

South Georgia Association Newsletter

Number 8 April 2005

Website: www.southgeorgiaassociation.org

ISSN 1747-4302



Grytviken is now safe

A year ago, in Number 6 of the SGA Newsletter, I described the work to date in the clearing-up and making safe of the whaling station at Grytviken. We have now finished the second summer's work and the project is all but complete. Today I checked through some of the files here at Government House and found to my horror that there must be at least 5,000 or more pages, judging by the height of the pile. So summarising the project, even of just the second season, is not easy!

To recap briefly, in 1991 the Foreign and Commonwealth Office (FCO) and the leaseholders Christian Salvesen Ltd. funded a successful but partial cleaning of the former whaling stations at Grytviken, Leith Harbour, Stromness and Husvik. In 1998 the Government of South Georgia and the South Sandwich Islands (GSGSSI), after advice on environmental management, commissioned a report which showed that although asbestos was the major pollutant, oil residues and other hazardous materials still presented a threat to visitors and wildlife. A detailed survey of the station had revealed approximately 1,500 cubic metres of asbestos and the same again of asbestos-contaminated materials. After advice from the UK Environment Agency's (UKEA) top asbestos specialist we decided on burial on site to the standards set by UKEA. There were also thought to be somewhere in the region of 300 tonnes of heavy oils left in tanks on shore and in the three former sealing and whaling vessels in the harbour. To clean the ships, they had first to be salvaged. Another of the major hazards was flying corrugated iron and collapsing buildings that made entry to the area impossible in high winds. (If one looks today at the slopes above Stromness, roof sheets can clearly be seen over 1,000 feet up and half a mile from the station.)

If Grytviken were not made safe, the new laboratory at KEP would have to close. The Government considered various methodologies and decided that we would remove all the hazardous materials and those buildings that were themselves either already presenting a hazard or would unavoidably do so in the next 10 years. This was felt to be

an acceptable compromise between preservation of the whaling station and wholesale removal, the latter being the least expensive option. We decided to preserve as much of the machinery and processing equipment *in situ* as possible, in order that the working of the station would be clearly visible when the project was complete. We offered the option to Norway to contribute to the preservation of any buildings that they felt to be of special cultural significance. The Norwegian Government declined to be involved at that stage although they do retain a strong interest.

By April last year, all the asbestos had been removed. All the oils from the tanks, ships and tailing pits had been shipped out and several major buildings had been removed and buried near the asbestos. *Dias*, *Albatros* and *Petrel* had been raised, cleaned and left securely beached. The camp was winterised, the plant and machinery likewise and then parked up in the old machine shop for the winter. Back in the Falklands, Lyle Craigie-Halkett oversaw the transfer of 600 or so tonnes of heavy furnace oil into a tanker.

The winter saw a lot of planning for the next season and a wash-up meeting where all the managers of the project, me for GSGSSI, folk from the sub-contractors in the US

SGA Notices

The report of the SGA conference held at Cambridge in 2003 has been sent to all members. If you have not received a copy, please advise the Secretary.

A questionnaire on the revision of the South Georgia Environmental Management Plan is included with this newsletter and available on the SGA website. We hope that the conference report will assist with filling-in the questionnaire and remind you that it must be returned by the end of May.

A meeting planned to be held in Taunton in September is advertised on the back page. We would like to hear from anyone who has suggestions for other regional events, and particularly if they are willing to help with the organisation.

and Chile and obviously many from Morrisons got together to see what we could learn from the work to date. I was a bit sceptical about how effective the meeting would be but confess I was wrong. It was an extremely useful process and taught me a lot.



In Spring 2004 a smaller group of 12 men arrived at KEP. They quickly got to work opening up the camp and making ready for another busy season. The work would include:

removing the rest of the unsafe buildings
cleaning the last of the tailing pits of furnace oil residues
cleaning up some oil-contaminated ground
building a new house for the Government Officer
re-roofing the Museum, the Drukkeren Villa (where the Museum Curators live) and Discovery House.

The last job would be to tidy the site and make Grytviken safe once more for visitors to walk through the station and see all the extraordinary machinery and equipment that was used in the whaling industry.

It is now early April 2005 and tomorrow morning, as I write, the *James Clark Ross* will sail into Stanley harbour with our crew among the many Fids on board. Apart from a small problem with the Discovery House roof that will soon be rectified, all the work has been done. The station is clean and safe to visit. We have been able to keep virtually all the machinery in place so that as you look around from the former plan area you can see all the processes in one sweep. It has been suggested that it is a pity there is not an intact station there and maybe that is true. It is also true, however, that to make the buildings safe we would have had virtually to rebuild most of them. We often could not get to asbestos without removing some or all of roofs and wall sections. In short there were no real options given the conditions we met at the time unless we had simply swept it all away. None of us wanted that as the cultural and industrial heritage that it represents is so important.

Costs.....? The first estimates for the operation had been between £10M and £20M. Once our managing contractor Morrison Construction Services (Falklands) Ltd. had worked through the details, that figure came down to something less than £10M. Gradually, as they worked with shipping agents, their own experts in the remediation field and the management team, it seemed possible that we would be able to do the work for nearer £8M.

It might be unique in high latitude projects that, in the end, this job was completed for £6M - well over a million pounds under budget. This was due to many things including the expertise of the management team at Morrisons achieving good value in contracts with the specialist sub-contractors, and the US dollar exchange rate changed helpfully between the time of the estimate to work commencing. A critical factor was the very detailed planning by the whole management team that saved us spending any contingency funds. Last, but of course not least, the financial achievement was due to the hard work, ingenuity, stoicism in difficult conditions and good-natured willingness of all the men and women who worked on the site. It was a privilege for me to spend some time with them.

It is just as well that we did manage to finish under budget because if we had not, GSGSSI would today be in debt. We are not, but we have spent most of our reserves and will be strapped for cash in the next few years.

What happens now? The camp is still there along with most of the plant and machinery. We are hoping that it will be possible to find the necessary funds over the next couple of years to reintroduce hydro-power to South Georgia. The Gull Lake dam requires quite a bit of work before that can happen but the money spent each year on fuel oil would be cut virtually to zero and the environment would benefit from not running diesel generators every day. We are looking for outside sources of funding and hope to make this a reality. So if any readers can make helpful suggestions please do not hesitate to contact us (gov.house@horizon.co.fk).

A huge thank-you is owed to Pete Willmott the Project Manager on site, John Hammerton the Operations Manager in the UK, Ken Mackenzie the Regional Manager for all South Atlantic Operations and all of the men and women who worked at Grytviken and KEP over the last two seasons.

Grytviken is now safe in terms of being cleared of hazards to health and safety and in terms of the whaling station machinery being preserved and accessible for years to come.

Gordon Liddle, Operations Manager

Bird Island's massive new development

Grytviken is not the only part of South Georgia that has seen massive changes to the skyline. Towards the end of last summer, the builders moved in at Bird Island. Very sensibly, they waited until February when the fur seal menace was on the wane. 1,700 cubic metres (= a huge pile) of cargo were brought ashore from RRS *Ernest Shackleton* in tenders and distributed with the aid of a JCB. Particular care was taken to ensure that rats and other alien species did not get ashore in this special place.

The scenery of Jordan Cove has been transformed. Old buildings - Lonnberg House built in 1962 and Prince House built in 1982 - have been demolished and a new base built.

The new main building, just about complete but not occupied at the time of writing, is extremely commodious to those who remember simpler days. It is designed to accom-

modate 10 people in five double bedrooms. There are 'his 'n' hers' flush lavatories and showers, a propane-fuelled kitchen, the Base Commander's office, a combined recreation/dining/conference room, an office fitted with PCs for 8-9 people, a new laboratory with all mod cons and a 'fieldwork' room where animals can be studied under cover. About the only concession to tradition is the retention of the 'bucket and skua' approach to the disposal of kitchen waste instead of a macerator.



Bonner's Bothy in 1958.

The growth in facilities at Bird Island since Nigel Bonner and Lance Tickell worked there in 1958 can be summarised by the observation that the first building was a 'shed' and the latest is an 'accommodation unit'. The difference is amply demonstrated by these photographs.



The new base, nearly complete, April 2005.

Fishing Vessel Arrested

Apparently as the result of a tip-off by two cruise ships, the longliner *Elqui* was arrested near Shag Rocks by the fishery patrol vessel *Sigma* in early March on suspicion of illegal fishing. *Elqui* was escorted to Stanley and has been charged. The trial is in progress and we hope to report on the outcome in the next issue. It is good to see co-operation between cruise ships and GSGSSI playing a part in the management of this important fishery.

The cemeteries of South Georgia - a website

Over the past year or two, I have been developing a website containing information about the cemeteries around South Georgia, and details of those who are buried there. It has been created so friends and relatives of those who are buried on the relatively inaccessible island can at least see where the graves are and what they look like, even though they may not be able to visit in person. The site can be seen at www.wildisland.demon.co.uk.

Following the refurbishment of some of the cemeteries that Sarah and I carried out in 1998/99, which is also documented on the website, some relatives contacted us to voice their appreciation for the work and to ask whether there were any photographs. Since then I have photographed as many as I can and put the results on this website.

The site starts with a brief description of the island and then allows the visitor to either browse around each cemetery or to locate a particular grave from a list of names. Each person or grave is then briefly described on a small page which contains a link to a more detailed page. This detailed page shows close-ups of any inscriptions on the graves, links to further information on other websites, and any other information known.

The information is largely drawn from Bob Headland's work in the 1970s and 1980s as well as photographs and historic checking by Bob Burton. Some inaccuracies have been deliberately left in to keep readers on their toes!

The project is not finished yet. The intention is to enhance the pages for each individual as more information, photographs etc. come to light. There is also the possibility of extending the work to encompass memorials and burial sites further afield such as Signy. The site will not be updated until next December, when I next return from South Georgia. In the meantime I will be very pleased to hear from anyone who knows anything about anybody who is buried in South Georgia, particularly if there are any old photographs. Contact me on pat@wildisland.demon.co.uk but please remember that the South Georgia email link uses an expensive satellite link, so do not attach photographs or documents.

This website will hopefully go some way to alleviate the problem whereby the closure of the whaling stations for reasons of safety prevents physical access to the cemeteries in the centre of Leith Harbour and at Stromness. The Government has to tell everyone not to approach within 200m of the structures. Fortunately the main Leith Harbour cemetery, and those at Husvik, Prince Olav Harbour and Grytviken are more than 200m from dangerous structures so may still be visited, even if the stations themselves may not (Grytviken excepted). And of course in very strong winds even these places are not necessarily safe.

Pat Lurcock

More on websites....

It is worth visiting the South Georgia Government's website

(www.sgisland.org) for the monthly newsletter written by Sarah Lurcock, or her relief when she is on leave, and with contributions from others. They tell us of work and social activities at KEP (the second half marathon featured recently) as well as news from elsewhere on the island. The new search facility on the website makes it easier to find past topics.

A new facility even reminds you when to check the latest offering. This is an email alert for updates on the website including the monthly news. Sign up on the homepage by clicking on 'search sgisland.org' or in the News and Events page where you will find the newsletter. An email will be sent to your email address when an update has been published.

....and the domain problem

Most of us, if you are anything like me, when using the Internet take for granted .uk, .com, .org and so on. These ends of an email address or website are known as Top Level Domains (TLD). Well, as South Georgia and South Sandwich Islands is a sovereign territory it also had a TLD. In order to differentiate SGSSI from .com or .net (both TLDs) SGSSI has a Country Code TLD (or ccTLD). The ccTLD for SGSSI is .gs. You might think it would be more logical to have .sg, but that belongs to Singapore.

The way the system has been set up is that the respective sovereign government of a ccTLD should not actually manage its administration; rather an independent organisation should administer the ccTLD on the government's behalf. The proviso is that the ccTLD should be managed for the benefit of the local internet community. An organisation called the Internet Corporation for Assigned Names and Numbers (ICANN) is an international non-profit corporation, created in 1998 to assume responsibility for all TLDs.

A commercial company has managed the South Georgia ccTLD for profit since 1998. Now the island has an internet community and a broadband connection will be shortly installed on the island, GSGSSI has asked Project Atlantis, which manages the South Georgia official website, to administer South Georgia's ccTLD for the benefit of the island's internet community.

Discussions are now underway to effect a re-delegation of South Georgia's ccTLD from the commercial company to Project Atlantis in accordance with GSGSSI's direction as the sovereign holder of the SGSSI ccTLD. Once re-delegation has taken place the .gs TLD will become available at considerably reduced costs to South Georgia's internet community (current costs vary from \$50 to \$150). The exact definition of SG's internet community is assumed to include those living and working on South Georgia, the GSGSSI and the main stakeholders, such as the SGA.

David Nicholls

The South Georgia Heritage Trust

Three people sat in the restaurant at the top of the Eiffel Tower, on a lovely sunny day, in the spring of 2003. The

host was an industrialist, Dr Frederik Paulsen and his guests Howard Pearce, the Commissioner, and me from Project Atlantis. The topic of conversation, apart from the fine view, politics, food, wine and opera, was to consider how additional financial support could be given to South Georgia. The idea of creating a charitable body to raise funds for the benefit of South Georgia was agreed and I was given the task of making it happen. After some two years of work and discussion, the first meeting of the Trustees of the South Georgia Heritage Trust took place at Discovery Point, Dundee on 12 January 2005, followed by dinner in the wardroom of RRS *Discovery*.

Dr Frederik Paulsen, a Swede with a family background in the early northern whaling and fishing industry, had visited South Georgia in 2002 on his way to the South Pole. Apart from the beauty of the island, he was struck by the significant Norwegian industrial heritage at Grytviken and the problems of barred access to the whaling stations because of the hazardous materials. His Institut Minos engaged Mr Stig-Tore Lunde to seek Norwegian support for preserving their nation's cultural heritage on South Georgia. The meeting in Paris crystallised the idea of creating the South Georgia Heritage Trust as an international charity to bring benefit to South Georgia.

The Trust is being registered as a Scottish Charity. An extract from the Trust Deed shows the purposes and powers of the charity.

Purposes:

- (a) to promote for the public benefit, the conservation and protection of the physical and natural environment of the island and surrounding waters of South Georgia; and
- (b) to advance the education of the public in the historical heritage of the island of South Georgia.

The main activities of the Trust shall be:

- (a) To help efforts to conserve and protect those species of indigenous fauna and flora that breed and grow on South Georgia or in the surrounding seas and raise awareness of threatened species.
- (b) To assist efforts to preserve the historical heritage of South Georgia including selected historical sites of importance and to assist the South Georgia Museum, in order to widen international awareness of the lessons and achievements of human history of South Georgia.
- (c) To work with international colleagues to achieve the Trust purposes and objectives as listed above.

The Trust has branches in Norway and the USA; both branches are currently being created. There are seven Trustees in the SGHT (international); these include a citizen each from Sweden (Dr Frederik Paulsen), Norway (Prof Bjørn Basberg) and the USA (Dr Michael Moore). There are four British Trustees (Prof John Croxall, Mr Gordon Liddle, Dr David Munro and Brig David Nicholls RM ret'd). David Nicholls has been elected Chairman.

It is planned the SGHT, with its branches in the US and Norway, will be able to raise funds that can help to make a real difference to South Georgia in areas that need help. The Trust is only just starting and it will be some time before

fund-raising can start in earnest and benefit can start to flow to South Georgia. It is worth pointing out the separation of GSGSSI and the Trust as a public charity. Mr Gordon Liddle, Operations Manager, is an ex-officio Trustee, appointed by the Commissioner. The Trustees, and not GSGSSI, will decide what projects the Trust will undertake, although there will be close cooperation with the Government. To date, the only project is payment for signs in Grytviken whaling station.

David Nicholls

Mass mortality of penguins

A report from the cruise ship *Polar Pioneer* set alarm bells ringing at the start of the summer season. They had found 500-700 corpses of chinstrap penguins at Cooper Bay. The site was promptly closed to visitors pending investigation. The Fisheries Patrol Vessel *Sigma* visited Cooper Bay on 5 December and took samples to establish cause of death. It transpires that the penguins were suffering from avian cholera, a disease that has previously struck in Antarctica and on some subantarctic islands. Falkland vet Sue Harvey visited the island in February and took a comprehensive collection of blood samples from all species of penguins at a number of locations. The results are awaited but it appears that this outbreak has not spread. It is not known whether the disease is a new arrival or has been long established on South Georgia.

Science Report of the BSES 'Footsteps of Shackleton' Expedition 2003 – 2004

A general report of this expedition appeared in Newsletter 6. This article presents more details of the science programme. Expedition Members participated in several science projects in Chile, the Falkland Islands and South Georgia between October 2003 and January 2004. David Nicholls, Chief Leader, and Jean Sinclair, Chief Scientist, attempted to arrange science projects using the following criteria:

Several small projects, rather than one or two large projects, to achieve a wide range of interest.

Studies were suggested by experienced scientists in world-leading establishments, so that results would feed into existing long-term projects.

Projects that did not require the movement of equipment and specimens that are bulky, expensive and hard-to-transport.

As the Chief Scientist is a marine biologist/environmental scientist, there was a bias towards life science projects.

Nearly all the scientists who advised the expedition attended the Science Briefing Weekend in Cambridge in June 2003, where they spoke to expedition members. Although we did not carry out any ozone or meteorological projects, Dr Jonathan Shanklin of the British Antarctic Survey also came to speak about ozone depletion in Antarctica and meteorological phenomena in South

Georgia. Expedition members visited the Scott Polar Research Institute and BAS headquarters.

Details of projects carried out in South Georgia and at sea between Falkland Islands and South Georgia are as follows:

Midge Genetics in Chile and South Georgia - Dr Pete Convey of British Antarctic Survey. Expedition members collected midge larvae and adult insects from freshwater and damp habitats around Seno Skyring in Chile and near Husvik in South Georgia. The aim was to find samples of *Eretmoptera murphyi* and related species. As species are very difficult to differentiate, any larvae or adults of midges and flies were collected, to be identified by Pete Convey and his colleagues on return to the UK. He warned that they 'are quite hard to find in natural habitats, so don't be disheartened if it takes you a while to get your eye in, or you fail to find any at all!' Expedition members collected 30 small pots of specimens.

Cetacean Surveys between the Falkland Islands and South Georgia - Deborah Thiele of Whale Ecology Group - Southern Ocean (WEG-SO), based at Deakin University, Australia, asked expedition members to observe cetaceans from HMS *Endurance*. Wincruz software was installed onto the expedition laptop, specifically to record whale and dolphin observation effort and sightings. Unfortunately, the laptop was only available for the website, not for science. Undaunted, expedition members recorded their findings on paper, observing in 1-hour shifts during daylight on both sides of the bridge. On the outward voyage, the sheets were left on the windowsill and two of the three blew out of the window, losing three days' records. On the return voyage, a large bulldog clip saved the results. Cleaning and packing expedition kit meant that not as many members were available for surveys while homeward as outward bound. Once home, the Chief Scientist typed all results into Excel for transmission to Deborah Thiele.

Beetle Studies in South Georgia - Prof Bill Block, Emeritus Fellow of British Antarctic Survey, asked expedition members to survey the effects of the accidental introduction of a carnivorous species of beetle, *Trechisibus antarcticus*, probably during the whaling era prior to 1960. This beetle preys on the larvae of the native herbivorous beetle *Hydromedion sparsutum*, which has reacted by producing larger eggs and larger larval hatchlings, which are less prone to predation. Four sites, at Husvik, Stromness, Harbour Point and Leith, were last surveyed in 1996. By repeating collection of tussock grass litter specimens from these sites for later analysis by Bill Block, expedition members provided an updated 'snapshot' of the progress of evolution. Opportunistic collections of beetles were also made along the Busen Peninsula to investigate the spread of *Trechisibus antarcticus*. Analysis to date has revealed apparent lower population densities of both *Trechisibus antarcticus* and *Hydromedion sparsutum* compared with 1996 and that the former, the predatory beetle, does not appear to have spread much in the same time period.

Fur Seal Surveys in South Georgia - Dirk Briggs of British Antarctic Survey, asked expedition members on the ground to take photographs of fur seal beaches around Husvik and along the south coast of the Tønsberg Peninsula, to be compared with aerial photographs taken from Lynx helicopters from HMS *Endurance*. He also asked for seal pup counts to investigate whether the peak pupping date differs from Bird Island. The date could be used in future years to predict when to carry out aerial surveys in different areas. For consistency, all counts were carried out by the Chief Scientist - on six days between 4 and 21 December for Husvik North and on nine days between 1 and 21 December for Husvik (between Manager's Villa and jetty). Dirk also asked for skin tissue samples to be taken from any dead fur seals for DNA analysis of populations. Due to the risks associated with biological specimens and sharp blades, only the Chief Scientist took these samples - four were obtained from dead seals and placentas. The kit was passed to scientists from the Seal Mammals Research Unit, who took over at Husvik, so that they could continue with the search for samples.

Reindeer Genetics in South Georgia - Fiona Lovatt, the original Chief Scientist who had to drop out, had previously collected skulls and skin samples for DNA analysis of reindeer from the Barff herd on South Georgia and the source herds in southern Norway. To advance the study further, the expedition was asked to collect skulls and skin samples from the Busen herd, which has been separated from the Barff herd by glaciers since three males and four females were introduced in 1925. 26 skulls and 24 samples were collected for DNA analysis, with both skulls and skin obtained from 16 animals. As with the seal tissue, only the Chief Leader took samples, often ably assisted by Young Explorers.

Alien/Introduced Plant Surveys in South Georgia - Bob Headland of Scott Polar Research Institute asked expedition members to look for introduced species of plants. Unfortunately, due to the risks from metal debris and asbestos, especially during high winds, we were not allowed to enter whaling stations, where the majority of alien plants are found, as they were brought in, either accidentally or on purpose, during the whaling era. However, we were able to survey the area around the Manager's Villa and Radio Shack at Husvik, and to record locations of easy-to-spot flowering dandelions along the Busen Peninsula and around Husvik.

Native Plant Surveys and Collections in South Georgia - Deirdre Galbraith (expedition medical doctor who co-ordinated this project) collected plants for Dundee Botanic Gardens where they form part of a collection of polar species. Tissues were also collected for the DNA bank at the Royal Botanic Gardens, Kew.

Miscellaneous Natural History Observations in South Georgia - The Chief Scientist and other expedition members made numerous miscellaneous observations of birds, mammals, flora etc in all areas visited during the expedition.

Notes and photographs were passed to the appropriate authorities. Liz Morris of Scott Polar Research Institute was particularly keen to obtain photos of marks in gravel banks of water levels in Gulbrandsen Lake and so date when the Neumayer Glacier dam failed and the lake emptied.

Jean Sinclair, Chief Scientist

HOUSE OR FLAT WANTED Jan-March 2006

Do you have a Cambridge house that needs sitting? Quiet, responsible, Australian couple in their 50s - Antarctic researcher/PhD student with writer husband - needing cheap self-contained accommodation from ~10 Jan - end March 2006 (or large part of this time). Willing to feed pets and otherwise make ourselves useful. Unlimited Vegemite on request. E-mail, write or telephone Bernadette Hince, Centre for Resource and Environmental Studies, Australian National University, Canberra ACT 0200. Tel +61 2 6125 2011, e-mail bhince@cres.anu.edu.au

Salvesen celebration



The Salvesen Ex-Whalers Club Edinburgh celebrated the 80th birthday of Sir Gerald Elliot, former chairman of Christian Salvesen who had a close interest in the company's whaling operations. He was presented with a painting of the Three Brothers, the three peaks named after Theodore, Tom and Fred Salvesen, which was painted by George Cummings, the club's Chairman.

Helicopter guidelines

Cruise ships have been banned from using helicopters at South Georgia for several years, although, in fact, they are carried by only one or two vessels that visit the island. However, military ships visiting the island continue to make use of them. Helicopters are extremely useful for aerial surveys - BAS have used this method for censusing macaroni penguin and fur seal colonies at South Georgia for the past

five years - and delivering cargo and personnel rapidly to remote locations. Indeed, there are projects that would be impossible in practice without the helicopter's unique capabilities.

The problem with helicopters is that the noise generated by the beating blades is very disturbing to wildlife and the coastline of South Georgia is packed with wildlife. It has been known for many years that a helicopter landing near a fur seal colony causes pandemonium as the cows bolt for the sea - to the consternation of the bulls who see their prospective mates disappearing from their hard-won territories. A few years ago, there were jocular reports in the press of king penguins falling over backwards as they watched helicopters flying overhead, but the reality is of eggs and chicks being lost and trampled in a stampede.

To avert such traumatic episodes, the South Georgia Government, working with the MOD and environmental consultant Sally Poncet, produced a set of guidelines and a Wildlife and Low Flying Avoidance Map for helicopter operations.

The guidelines include:

'To minimise the risk to both wildlife and aircraft, follow the guidelines below as closely as your operational requirements allow:

When following the coastline, maintain a vertical separation distance of 2000 feet and a horizontal separation of 0.25 nautical miles from the coastline where possible.

Cross coasts at right angles and above 2000 feet above ground level where possible.

Do not land within 0.25 nautical miles of any beach.

Do not land within 0.5 nautical miles of penguin and albatross colonies.

Do not land at the areas indicated in yellow, unless special prior permission is given by the Commissioner for GSGSSI.

Never hover or make repeated passes over wildlife concentrations or fly lower than necessary.

Avoid flying after nightfall from September to March when prions and petrels are active. These birds are nocturnal when breeding and are attracted by light so night-flying helicopters are at risk.

Permission to land at KEP must be obtained from the GSGSSI Marine Officer at KEP.'

The British Antarctic Survey has also introduced specific flight paths and a designated landing site for helicopters at Bird Island but currently no such instructions exist for other sites.

Enquiries for the Avoidance Map can be made to the Government, as it is not yet on their website. With reports of helicopter disturbance to wildlife coming in each year, the system obviously needs further refinement and Government have acknowledged that the regulations may need to be amended following the unfortunate incident of a helicopter causing mayhem in full view of a shipful of visitors this past season. It seems that the pilot was following the guidelines but his orders did not take into account the sensitivity of the area. Stricter helicopter operation guidelines would no doubt result in more of the old-fashioned use of boats and legs but would go a long way to assisting the aim of the Government, and the hope of everyone connected with South Georgia, to minimise deleterious impacts on the environment of our favourite island.

Book reviews

The Shore Whaling Stations of South Georgia: a study in Antarctic Industrial Archaeology.'

Bjørn Basberg 2004. Oslo: Novus Forlag. ISBN 82-7099-394-8, 226pp. Publication No 30 Kdr Chr Christensen's Hvalfangstmuseum, Sandefjord, Norway.

This is an excellent and very timely book which summarises over a decade of research, surveying and cataloguing of the six whaling stations of South Georgia. The subject is fascinating and appropriate because the combined effects of climate and decontamination programmes are destroying much of their remains. The stations are undoubtedly the most prominent memorials of a major period of antarctic history of over-exploitation of resources.

The work is exceptionally well-produced with illustrations from early days and modern circumstances juxtaposed with maps and diagrams explaining the complications of the whaling stations. The chapters describe the problems involved, development of the Antarctic whaling industry, the individual stations and disposition of the multitude of functions of the factory and other buildings. As well as the whale processing function, accommodation, recreation, the church and kino, hospitals, defence, power and all other aspects of life on the island during most of the 1900s are included. Appendices describe each station. The other antarctic whaling stations, on the South Orkney Islands, South Shetland Islands, and Iles Kerguelen are compared. There is a good bibliography but, I regret, no index.

Anyone who knew the shore stations of the antarctic whaling industry will be fascinated to read this work and spend several evenings reminiscing and understanding how it all came to be. It is particularly good to see such results of painstaking Norwegian research on what was essentially a national specialization.

Bob Headland

Sir James Wordie: Polar Crusader Exploring the Arctic and Antarctic. Michael Smith 2004. Edinburgh: Birlinn Ltd. ISBN 1 84158 292 1, 371pp. £25.

A number of biographies of antarctic explorers have appeared in recent years. A few usefully add detail to what has already been published on particular expeditions. Others, like this account of the life of Sir James Wordie, are valuable for chronicling the lives of significant players in the history of polar exploration.

Wordie's first brush with the polar regions came when he visited the Yukon shortly after graduating from Cambridge University as a geologist. He then applied to join the Imperial Transantarctic Expedition and found himself heading south on *Endurance*. This expedition takes up one third of the book and Michael Smith has been able to draw on Wordie's previously unpublished diary to enliven the retelling of the well-known story. Alas, for those hoping for

enlightenment about *Endurance's* month-long stay at South Georgia, Smith's edited extracts of the diary only start when *Endurance* leaves for the Weddell Sea! He will be embarrassed by his statement that Grytviken whaling station was the destination of Shackleton's crossing of South Georgia and that it was Norwegian-owned.

But do not be put off, this biography amply demonstrates Wordie's well-deserved place in the ranks of great British explorers. Michael Smith describes in detail Wordie's seven expeditions to the Arctic and, more importantly for us because they bear at least indirectly on South Georgia, he was heavily involved in Britain's antarctic affairs. He represented the Royal Geographical Society on the *Discovery* Committee that set up the *Discovery* Investigations, whose land station still stands at King Edward Point. He also had a role in establishing and directing the Scott Polar Research Institute in Cambridge, and in overseeing Operation Tabarin, the Norwegian-British-Swedish Expedition of 1949-52 and the Commonwealth Transantarctic Expedition of 1955-58. As Charles Swithinbank has written: 'he (Wordie) succeeded in grasping the reins of almost everything in Britain's polar establishment'.

Bob Burton

Fishing South: The History and Management of South Georgia Fisheries. David J. Agnew 2004. St Albans, Penna Press. ISBN 0-9547948-0-X, 123pp.

The 'antarctic oasis' of South Georgia is beloved by all those who have visited its shores, be they sailor, explorer, mountaineer, scientist, historian, soldier or visitor. However, its charms are not confined to the stunning mountains, incredible wildlife and rich natural and cultural heritage. The island's location to the south of the Polar Front and within the Southern Ocean has given it a particularly productive ecosystem, and it has become an extremely important fishing area.

On behalf of the South Georgia Government, Dr David Agnew has written an interesting and highly informative insight to the marine environment of South Georgia. The book begins with a brief history of South Georgia and its marine resources, which underlines the importance of the South Georgia Fisheries. Both the fish and fisheries are well described and provide the non-specialist with valuable background information.

The enforcement of marine conservation is of prime importance in order for these resources to be conserved for future generations. Dr Agnew explains in detail the management measures practised by the South Georgia Government. These procedures have been based on the results of extensive scientific research, and have been agreed by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). This book provides a valuable resource for anyone concerned with the marine environment of South Georgia. It is well-illustrated with colour photographs, maps and graphs.

Lizzy Hawker

Duncan Carse's archives

In the last issue of the newsletter, we reported the death of Duncan Carse, who was well-known, among other things, for leading the South Georgia Survey. He left a huge mass of written records of the survey and several thousand colour transparencies, all catalogued. At Mrs Venetia Carse's request these have been stored in the British Antarctic Survey's archives at Cambridge. They have joined the Survey's mapping material, which was transferred from the Directorate of Overseas Surveys last year, to make a unique and complete archive of this important chapter in South Georgia's history.

Diary dates

20 May. 4th Annual General Meeting

Royal Over-Seas League, London at 7pm. It will be preceded by a reception at 6.30pm and followed by a lecture by Stephen Palmer on 'Human Effects on the Natural Environment of the Falkland Islands and South Georgia'. See enclosed flyer for details.

30 September. A visit to the UK Hydrographic Office, Taunton, followed by lectures.

A provisional programme has been arranged. The visit to the UKHO will be from 2.00 to 4.30 and South Georgia material will be on display. The visit is free but ONLY 20 can be accommodated. This party will then proceed to the Castle Hotel, Taunton, where there will be an open meeting, from 5.00 to 8.00, which will be addressed by Andy Willet, UKHO, on 'Changing methods of charting South Georgia' and David Fletcher on 'Stories of South Georgia Surveys in the 1970s'. There will be light refreshments and a cash bar. Price about £12.00.

It will be most helpful if you would register your interest in attending one or both parts of the meeting with The Secretary, South Georgia Association, SPRI, Lensfield Road, Cambridge CB2 1ER or by email to secretary@southgeorgiaassociation.org.

The South Georgia Association newsletter is produced twice a year, in April and November.

Contributions should be submitted, at least one month before publication, to the editor: Robert Burton, 63 Common Lane, Hemingford Abbots, Huntingdon PE28 9AW. e-mail: newsletter@southgeorgiaassociation.org