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VOICEPIPE

Issue 60 October 2013

The Newsletter of the BIO-Oceans Association

BIO-OA members gather for Annual Summer Picnic

On 7 August 2013, OA members gathered in the garden of Don and Joleen Gordon in Dartmouth for the OA summer picnic. Those in attendance enjoyed pot-luck, pork chops and sausages expertly grilled by the host, and learning how to build lantern's from berry boxes taught by the hostess.

Photos: top, some OA members present at the picnic in conversation; bottom, left, hostess Joleen Gordon and right, the host Don Gordon welcomes OA members.

A.G. Huntsman Award Ceremony 28 November 2013 (1400h) Bedford Institute of Oceanography

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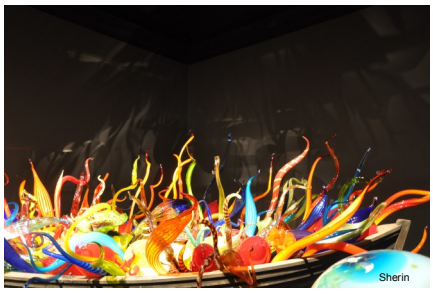


The Boats, glass, D. Chihuly, Montreal Museum of Fine Arts' exhibit 'Utterly Breathtaking'.

Photos: left, at the back, (l to r) Don Gordon in conversation with Betty Sutherland, and in front (l to r), Claudia Currie and Sheila Keiser; right, Joleen Gordon (second from left) demonstrates how to create a garden lantern from berry boxes, named 'Fader' lights after Gordon Fader who taught her how to make them.

The picnic on a sunny afternoon was filled with bright conversation, good food, plentiful drink and 'enlightening' craft-making in the Gordon's beautiful garden. BIO-OA members who attended went home after thoroughly enjoying another very successful BIO-OA social gathering.

Thousands rally for 'Stand Up for Science'[1]

On 16 September 2013, thousands of scientists and concerned citizens participated in rallies across Canada to voice their concern about the state of science in the public interest. Speakers highlighted that the 'health' of public science impacts all of us and called on the federal government to make transparent, evidence-based decisions for the health and prosperity of all Canadians.

In addition to a large rally in Ottawa, rallies were held from coast to coast including Vancouver, Salmon Arm, Edmonton, Yellowknife, Winnipeg, Toronto, Hamilton, Kingston, Kitchener-Waterloo, Montreal, Fredericton, St. Andrews, and Halifax, making this one of the largest nationwide pro-science rallies in Canadian history.

Speakers highlighted the crucial need for funding basic or fundamental science and allowing federal researchers to communicate their scientific findings freely with the public.

"It was public science that provided compelling evidence that smoking was harmful when tobacco manufacturers were claiming that cigarettes were safe," said Ottawa-based physician Dr. Kapil Khatter. Applied research and technological innovation have great value, but this cannot come at the expense of science and evidence gathering institutions that provide the data critical to keeping Canadians informed about their health and well-being.

Recently, Canada's federal government has been heavily criticized by the global science community for its strict communication policies imposed on government scientists, de-funding major public science research programs (including the internationally-renowned Experimental Lakes Area), and making changes to laws governing fisheries management and crime prevention that are inconsistent with existing scientific evidence.

"It is not too late for this government to provide effective leadership on science," Dr. Béla Joós a professor of Physics at the University of Ottawa, told the crowd. "As they prepare for a speech from the throne in October, we hope that they will show their support for public science by making decisions that are informed by the best available evidence, letting government scientists speak to the public and adequately funding science - including basic research."

This year's events build on the 2012 'Death of Evidence' gathering on Parliament Hill, marking a mounting concern among Canadians about the state of science in Canada. The rallies were initiated by 'Evidence for Democracy' (E4D), a non-partisan organization advocating for the transparent use of evidence in government decision-making, and supported by groups representing students and scientists including the Canadian Federation of Students and The Professional Institute of the Public Service of Canada.

[1] Press Release from ‚Evidence for Democracy' 16 September 2013.

FROM THE PRESIDENT

The summer seems to have gone by way too quickly this year. Soon the snow will be falling. This issue of *VoicePipe* has articles describing the summer social activities that BIO-Oceans Association members took part in, as well as a couple of other interesting items including 'Stand Up for Science' rallies that were held across Canada over the summer months. Listening to the Throne Speech on 16 October 2013, announcing the impending 'spending freeze' for the Public Service, an action that will only hurt scientific research in Canada even more. Scientists will have a 'tough row to hoe'. Another event covered is the 'Grand Old Lady' CSS *Acadia,* a Canadian heritage vessel who is celebrating her 100th birthday this year by having a special exhibit at the Maritime Museum of the Atlantic.

The editors of *The Voyage of Discovery* publication have been working long hours to have the book ready for release by March 2014. Comprising 48 papers describing 50 years of BIO's scientific history, the book will be a great addition to anyone's library.

The BIO-OA Executive is currently looking for someone to take on the rewarding position of first Vice President / President elect. Please contact me if you are interested in serving OA in this capacity.

Mike Hughes

The 2013 Huntsman Award

Photo: WHOI

The A.G. Huntsman Foundation announced that the winner of the 2013 A.G. Huntsman Award is Dr. Scott Doney, in recognition of his fundamental contributions to: understanding of the role of ocean biology in global biochemical cycles; analysis of the vulnerability of ocean biological processes to global change, particularly ocean acidification; for leadership in bringing the community's intellectual assets to bear on some of the most pressing scientific problems of our time; and tireless efforts to educate both students of oceanography and the general public on complex issues related to changes in the global ocean.

Dr. Doney is a Senior Scientist in the Department of Marine Chemistry and Geochemistry, and is presently the Director of the Ocean and Climate Change Institute at Woods Hole Oceanographic Institution.

Dr. Doney's science interests span oceanography, climate and biogeochemistry, with particular emphasis on the application of numerical models and data analysis methods to global-scale questions. Much of his research focuses on how the global carbon cycle and ocean ecology respond to natural and human-driven climate change. His current area of interest is on ocean acidification due to the invasion into the ocean of carbon dioxide and other chemicals from fossil fuel burning.

Dr. Doney will receive his award at a ceremony in the William Ford Auditorium at the Bedford Institute of Oceanography at 1400h on 28 November 2013.

Status of BIO-OA publication *Voyage of Discovery*

AHOY, pre-publication purchasers and awaiting fans of our soon to appear book *Voyage of Discovery : Fifty Years of Marine Research at Canada's Bedford Institute of Oceanography* (VOD)! Unfortunately, there has been a delay in publication owing to the book's increase in size and associated increase in cost of printing and binding. The editors now expect the volume to be ready for publication and distribution by March 2014.

We thank you in advance for your patience and understanding. The good news is that if you prepaid for a copy of VOD via the pre-publication offer of $30.00 made in October 2012, you will receive the book at that price even though the forecast for the 2014 publication is a higher cost of ca. $45.00 or more. If for any reason you prefer to be refunded your payment, please let us know and we shall return your pre-publication payment of $30.00. Of course, we hope you continue to want a copy of VOD despite the later date of publication and we welcome new pre-publication orders. Please send new orders (without pre-payment at this time, but with e-mail address & phone number) to: PR Director, BIO-Oceans Association, c/o Bedford Institute of Oceanography, P.O. Box 1006, Dartmouth, NS, Canada B2Y 4A2.

The VOD editors: D.N. Nettleship, D.C. Gordon, C.F.M. Lewis and M.P. Latremouille.

In Memoriam

Captain Joseph Colin "Joe" Bray, died 22 September 2013, captain of the MV *Navicula* and crew member on several other BIO ships. He received the Beluga Award in 2006.

Maritime Museum of the Atlantic: special 'Grand Old Lady' exhibit[1]

The 'Grand Old Lady' CSS *Acadia* tied up outside the Maritime Museum of the Atlantic as seen during the BIO-OA Harbour Tour.

by Chris Muise

The new exhibit at the Maritime Museum of the Atlantic celebrates the 100th anniversary of the launch of the CSS *Acadia*. The exhibit runs from 3 August to 3 November and documents the history of one of Canada's oldest surviving Edwardian steam ships, and the various roles it's played in our nautical history over the century.

"The CSS *Acadia*, it's a very significant ship. It's a national historic site — not many people know that," says Gerry Lunn, Curator of Exhibitions at the Maritime Museum of the Atlantic. "It was the very first, purpose-built hydrographic ship for the Canadian government, built specifically to withstand the rigours of northern waters. It's actually one of the rarest, and one of the best examples of this Edwardian steel-shipbuilding style that exists in the world today."

Launched in 1913, the *Acadia* charted much of Canada's eastern seaboard, including a voyage mapping part of the Hudson Bay, a voyage from which it nearly didn't return from. Charting expeditions such as these were the ship's "bread and butter," according to Lunn. "That was its day job" says Lunn, "but it was so much more."

Until its retirement in 1969, the *Acadia* worked as a war vessel, a rescue vessel, and tested new technologies of the early 20th century, including wireless communication. Now, it serves its days as a living, functioning relic of a bygone era.

"When you actually go into a space, you feel it. You smell it," says Derek Harrison, Senior Interpreter at the Maritime Museum of the Atlantic. Harrison guides tours through the bowels of the ship, and provides insight into the daily lives of the crew that lived and worked onboard. "The ship, you feel it move. You get a real feel of what it was like to live aboard the ship for six months at a time."

Below-deck tours aren't available on any given day — the demand has to be there. But the museum is trying to offer as many as they can during this special exhibit, which includes artifacts, models, and photographs inside the museum walls.

"That's one of the reasons we put an exhibit in, so people wandering through [the museum] will see the value of *Acadia*, and what the Hydrographic Service did," says Harrison.

"We've been on ships before, in the United States, but never with a guide," says Cathy Keener, a tourist from Cincinnati, Ohio, who, with her husband, took the below-deck tour. "The way Derek is explaining things, and taking us everywhere — what could be better? You're seeing how people really lived. "

If you're interested in checking out the history in our own backyard, the exhibit runs until the beginning of November. But if you miss it, don't worry - you'll get another shot at it next Spring.

"We made a decision that it's too good an exhibit just to have a three-month run," says Lunn. "We're actually going to bring it back after March break in 2014."

"Right now, *Acadia* is in a transition - we need maintenance, and funding to do the maintenance," says Harrison, who urges people to support their local history while it's still here. "Come out, see the museum. Fill out a comment card. Anything that makes them aware that this is a real gem on the waterfront, but it needs maintenance. If you don't do that, she won't last another ten years."

[1]Originally published in the *Halifax Herald* , 18 September 2013, page 1.

The Importance of Research Vessels[1]

by Thomas J. Brown, Susan B. Fudge,
and George A. Rose
Memorial University of Newfoundland

The ocean covers almost three-quarters of the Earth's surface – some have said the planet should be called Ocean and not Earth – and all life on Earth is linked to the sea. From our evolutionary roots to the present day, the human link to the ocean has been one of dependence. Oceans became transport highways, their natural resources harvested for food for subsistence and later commercial use, and more recently again for exploitation of non-renewable resources such as oil and gas and perhaps, in the near future, undersea mining. As stewards of these vast resources, our record can easily be questioned. Tales of overfishing are well known, but perhaps of more importance, the oceans have become dumping sites for garbage and effluents, highlighted by the extensive trash patches in the Pacific Ocean and Sargasso Sea, where millions of tons of plastic and discarded refuse swirl in giant eddies. Lesser concentrations of the same stuff are present in all of the world's oceans.

The oceans are much more important to our future than is outer space, although budgets do not reflect this. We have been slow to acknowledge their importance and the interacting, potentially degrading effects of over fishing, resource exploration, pollution and climate change. It is surprising to note, especially given our dependence, that only 1% of our oceans are protected in some form from human use[2]. But times are changing. In the last 30 years or so we have begun to understand what human activity has been doing to the oceans[3]. Of particular concern, the opening Arctic Ocean covers approximately 30 million square kilometres and includes eight surrounding seas where natural resources are plentiful and much of the world's undiscovered petroleum reserves occur[4]. As temperatures rise, opportunities for new transportation routes, mineral resource development and fisheries will

The RV *Investigator,* Australia's new research vessel. Visit cirosfrvblog.com for stories and videos on its construction. Photo: CSIRO

increase. Maintaining the integrity of these sensitive northern ecosystems will require a new level of research and much more effective international stewardship.

The lack of wise stewardship of our oceans comes with a cost. The oceans are critical to the Earth's carbon and water cycles, and to regulating climate and weather systems. The oceans host an estimated 250,000 species[5], with phytoplankton producing half of the world's oxygen through photosynthesis. Over the past 200 years, escalating during the industrial revolution, carbon dioxide and other greenhouse gases have been pumped into the atmosphere. The result has been rapid warming of the oceans. Melting polar ice caps cause sea levels to rise. Weather patterns appear to be changing, with increased rainfall in some regions but drought in others. Super storms may become more frequent. Climate

change will also have significant impacts on marine ecosystems and the economic and social systems that depend on them[6]. The oceans are becoming more acidic, impacting coral reefs and crustaceans dependent on less acidic seas. Species distribution and abundance, growth rates, reproductive potential and survival are all potential candidates for change[7], with trophic and food web alterations affecting commercial fisheries in various ways, some predictable, some not. Sustaining productivity in world fisheries and conserving biodiversity in the world's oceans will require investment in research to assess the changes to come, and how best to deal with them.

So why do we need research vessels?

The answer is really quite simple. If we accept that better knowledge about the state of the oceans is required to guide ocean policies, then modern research vessels are mandatory. Years ago a research vessel might have been any boat from which scientists conducted research, but this no longer holds. The modern research vessel is a scientific lab designed to measure the ocean waters, plankton and fish communities and the seabed beneath. It is equipped with near as much technology as space station (although much less expensive) and, unlike ships of old, is purpose-built to have minimum impact on the sea and creatures being studied. Many are built to be super-quiet so as not to disturb the fish they are measuring. These include research vessels such as the Irish Marine Institute's *Celtic Explorer*, or the Norwegian Institute of Marine Research's *G.O. Sars*, and other research vessels in countries as diverse as the United States of America, Russia, France, Japan, New Zealand, Spain, South Africa, Mexico and the United Kingdom. These vessels work year-round gathering information on the state of the oceans and fish stocks and conducting many other aspects of marine research. Without them, there would be virtually no monitoring of fish stocks, no mapping of the ocean, and little of the research required to manage fisheries and regulate human impacts on the ocean.

Although Dr. Robert Ballard's locating of the *Titanic* is well known, more mundane mapping of the seafloor and its structures (including shipwrecks) has become a major occupation of many vessels using multibeam sonar. It would be wrong to assume, nevertheless, that research vessels are the centrepieces of all ocean research. Other so-called 'vessels of opportunity' or commercial vessels are sometimes employed in research, and mooring systems and remote sensing from satellites enable time and space sensitive observations that research vessels cannot provide. But even in these cases, research vessels are often used in the work; for example, to calibrate commercial vessels or deploy moorings at exact locations. All in all, there are over 800 research vessels currently operating around the world, ranging in length from less than 40 metres to greater than 70 metres. Unfortunately, the number of cruises has declined from approximately 1,700 in 2001 to 660 for 2010[8], and many of these vessels are reaching the end of their normal service period. Their continued service and use of new technologies is essential to improving the state of our oceans.

Research conducted at sea and on research vessels also helps keep scientists in touch with the seas they study. Without that, there is a risk of becoming solely "keyboard scientists", who never experience or have direct contact with their objects of study, or, on a more personal level, feel the power of the sea or taste the salt on their lips. Good decisions often take more than knowledge, but acquired wisdom, with the latter being "a hard-won property, and one unlikely to be garnered at the keyboard."[9]The Centre for Fisheries Ecosystems Research (CFER) at the Marine Institute of Memorial University sets itself apart in that we have implemented at-sea research and training as a centrepiece of opportunities for future scientists through the use of research vessels[10]. In summary, learning to become better stewards of the ocean and to use its resources sustainably are among the largest international imperatives of the 21st century. We need to learn from and on the sea, and to do this we need research vessels.

PS ... could Captain Kirk have boldly gone where no one had gone before without the Starship Enterprise? We think not!

[1]Originally published in *The Journal of Ocean Technology,* Vol. 8, No. 2, 2013.

[2] www.protectplanetocean.org

[3]Roberts, C. (2012). The ocean of life: the fate of man and the sea. Viking.

[4]http://arctic.ru/geography-population

[5]www.coml.org/pressreleases/census2010/PDF/English--Census%20Summary.pdf

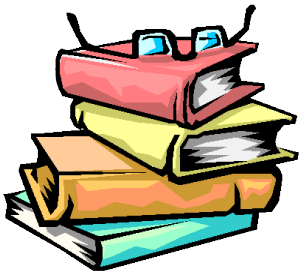
[6]Harley, C.D.G. et al. (2006). The impacts of climate change in coastal marine systems. Ecology Letters, 9, 228-241.

[7]Perry, A.L. et al. (2005). Climate change and distribution shifts in marine fishes. Science, 308, 1912-1915.

[8]www.researchvessels.org/index.htm

[9]Rose, G.A. (1997). Points of view: the trouble with fisheries science. Reviews in Fish and Fisheries, 7, 365-370

[10]www.mi.mun.ca/departments/entreforfisheriesecosystemresearch/researchfocus



Noteworthy Reads: Book Reviews in Brief

David N. Nettleship
Book Review Editor

The ***Noteworthy Reads*** section is an effort by BIO-OA to produce a representative list of recent noteworthy book publications related to the marine sciences and other subjects of general interest. The listing is not intended to be comprehensive or complete, but merely an attempt to highlight a number of 'good reads' that may be of interest to OA members and associates. Most books listed are available at local bookstores and public libraries. Book prices are regular retail in Canadian funds, but discounts of 20-30% are normally available on line at: e.g., amazon.ca or chapters.indigo.ca. Contributions of book reviews to 'Noteworthy Reads' are welcome – send via e-mail to David Nettleship: dnnlundy@navnet.net (phone: 902-826-2360).

Special Publication:

The Erosion of Knowledge and Science in Canada

Turner, Chris. 2013. The War on Science: Muzzled Scientists and Wilful Blindness in Stephen Harper's Canada. Greystone Books, Vancouver, BC. 170 pp. Softcover, $19.95 (ISBN 978-1771004312).- Here is a book that every Canadian should read! It is a succinct and well-researched statement of the disastrous policies of the current federal government of Stephen Harper, and the deliberate attempt by his party to put knowledge, its acquisition and application for wise decision-making in the 'back of the bus' during all policy development processes for the country. Author Chris Turner, award-winning journalist and advocate of evidence-based policy development, especially important environmental issues, highlights how the Harper government is systematically dismantling the environmental and conservation safeguards that have taken decades to produce and implement. He argues in a convincing manner that the time has come for all caring Canadians to denounce the current agenda of erasing reason and science from decision-making in favour of the present dangerous and destructive 'resource development at any cost' approach to the environment. The obvious shortcomings of such a position are demonstrated vividly in *War on Science*, beyond all imagination of thinking people, and goes a long way to reveal a callous and ignorant group of people that are destroying the country, oblivious to the fact that the essential ingredients of the living world will be lost along with all hope of the sustainability of Canada's natural resources in the absence of basic science and its findings. Read, understand, and then demand an immediate change in direction by the Government of Canada, to one that encourages reason and science to ensure a flourishing and healthy country now and in the future.

General Reviews

Dawkins, Richard. 2013. An Appetite for Wonder: The Making of a Scientist. Ecco Press (HarperCollins), New York, NY. 320 pp. Hardcover, $32.00 (978-0062225795).- The first memoir of renowned evolutionist Richard Dawkins, author of many benchmark books including the 1976 *The Selfish Gene* and the 2006 *The God Delusion*, provides a rare personal view of the childhood and intellectual development of one of the world's most accomplished evolutionary biologists. This book, the first of a planned two-volume memoir, provides a view of his childhood in colonial Africa, from right after World War II, his experiences in primary and secondary schools, through to his departure in 1959 for Oxford University, England. Although his early education was more than adequate and often stimulating, it was not until he reached Oxford and began reading zoology for his undergraduate degree that his intellectual development took off, largely, as he explains, due to the stimulating university environment, an abundance of world-renowned mentors, and the unique Oxford tutorial system. The remainder is well described, the Oxford awakening into the biological sciences and the discovery of natural selection and its processes that set the stage for what followed. The misunderstanding of how selection operated through the 1960s and early 1970s, the controversies over group selection, and the enlightening work by William Hamilton and John Maynard Smith resulted in a dramatic shift in Dawkins' research focus, culminating in his award-winning bestseller *The Selfish Gene*, a work that moved the study of biology towards a gene-focussed view of evolution. The second volume, tracking Richard Dawkins' interests and continued 'search for wonder' after 1976 to the present, can't come too soon!

Erwin, Douglas H. and James W. Valentine. 2013. The Cambrian Explosion: The Construction of Animal Biodiversity. Roberts and Company Publishers, Englewood, CO. 406 pp. Hardcover, $63.00 (ISBN 978-1936221035).- The Cambrian period with its 'explosion of life forms' is one of the most exciting and intriguing transitions in the history of life on the planet. This extraordinary book by two leading authorities on the subject – well written and beautifully illustrated - tackles the challenging grand old question of why and how the earliest animals, a few simple sponges, evolved into a rich and diverse fauna, an increase that was concentrated over a short 20 million years of the much longer Cambrian period with almost all extant animal phyla appear-

ing from the middle to upper Cambrian. Here, the authors avoid a 'single cause' explanation of the Cambrian explosion and instead, emphasize a multidisciplinary approach involving the development of complex networks linking geochemical, environmental, genetic, evolutionary, and developmental processes. Although this book is not an easy read and definitely not for the casual reader, it provides a significant reward for anyone interested in animal biodiversity and how it likely came about. A perfect study project for the doldrums of winter!

Ruse, Michael (Ed.). 2013. The Cambridge Encyclopedia of Darwin and Evolutionary Thought. Cambridge University Press, Cambridge, England. 583 pp. Hardcover, $77.00 (ISBN 978-0521195317).- Michael Ruse, master synthesizer of evolutionary history and philosophy, has produced a comprehensive and reference work on the labours and influence of Charles Darwin on the world by assembling 67 international leading scholars in the field with the aim of producing a unique overview of the subject. The 63 reviews ultimately produced comprise topics that range from biology in ancient Greece and the concept of evolution before Darwin, the discovery of 'natural selection' as the mechanism of evolution, and the many biological discoveries that followed to the far less common subjects such as genetics, molecular biology, paleoanthropology, language, cultural evolution, literature, philosophy (ethics and epistemology) and religion. Without question, this collection of interpretative essays on Darwin's influence forms the definitive reference on Darwin and his work, demonstrating how his ideas have shaped today's sciences and cultures.

Stacey, Frank D. and Jane H. Hodgkinson. 2013. The Earth as a Cradle for Life: The Origin, Evolution and Future of the Environment. World Scientific Publishing, London, England. 308 pp. Hardcover, $70.00 (ISBN 978-9814508322).- The principal objective of this volume on the history of Earth's physical and chemical evolution is to provide readers, from the general public to professionals in the environmental and earth sciences, with a strong and informed understanding of the environment. It is divided into three major parts – Physical and Astronomical Foundations, The Evolving Earth, and Human Influences – each providing comprehensive and interesting reviews of important topics, all delivered with clarity and purpose. Overall, *The Earth as a Cradle for Life* goes a long way in 'smoothing' the complexities and misconceptions that abound on the subject 'environment', showing how it has in all its forms, past and present, influenced life at every stage and will continue to do so even as recent human activities 'rock the cradle'.

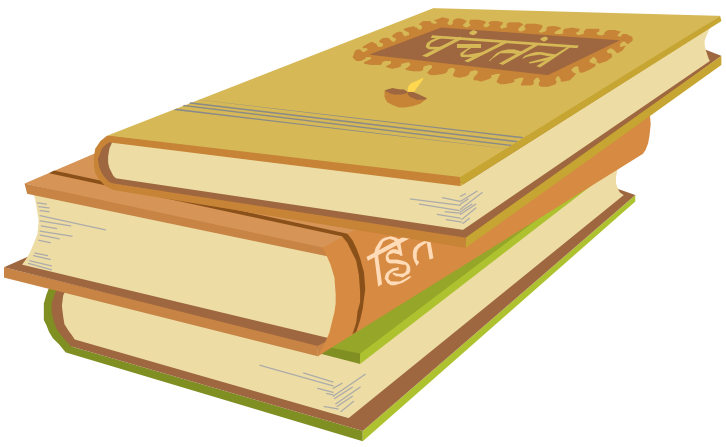
Tyson, Peter. 2013. Madagascar: The Eighth Continent – Life, Death and Discovery in a Lost World. Bradt Travel Guides, Chalfont St. Peter, England. 442 pp. Softcover, $19.00 (ISBN 978-1841624419).- This book by Peter Tyson, science and travel writer reporting science, natural history, and conservation, explores the natural and cultural history of Madagascar, the fourth largest island in the world, a short distance east of the mainland of southern Africa in the Indian Ocean. The account, based on four trips made between 1993 and 1997, is part travelogue, field report, and ecological history, which together describes an extraordinary land with a unique flora and fauna comprising many endemics including lizards, lemurs and bizarre plants such as the octopus tree and the three-cornered palm along with many other plant and animal species found nowhere else. An introduction provides historical context, followed by attempts to explain some of the 'mysteries' that exist including: the island's unusually high biodiversity, why so many large animal species (>25 pounds) became extinct over the past 2,000 years (elephant birds, pygmy hippos, many giant lemurs), the first arrival of humans, and why the predominant culture and language is Indonesian. Many of these features are addressed in depth along with details of the rain forests, the endemic and diverse lemurs, the mongoose-like fossa, and the three endemic bird families. Although Madagascar is home to five percent of the world's plant and animal species, the natural habitats and the fauna and flora supported by the island are being destroyed by extensive logging and 'slash and burn' agriculture practices. Tyson's book succeeds in bringing out the wonders of the island's unique ecosystem and the need for immediate world conservation concern and action, possibly through a carefully planned growth of tourism and ecotourism.

Van Grouw, Katrina. 2013. The Unfeathered Bird. Princeton University Press, Princeton, NJ. 287 pp. Hardcover, $49.95 (ISBN 978-0691151342).- If you enjoy birds or wildlife art, then this stunning work by artist Katrina van Grouw is a 'must-have' addition for your collection of special coffee-table books. With more than 385 drawings depicting over 200 species (stripped of feathers and skin), this book provides a unique view of bird anatomy that bridges art, science, and history. The artwork shows the similarities and differences in struc-

ture between avian species and groups, with an accompanying text that explains how the major anatomical characteristics displayed relate to the bird or group's lifestyle and evolution. The drawings are themselves works of art, presented in a large format produced from actual specimens placed in lifelike positions depicting the species in its natural environment. This book provides a rare view of what exits below the feathered surface of a bird showing the relationship between structure and function in a manner that sets a benchmark among popular bird books – an outstanding achievement that deserves to be widely admired and cherished. *The Unfeathered Bird* will certainly invoke further interest in birds and bird anatomy!

Walker, Gabrielle. 2013. Antarctica: An Intimate Portrait of a Mysterious Continent. Houghton Mifflin Harcourt, Boston, MA. 416 pp. Hardcover, $31.95 (ISBN 978-0151015207).- This book by scientist and writer Gabrielle Walker presents a special overview of Antarctica, a place like nowhere else on earth. She tries, and succeeds admirably, to produce a natural history of the only continent on the planet that is made up of two giant ice sheets and lacks a human history. We are introduced to the many experiences encountered as a National Science Foundation researcher visiting numerous field camps around the continent participating in studies with American, British, French, Italian, and New Zealand scientists including lengthy stints at the South Pole and the United States McMurdo base on the coast, the unofficial capital of Antarctica. The stories are astonishing and provide a glimpse into an Antarctica few people know about: a place of raw nature, science in operation as it searches for answers of the Earth's past that only Antarctica can provide, politics and international 'game-playing', and the ice that will ultimately influence all of our futures. The account separates into three parts by geography: first, a survey of the coastal stations on the East Antarctic Ice Sheet with its incredible year-round fauna – fish, seals, penguins, petrels – displaying bizarre adaptations for survival in extreme conditions; second, the high plateau in the interior of the eastern ice sheet where astronomical discoveries in the universe are made regularly through giant telescopes, and details of earth's climate are revealed by the extraction and analysis of bubbles of ancient air trapped under several kilometres of ice; and third, the West Antarctic Ice Sheet, although the smaller of the two ice sheets, the one most vulnerable to sliding into the sea and contains enough ice once melted to raise sea levels around the world by more than three metres. This book is a treasure house of information on Antarctica and what it represents to the world, as well as providing a detailed examination of the people who study this massive 'bottom-of-the-world' continent and are fascinated by its wonders. A captivating and informative read!

Wilson, Edward O. 2013. Letters to a Young Scientist. W.W. Norton, London, England. 244 pp. Hardcover, $23.00 (ISBN 978-0871403773).- E.O. Wilson, professor emeritus at Harvard University and winner of the Pulitzer Prize for his amazing *The Ants* among many other outstanding books, provides us with the wisdom derived both as a scientist and teacher for more than sixty years. This relatively small volume, intended for students, young and old, comprises 21 well-crafted letters that together show the nature of wildlife research, the need to be passionate about the study subject and topic of investigation, and the insatiable quest by the investigator for new information derived from rigorous observation and planning. Each letter is well-illustrated with autobiographical anecdotes focused on his career development and reasons for becoming a biologist. He underlines the importance of preparation – a solid grasp of general and specific knowledge of the area of interest – and discounts the necessity of being a 'math-whiz' or having a high IQ. The key to success in science is to think broadly and to observe carefully. Overall, Wilson shows through his own experiences – both successes and failures – how asking well thought-out questions and seeking answers through careful observation, leads to solid conclusions been drawn with advancements in knowledge and creativity the reward. This personal account by a master naturalist should be read by anyone who wants to know what it means to investigate wildlife or is already involved in the study of the natural world.



BIO-OA members cruise Halifax Harbour

On 24 July 2013, BIO-OA members and their families embarked on a tour of Halifax Harbour aboard the MV *Harbour Queen.* Fog was present and especially thick as we approached Chebucto Head obscuring the view of the shoreline. Some wildlife was spotted. Seabirds followed the boat out of the harbour, probably mistaking it for a fishing vessel. Cormorants were standing at attention on a navy buoy near MacNab's Island and two seals were spotted on our return journey, but the usual Minke Whales were absent.

Photos: clockwise from top left: Paul Keiser points out a seal or seabird? for his wife Sheila; Claudia Currie with her hair in the wind; from l or r, Sheila and Paul Keiser, Gordon Fader; Iris Hardy (left) and Nelly Koziel (right); other boats providing harbour tours, *Harbour Hopper* (left) and *Theodore Too* (right); and the tour guide describes the contents of a lobster trap the tour operator maintains in the outer harbour (no lobsters were caught this day).

More photos from the Halifax Harbour Cruise: top to bottom, lighthouse on MacNab's Island with the Dartmouth waterfront barely visible through the fog; cormorants standing at attention on a navy buoy; and MV *Songa Winds* enters the harbour in the fog.

Editor's Keyboard: The focus of this issue is on research vessels, old and new. An article from the *Journal of Ocean Technology* (JOT) is reprinted on the importance of research vessels (see p. 5). The whole JOT issue is worth reading and includes an essay by the Canadian Coast Guard on sea-keeping modelling for the CSS *Hudson* replacement. I would encourage readers to visit the blog for Australia's new 'blue water' research vessel the RV *Investigator* (cirosfrvblog.com), a ship that is larger than the ship it is replacing. The CSS *Acadia* has a special connection to BIO and this newsletter. I remember her alongside the jetty for many years after I arrived at BIO in 1971. The *Acadia* is in need of 'tender loving care'. She is the largest and most prominent artifact the Maritime Museum holds and she is a National Historic Site. Funding for conservation is needed. Should this be a concern of OA members? Finally, the future prospects for science in Canada, especially government-executed science, are dire. I would encourage readers to watch 'Everyone Loves a Story, Even Policy Makers' at coastgis2013.ca for ideas on how to better communicate science. *Andy Sherin*

ABOUT THE BIO-OCEANS ASSOCIATION

The Bedford Institute of Oceanography Oceans Association (BIO-OA) was established in 1998 to foster the continued fellowship of its members; to help preserve, in cooperation with the Institute's managers and staff, BIO's history and spirit; and to support efforts to increase public understanding of the oceans and ocean science. Membership is open to all those who share our objectives. Most current members are present or past employees of BIO or of the federal departments of Environment, Fisheries and Oceans, and Natural Resources (or their predecessors) located in the Halifax Regional Municipality. Membership is $10.00 per year, $40.00 for five years, or $150.00 for a lifetime membership.

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