a synopsis of the role of microwave satellite data in various types of Arctic ecological research. Although this is true to some extent, I found the book to be lacking in that respect, and, in the last chapter, totally absent. As stated in the preface, however, it provides useful information to undergraduate and postgraduate students who specialize in microwave techniques, and provides ecologists interested in applications of microwave active and passive remote sensing a potential source of new information about the Arctic, particularly with regard to Russian satellites. (Carl Markon, USGS/Alaska Geographic Science Office, 4230 University Drive, Suite 230, Anchorage, Alaska 99508-4664, USA.)

THE ANTARCTIC JOURNALS OF REGINALD SKELTON. Judy Skelton (Editor). 2004. Cheltenham: Reardon Publishing. 232 p, illustrated, hard cover. ISBN 1-873877-68-4. £60.00.
doi:10.1017/S0032247405254621

In recent years a number of books have been published that specifically examine the British National Antarctic Expedition (BNAE) of 1901–04, perhaps the most notable being those by Tim Baughman (1999) and David Yelverton (2000). These accounts have drawn much-deserved attention to the first expedition led by Robert Falcon Scott, which was the progenitor to the expeditions organised in the ensuing dozen or so years by Ernest Shackleton, Douglas Mawson, and, of course, Scott himself.

The general outline of Scott's first expedition is too well-known to readers of *Polar Record* to need to be recorded here, but, as is the case with all of the expeditions of the 'Heroic Age' of Antarctic exploration, there are always more fascinating details to be learned. *The Antarctic journals of Reginald Skelton*, edited by Skelton's granddaughter Judy, gives an excellent and most entertaining opportunity to do just that.

Skelton had been one of Scott's shipmates on HMS *Majestic* before, in 1900, the new commander of the BNAE selected him to be chief engineer for the expedition ship *Discovery*. He quickly became a key figure in helping to put the components of the expedition together, not only going to Dundee to oversee the installation of the machinery in *Discovery*, but eventually being involved in the arrangements for the expedition's stoves, lamps, tanks, petroleum storage, requirements for icebreaking, and numerous other responsibilities not normally under the charge of a chief engineer. He was also named the expedition's official photographer, a role that proved of much greater significance than on any previous Antarctic expedition.

This book is a transcription of Skelton's Antarctic journals, beginning with the construction of *Discovery* in 1900 and ending with her return home after the expedition in 1904. It details the voyage to the south, the establishment of the base on Ross Island, the early sledging trips and the first winter, and Skelton taking the first photographs ever of emperor penguin chicks. It also addresses Skelton's participation in the first attainment — by a party under Albert Armitage — of the Polar Plateau, the inability to free *Discovery* from the ice and the subsequent second wintering, and his inclusion on a second western journey prior to the ultimate relief of the expedition by *Morning* and *Terra Nova*.

Small selections from Skelton's journals have previously been published in a variety of accounts, but the entirety of his writings has never been available before, unless one had the freedom to pore over the seven volumes of his *Discovery* journals kept safe in the Archives of the Scott Polar Research Institute. Having tried just that for my own research — and having been confronted with handwriting that is not the easiest to read — I appreciate both the mammoth task in which the editor engaged to transcribe these volumes and the huge value of having an easily available account by this key member of the expedition.

The book has a short introduction by the editor, but does not have the detailed annotation that is often to be

found with recently published personal accounts from other expeditions. However, such literary apparatus is not necessarily required here, as Skelton's account is exceptionally straightforward. It is also accompanied by a marvellous selection of his photographs, which combine to tell the tale of the BNAE from his perspective in a most effective manner. Included are a number of incidents — or viewpoints about them — that are perhaps less familiar to the non-polar specialist. In early May 1902, for example, the windmill — which since its erection in February had been an unceasing source of extra work for the engineering staff and an annoyance to Skelton, since he effectively had to humour Scott over a project in which he had no faith — was more or less destroyed in a gale. 'I believe it has smashed itself up decently this time,' he recorded on 2 May, seemingly split between being perturbed and relieved, 'at least I hope so, though it is disappointing to have had all our work for nothing.' Almost three weeks later, on 21 May, he still appeared pleased by the destruction of his nemesis. 'It is a jolly good thing the windmill is done for,' he wrote. 'We should never have had a moment's peace.'

Skelton's account of his participation on the first journey through the western mountains under Armitage is also of great interest. This sledging journey has long been overshadowed by accounts of the southern push by Scott, Shackleton, and Edward Wilson, which took place concurrently. Little original source material about this part of the expedition has been available to the general reader, and even the recently published diary of Lieutenant Charles Royds (Royds 2001), despite all of its other useful commentary, has not proven particularly helpful about this sledge trip, as Royds remained in charge of the Winter Quarters during this period. But Skelton gives a first-hand, day-to-day version of that important sledge journey, illustrated by more of his photographs.

For the historian, there is a great value in the publication both of Skelton's journals and of his photographs. Moreover, this value is increased by the superb production qualities that appear in this book. In recent years Reardon Publishing has published several significant books that are also exceptionally beautifully designed works of art, including *Discovery illustrated* (Skelton and Wilson 2001) and *Edward Wilson's nature notebooks* (Wilson and Wilson 2004). In the current volume, the editor and the publishers are to be congratulated on producing yet another work that so combines historical significance and quality production. (Beau Riffenburgh, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER.)

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ALASKA'S HIDDEN WARS: SECRET CAMPAIGNS ON THE NORTH PACIFIC RIM. Otis Hayes Jr. 2004. Fairbanks: University of Alaska Press. xvii + 182 p, illustrated, soft cover. ISBN 1-889963-64-X. US\$19.95.
doi:10.1017/S0032247405264628

This reviewer's irritation with this book started even before he had seriously opened it. On the very first page, after the title page, we find a dedication to 'the Americans and Japanese who served in the North Pacific.' Of course, an author may dedicate a book to his cat if he wishes, and it is, perhaps, unfair to cavil, but this dedication seems to imply that the efforts of the Canadians and the Soviets, both of whom participated in the war in the area, were in some sense less worthy of record than those of the dedicatee nations.

It is, of course, well known that there were serious hostilities on what one might call the northern front in the Pacific during the Second World War. This book is definitely not a history of those campaigns, but rather a series of images and incidents relating to them. Indeed, a reader who picked up this book and was not already knowledgeable about the outlines of the strategy of the Japanese and of the Allies, and who did not have at least a nodding acquaintance with Soviet/Japanese relations during the period in question, would not only be none the wiser after reading it but only marginally better informed.

But it has to be said that a person who *was* equipped with the outlines of the story would find much of interest within it, as indeed did this reviewer. It is divided into two main parts. The first is a section entitled 'The Aleutian Islands 1941–1943,' while the second, and much longer, is 'The Kurile Islands 1943–1945.' In the former the reader will not find serious details of the Dutch Harbor, Attu, or Kiska operations — indeed the former is not marked on the one map in the book — or of the spectacularly successful evacuation of the latter by the Japanese in 1943. What there are, however, are interesting accounts of the security measures imposed by the Americans in Alaska and on the duties and effectiveness of Nisei who joined the US forces. The section concludes with a chapter concentrating on the diary of Dr P.N. Tatsuguchi, a medical officer in the Japanese service on Attu, who was a Christian and who had been educated in the United States.

The Kuril section of the book contains much about US air operations from Alaska over the northern Kurils, including an account of US prisoners held there and interned in Kamchatka, a section on American

information-gathering about the difficult northern weather, American deception measures in the area, an interesting account of the Japanese Fu-Go balloon weapons, and mention of lend-lease to the USSR. There is very little on Soviet/Japanese hostilities in the Kurils, which although peripheral with regard to the title, ought to have been included for the sake of completeness. However, a disproportionate amount of the text is devoted to a month-by-month account, with numerous direct quotes, indicating the sheer tedium endured by US garrisons in the Aleutians, with the concomitant effects on morale. This consumes 20 pages of a book with a text of a mere 127 pages, the rest being appendix, index, and critical apparatus, and could be replaced by one sentence: 'In the absence of anything to do beyond routine, US military personnel in the Aleutians and adjacent parts of the Alaskan mainland became bored and morale suffered.' One does not understand why this section is in the Kuril part of the book.

There are appendices setting out a roster of Nisei who served, on propaganda leaflets, on the translation of the Tatsuguchi diary, and on signal intelligence operations. The book has some interesting illustrations and an inadequate map.

The 'secret campaigns' of the title boil down to a series of more or less disconnected sections of text on lesser known aspects of the war that interest the writer, and on which he had access to the archives. It does not seriously refer to 'secret' aspects of the war as perceived by the Japanese or Soviets, which might have impinged on the 'Alaska' of the title. The casual reader might well think that the 'secret' refers to the fact that the war in the north is remarkably ill known in comparison to the hostilities farther south in the Pacific, and to expect an overall account of the 'campaigns.' It would have been much better for this to have been made explicit in the title so that potential readers would not be misled. The book should have been structured as a series of essays, each of which presented greater detail than is the case here. Then it would have been a much more useful contribution to the history of the north Pacific than it is. (Ian R. Stone, Laggan Juys, Larivane Close, Andreas, Isle of Man IM7 4HD.)

WITH SCOTT TO THE POLE: THE *TERRA NOVA* EXPEDITION 1910–1913. Beau Riffenburgh, Liz Cruwys, and H.J.P. Arnold. 2004. London: Bloomsbury. 240 p, illustrated, hard cover. ISBN 0-7475-6968-1. £35.00.

doi:10.1017/S0032247405274624

This book celebrates two important men: the polar explorer Captain Robert Falcon Scott, who, on his second attempt, reached the South Pole in 1912, but without priority, and perished on the return journey along with four comrades; and the distinguished camera-artist Herbert Ponting, recruited by Scott to create photographic images of Antarctica. It is essentially a collection of the superb

black-and-white photographs of Ponting, taken of the voyage of *Terra Nova* to the Ross Sea, the preparations in the base hut and around Cape Evans, and of the preliminary journeys across the icy wastelands. Ponting was not a member of the polar party, but gave clear instructions to Scott and his fellow explorers to record their crossing of the ice of the Polar Plateau and at the South Pole. These now familiar photographs have also been included in this work.

The volume is a feast of Antarctic photography, each picture beautifully composed and executed by Ponting; some have been published before, but many will be new to most readers. All are published in wonderful clarity, often in whole page format, or spread across two large pages. The publishers and printers are to be congratulated on the uniformity of texture and tone of the illustrations throughout the book; essentially the photographs are in black-and-white, as colour photography was then in its infancy, but monochrome is peculiarly well-suited to landscape pictures of rocks, sea, and ice. There is only one (outstanding) picture in colour.

Ponting himself published an illustrated account of the expedition in 1921, *The great white south*. In the introduction to that book, Captain Scott's widow Kathleen quoted what her husband had written in his diary, 'Ponting is the most delighted of men; he declares this is the most beautiful spot he has ever seen, and spends all day and most of the night in what he calls "gathering it in," with camera and cinematograph. Of the many admirable points in his work perhaps the most notable are his eye for a picture and the mastery he has acquired of ice subjects. The composition of his pictures is extraordinarily good; he seems to know by instinct the exact value of foreground and middle distance and of the introduction of "life," whilst with more technical skill he emphasises the subtle shadows of the snow and reproduces wonderfully transparent texture.' All of Scott's praise of Ponting can be traced in this volume.

But this is not just a gallery of photographs: Beau Riffenburgh and Liz Cruwys have added three clearly informed chapters of comment and explanation, and the distinguished photographer H.J.P. Arnold has written a chapter of biography on the life of Ponting. Those readers familiar with the story of *Terra Nova* might feel disposed, before turning to the earlier narrative, to read first this biographical chapter about Ponting's discovery of photography in California, where he specialised in stereographic reproductions, and his subsequent work in Japan, before he went to the icy landscapes of Antarctica.

The work falls into three parts: a section of narrative, the Ponting portfolio of more than 100 pages of photographs, and a gallery of more than 300 catalogue pictures not shown elsewhere in the book and arranged under the headings 'Terra Nova,' 'Portraits,' and 'Antarctic animals.' The illustrations of the first three chapters are taken from the photographic archives of the Scott Polar Research Institute and the Royal Geographical Society (RGS), and are of earlier expeditions, including Scott's

Discovery and Shackleton's *Nimrod* expeditions, as well as those of Carsten Borchgrevink and Adrian de Gerlache. The text covers the establishment of the bases at Cape Adare, Hut Point, Cape Royds, etc; the attainment of the South Magnetic Pole; and the first ascent of Mount Erebus. In the chapter entitled 'Scott's fateful expedition,' the poignancy of the British assault on the Pole is dealt with in great clarity and sensitivity, and the tragedy of the return journey is told. In the third chapter, 'A tale of endurance and courage,' the authors recount the horrendous conditions of the Northern Party under Victor Campbell, who had also been given up for lost by those at the base hut. Riffenburgh and Cruwys do not attempt to avoid the current controversies over the imponderable questions as why Scott chose to take, at the last moment, five to the Pole instead of the original four, and why he directed Bowers and the other members of Teddy Evans' sledging party to leave behind their skis for the last part of the journey across the Polar Plateau. But they deal sympathetically with the problems and conclude, 'Both criticism and excess praise are easy to give in hindsight.'

The Ponting photographs have also been taken from the archives of SPRI and the RGS, and, by a happy chance, as the book was published the University of Cambridge announced a grant of £533,000 from the Heritage Lottery Fund towards the purchase of the original Ponting glass-plate negatives to be conserved in the photographic archives of SPRI.

All polar bibliophiles will want this book, especially as it is so modestly priced — the book bargain of the year! (Peter Speak, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER.)

CULTIVATING ARCTIC LANDSCAPES: KNOWING AND MANAGING ANIMALS IN THE CIRCUMPOLAR NORTH. David G. Anderson and Mark Nuttall (Editors). 2004. New York and Oxford: Berghahn Books. xiii + 238 p, illustrated, hard cover. ISBN 1-57181-574-0. £40.00; US\$59.95. doi:10.1017/S0032247405284620

This edited work contains one of the most interesting sets of northern papers to appear in a very long time. The volume has its origins in a panel discussion held at the Twelfth Inuit Studies Conference. These papers (by Peter J. Usher, David G. Anderson, Natasha Thorpe, Patty A. Gray, and Murielle Nagy) have been supplemented by equally excellent contributions from Robert P. Wishart, Hugh Beach, Craig Campbell, Julie Cruikshank, Ivar Bjørklund, and Frank Sejersen (plus a forward by Tim Ingold and epilogue by Mark Nuttall). Together, these contributors give *Cultivating Arctic landscapes* real circumpolar sweep, both geographically and intellectually.

The theme of the core papers is indigenous hunter/herder and state scientific knowledge about *Rangifer*. However, this is far from the usual TEK collection; importantly, these papers provide understanding about

caribou and reindeer in terms of cultural process (see especially Thorpe, Wishart, and Nagy) and political ecology (Usher, Campbell, Gray, Beach, and Bjørklund, although 'cultural process' underlies these papers, too). Additionally, Cruikshank and Sejersen's papers are something of 'outriders' (but salient ones) to the *Rangifer* focus, examining, and questioning, the inter- and intra-cultural dynamics of traditional knowledge and its representation.

This would become a very lengthy review were I to attempt to comment on the strengths of each paper. My reticence to do so also relates to my ignorance of the cultures discussed and archival data presented. To discuss only those where I have some competence would inevitably mean unjustly slighting some contributors. As a poor blanket statement, I must say that I learned from each paper.

Of course, no paper, or volume, is perfect. Criticizing the few things I found myself at variance with would do little other than suggest that any paper is other than what each is — excellent. However, I must confess that the appearance of 'Cultivating' in the main title, despite the perspectives presented by the editors in the introduction and epilogue, leaves me uneasy. I can certainly appreciate its use regarding non-aboriginal approaches to northern wildlife (and the north, generally) and to the circumstances of northern pastoralists (but I know little of Sami and other herding peoples). On the other hand (a distinctly Inuit-biased one), the term leaves me uncomfortable with respect to the relationship of Inuit and Inuvialuit (and Gwich'in?) with animals.

This book will hopefully provoke considerable thought not only among social and other scientists, but also with the Inuit, Sami, and other northerners who read it. This is a work that should be discussed in terms of the particulars of the various papers, but also for the overview it provides. (George Wenzel, Department of Geography, McGill University, 805 Sherbrooke Street, Montréal, Québec H3A 2K6, Canada.)

THE ORGANIC CARBON CYCLE IN THE ARCTIC OCEAN. Rüdiger Stein and Robie W. Macdonald. 2004. Berlin, Heidelberg, New York: Springer-Verlag. xx + 363 p, illustrated, hard cover. ISBN 3-540-01153-6. £107.50; US\$169.00; EUR139.95. doi:10.1017/S0032247405294627

About 10% of the global burial of organic carbon in marine sediments occurs in the Arctic Ocean, which represents only 2.5% of the area of the world ocean. This fascinating statement about the high burial efficiency of organic carbon in the Arctic Ocean appears on page 320 of the edited volume *The organic carbon cycle in the Arctic Ocean* by Rüdiger Stein and Robie W. Macdonald. Preceding this conclusion and filling the previous 319 pages of the book is an extraordinary compilation of interesting information and a succession of important interpretations about the production, delivery,

degradation, and burial of organic matter in the world's only polar ocean.

Stein and Macdonald have each spent a large proportion of their professional careers studying the delivery and deposition of organic matter in the Arctic Ocean. They have added to their expertise the scientific knowledge of 51 other authors to create this book. The product is a comprehensive collection of the results of many studies and a series of thoughtful discussions of the processes that influence the fluxes and accumulation of organic carbon and their temporal and spatial variability in the Arctic Ocean.

The three features of the book that make it particularly special are its content, its presentation, and its timeliness. The content is special because the book is the first-ever overview of the sources, pathways, and burial of organic carbon in all of the wide continental margins and deep basins of the Arctic Ocean. This material is wide-ranging, so Stein and Macdonald have helpfully grouped related topics into separate chapters. The first chapter describes the morphology and circulation of this unique ocean and explains the organic geochemical proxies that are used to evaluate the origins of organic matter in its sediments. Chapter two discusses delivery of land-derived organic carbon from rivers, coastal erosion, ice rafting, and winds. The processes that affect primary production of marine organic matter within the Arctic Ocean are considered in the third chapter, and those that produce the organic carbon that is dissolved in its waters are the subject of the fourth chapter. The delivery of particulate organic carbon to the seafloor and the consequences of benthic consumption on organic carbon accumulation are the respective subjects of chapters five and six. Nearly half the book is contained in chapter 7, which is dedicated to assessing the amounts and types of organic matter in the sediments of the different geographic regions of the Arctic. The eighth and final chapter presents an organic carbon budget of the Arctic Ocean. The book ends with an extensive list of ~1400 references that encompasses a century (!) of published investigations. It includes most of the important Russian literature that remains difficult to access unless summarized as done here, and it has the descriptions of results from the ice-island drilling of upper Cretaceous sediments on Alpha Ridge that most people have forgotten. This very useful compilation of references almost by itself makes owning the book worthwhile!

The presentation of the book is special because the chapters, unlike in most edited volumes, are uniform in their appearance and writing style despite most of them consisting of short sections contributed by different teams of authors. Stein and Macdonald evidently took their jobs as editors seriously to achieve this remarkably uniform tone to the different contributions of the many authors. To take one example, the lengthy chapter 7 is divided into nine sections, each addressing in similar format a different region of the Arctic Ocean. This consistency makes the book easy to read, and it also makes it easy to find specific information about a particular process or region. Each

chapter and many of the sections within chapters ends with a short 'Summary and concluding remarks' that concisely lists the important conclusions of that part of the book. Finally, the book contains 194 figures that nicely illustrate the processes involved in organic carbon cycling, and it has 62 tables that show the principal information on which interpretations are based.

The timing of this book is very good. Stein and Macdonald note in the first paragraph of chapter 7 that not much is known about accumulation of organic carbon in pre-Quaternary Arctic sediments; they consequently concentrate on late Quaternary to modern deposits. The first continuous deep drilling of Arctic sediments was completed by the Arctic Coring Expedition (ACEX) of the new Integrated Ocean Drilling Program on the Lomonosov Ridge during the summer of 2004, about a year after the writing of the book was finished. The ACEX drilling has provided a unique record of sediment accumulation and carbon burial for most of the Cenozoic. Part of this new record includes an intriguing, 100-m thick Eocene sequence of organic-carbon-rich laminated sediments on the Ridge. Interpreting this curious sequence and the whole ACEX record will be immensely helped by the information contained in this book. Moreover, the nearly concurrent appearances of the book and the ACEX sediment record should make both more valuable to paleoceanographers, paleoclimatologists, and organic geochemists.

What are the flaws of this book? For one thing, it lacks an index. Although the table of contents is sufficiently detailed so that the reader can find information specific to some parameter, process, or place fairly easily, an index would facilitate cross-referencing to other parts of the book. Given the exceptionally good organization of this book, the absence of an index is both surprising and disappointing. Another flaw is that the use of color in the figures seems random. Some figures would be much improved if in color rather than gray-scale, whereas other figures that are in color really don't need to be. This issue is minor; the abundant figures add a lot of value to the book, regardless of whether they are in color or not.

The Arctic Ocean is still a scientific frontier, so who would be interested in this book? Because of the way that Stein and Macdonald have so effectively integrated and organized a wealth of information about the Arctic, many kinds of scientists would benefit from it. Their presentations of primary and secondary production and benthic communities would be valuable to anyone interested in the marine biology of this unique ocean. Elements of these presentations would also be important to those interested in its marine chemistry. The ideas and information about sediment delivery and distribution that pervade most of the book are clearly interesting to marine sedimentologists in general. *The organic carbon cycle in the Arctic Ocean* compiles an impressive amount of primary information about the character of the organic matter in the Arctic Ocean and its sediments, which organic geochemists would value. But most of all, anyone concerned about

carbon cycling would be interested in learning more about the processes responsible for the remarkably high burial efficiency of organic carbon in the Arctic and how this phenomenon might apply to other parts of the world ocean, either now or in the past. This book belongs in all academic libraries so that it is accessible to students, and it should be in the personal libraries of any of the kinds of scientists described above. (Philip A. Meyers, Marine Geology and Geochemistry Program, Department of Geological Sciences, The University of Michigan, Ann Arbor, Michigan 48109–1005, USA.)

WHALES' BONES OF THE BRITISH ISLES.

Nicholas Redman. 2004. Available from the author: 237 Hawardene Gardens, Teddington, Middlesex TW11 0DP. 417 p, illustrated, hard cover. ISBN 0-9545800-0-1. £35.00.

doi:10.1017/S0032247405304621

This is a *most* enjoyable volume; it is much more than the gazetteer first appearances might suggest. The author has marshalled the history of whale remains throughout the British Isles, yielding an insight into the whaling trade, the response of communities to the appearance of the great whales stranded on their neighbouring stretch of coast, and stories of the immense attachment people have developed toward whalebone arches in particular.

Nick Redman was inspired to start his quest by the sight in 1974 of the jawbone arch grandly exposed at the summit of the 615-foot North Berwick Law. The current bones are from an 'Atlantic whale,' replacing those erected in 1789, which fell into decay, like so many others. The oldest surviving pair still *in situ* is that in Jersey from a whale stranded in 1726. At Rotherwell in West Yorkshire there has been a succession of arches since 1835, the present example being the fourth set of jawbones, erected in 1967 following vigorous representations to the council by residents, who were determined to retain their local landmark.

Entire skeletons were occasionally mounted out of doors, like that of the sperm whale washed ashore on the Holderness coast placed in the grounds of Burton Constable Hall (East Yorkshire). This, too, became a ruin, but most of the bones were recently recovered and it is hoped that this whale, immortalised in Melville's *Moby Dick*, will eventually be displayed again but under cover, protected from the elements. Another bull sperm whale was washed ashore at Seaton Carew in 1706 and claimed as the perquisite of the Prince Bishop of Durham. Kept at Durham Castle for many years, it was later exhibited in the undercroft of the cathedral, until in 1978 the skeleton was transferred to the museum at Beamish. The passion a stranding could arouse is demonstrated by the 65-foot whale that came ashore near Boscombe Pier, Bournemouth, in 1897. A local physician, Dr Simpson, purchased the carcass, and in a confrontation with the municipal sanitary inspector, who was eager to clear the

'nuisance' away as quickly as possible, drew a sword stick before being restrained by the local police!

In the eighteenth and nineteenth centuries, large numbers of jawbones of Greenland whales were brought home to sell as gateposts or simply to be put up as a curiosity or landmark. Within the whaling ports, use might be made of them as a structural framework, like the seven pairs covered in canvas to form a shed that stood in Whitby until 1930. The vanished blubberhouse at Kings Lynn was supported along one side by a colonnade of no fewer than 13 jawbones. While in Delamere Forest, Cheshire, a decorative arch was co-opted as the main support of a shanty built by Maria Hollingsworth, the indigent widow of a soldier, who lived there from 1815 to 1829.

Whale ribs, being lighter and more manageable, are often found far from the sea, a surprising number in churches, and many of these associated with the Dun Cow, a legendary beast slain by Guy of Warwick. Such a rib can be seen in St Mary's, Chesterfield, and though any sort of cetacean remains are rare in Wales, there is a bone at Pennant Melangell in the church of St Melangell, Powys, where it is known as the 'Giant's rib' and another, along with a humerus, mounted over the porch of St Tydecho, Mallwyd, in Gwynedd.

One of the saddest losses is the seat made from a sperm whale skull that was lost amongst the rubble removed from the war-damaged St Nicholas Church in Great Yarmouth, which can be traced in the churchwarden's accounts back to 1606.

Scotland is blessed with a number of arches that unusually combine vertebrae or even a shoulder blade mounted at the apex. At Bragar, Lewis, an arch was made from the jaws of a stranded whale, which had escaped the attentions of a whaler because the explosive head of the harpoon had failed to go off. The harpoon is displayed suspended beneath the point of the arch.

Up and down the length of England, from Hull to Essex, whale shoulder blades were used as signs, usually for inns and taverns and often as a representation of the name — the Whalebone Inn, the Bladebone or Splawbone, although one of the finest surviving is that of the 'Royal Children' in Nottingham.

As the years take their toll, many of these osseous relics have decayed, been displaced by road widening, or neglected when the local residents have lost interest. Some have been returned from the scrapheap, like the arch at Patrington, East Yorkshire, re-erected in the 1990s only for the bones to be stolen and bizarrely replaced by two pieces of driftwood, bolted together at the apex, which from a distance are quite convincing!

As well as the comprehensive record of whale bones across the countryside, the author completes his survey with a summary listing of the skeletal remains in all the major museum collections. This is a beautifully produced book, illustrated throughout with reproduction of prints, drawings, and archive and contemporary photographs. It provides a feast of delights for the biologist, folklorist, museum keeper, librarian, social historian,

and all those who love the British countryside and its many curious landmarks. This reviewer, based at that 'Leviathanic museum' described by Melville, has maintained a correspondence with the author for a quarter of a century and is still surprised and delighted by the wonderful material he has discovered. (Arthur Credland, Hull Maritime Museum, Queen Victoria Square, Hull HU1 3DX.)

BRADFORD WASHBURN: A LIFE OF EXPLORATION. Michael Sfraga. 2004. Corvallis: Oregon State University Press. xii + 260 p, illustrated, soft cover. ISBN 0-87071-010-9. US\$24.95. doi:10.1017/S0032247405314628

The subject of this book, Bradford Washburn, was born on 7 June 1910, and achieved fame as a mountaineer, photographer, surveyor and cartographer of mountains, effective museum director, and advisor to the US government during World War II.

He is, according to the author, a 'Renaissance man' and 'a complex mix of intellect, physical and mental fortitude, and perfectionism' whose 'genius is easily identifiable.' Moreover, he is 'a cunning and critical thinker, a graceful and effective communicator, and an efficient and creative field scientist, educator and visionary.' The author displays refreshing candour with regard to his view of his subject in the introduction. He was 'a boyhood hero' who became a friend and colleague.

The book was originally written as a PhD thesis, and an initial question that must occur to any critical reader is whether the author has the degree of detachment from

the subject that is usually thought necessary if one is to make dispassionate judgments. This reviewer kept this in mind throughout his perusal of the book. As he read on, it became apparent that the author *had* done his best to exercise independent academic thinking about the subject and that generally he had succeeded. Only occasionally does an element of hagiography intrude into what is by any standards a fascinating and interesting biography.

The author identifies three predominant themes by which to assess Washburn's achievements. These are his work as an 'innovative expeditionary scientist,' in the 'study of geography as an integrating discipline,' and 'the role of the independent geographer and explorer in the pre and post World War II and cold war eras.' The book is structured around these in four main sections covering Washburn's apprenticeship, as it were, his early expeditions to Alaska and the Yukon, his work for the US forces during the war years, and his subsequent achievements in the Mount McKinley area. These include the wonderful map of the massif that he produced in 1960, and of which part is reproduced in the book.

This book is of only peripheral interest to those with a strictly polar specialisation, but it is worth reading as an account of the life of a fascinating character. On the other hand, it is a must for mountaineers. The writer has performed a valuable service in preparing it. Moreover the book is very attractively presented. There are many fine illustrations, of which the most stunning is the cover, a picture of Washburn, well into his seventies at the time, and his wife surveying from Dana Butte in the Grand Canyon. There is a full critical apparatus. (Ian R. Stone, Laggan Juys, Larivane Close, Andreas, Isle of Man IM7 4HD.)