

THE PACIFIC CIRCLE



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PACIFIC CIRCLE NEWS

FORTHCOMING MEETINGS

The Pacific Circle is organizing two major events for the XXIst International Congress for the History of Science, scheduled for July 8-14, 2001, in Mexico City. **A general meeting will be held during the Congress to elect a new Pacific Circle executive; nominations for officers and council members are strongly encouraged.** In addition, the Circle and the Commission on Oceanography will hold a joint symposium, "From the Pacific to the Atlantic: Oceans, Peoples, and the Pursuit of Natural Knowledge." If you have any questions about Pacific Circle activities at the Congress, please contact:

Roy MacLeod <roy.macleod@history.usyd.edu.au> or

Fritz Rehbock <frehbock@hawaii.edu>

Information about the International Congress is being updated during the first week of each month at <<http://www.smhct.org>>. That website can be used to access the current Circular, which can be read in English, Spanish or French. Further questions? Contact Prof. Juan José Saldaña at xxiichs@servidor.unam.mx

or

c/o XXIst International Congress of History of Science

Apartado Postal 21-873

Mexico City, D.F. 04000, Mexico

or visit the conference website at <<http://www/smhct.org/default.htm>>. Please note: the deadline for paper abstracts is 30 April 2001.



It is not too early to begin thinking about the Pacific Circle's participation in the forthcoming **History of Science Society** meeting in Denver, Colorado., to be held 8-11 November 2001. Those interested in organizing a panel and/or delivering a paper, are encouraged to contact Peter Hoffenberg as soon as possible, at <peterh@hawaii.edu>. Among the possible themes for Pacific Circle panels with a clear "Pacific" orientation are the exhibition and display of science at museums, fairs, scientific meetings,

and exhibitions; Polynesian, Melanesian and Micronesian "ways of knowing;" issues in oceanography, marine biology and both climate and seismic studies; the institutional and professional development of science and the history of science in national or transnational contexts; and the interactions between indigenous communities and scientists.

RECENT MEETINGS

Vancouver HSS Meeting, 3-6 November 2000

by Fritz Rehbock

"Regulation Northwest Gray" greeted the 650 historians and 300 philosophers who descended upon Vancouver, BC, during the first weekend in November, for the joint meeting of the History of Science Society and the Philosophy of Science Association. But before the meeting ended, the clouds parted for one glorious day, enticing participants from the Hyatt Regency onto the downtown streets in search of Vancouver's justly famous seafood and other delights. Early arrivers to the conference were treated to an opening night reception at the University of British Columbia's renowned Museum of Anthropology. The magnificent totem poles stood at least five stories tall, even to those who avoided the bar.

A Pacific Circle symposium, organized for this conference by **Roy MacLeod**, took place on the second day, and attracted nearly 50 listeners. The theme of the symposium was museum treatments of Pacific science, broadly conceived. Under the general title "Nature's Empires: Museums and the Cultivation of Knowledge in the Pacific," Professor MacLeod chaired an afternoon session on "Exploring Meanings," and an evening session, "Creating Memories."

Sujit Sivasundaram (Cambridge University) began the afternoon session by describing the collections of the London Missionary Society's museum, established in the early 19th century to display the relics of "savagery" and demonstrate the progress of the society's evangelical aims. **Richard Burckhardt** (University of Illinois, Urbana-Champaign) discussed the establishment and mixed success of the School for Naturalist Voyagers, funded by the French government and operated by the Muséum d'Histoire naturelle in Paris, beginning in 1819. **Jim Endersby** (Cambridge University) analyzed the metropolitan-colonial power relationships between Joseph Hooker (London), William Colenso (New Zealand) and Ronald Gunn (Tasmania), and their influence on botanical taxonomy. And **Janet Garber** (independent scholar) recounted the life of Lady Jane Franklin, with special



Participants (l. to r.) in the “Exploring Meanings” session: Roy MacLeod, Jim Endersby, Richard Burckhardt, Sujit Sivasundaram, and Janet Garber

attention to her efforts to found a natural history museum in Tasmania in 1842.

The evening session featured papers by two anthropologists from the UBC Museum. **John Barker** led off with an account of his experiences among natives of Papua New Guinea and their eagerness to relinquish to anthropologists ancestral artifacts thought to be bewitched and likely to cause illness or death. **Alexia Bloch** then spoke on her visits to museums in west, central and east Siberia, highlighting the uncertainties faced by local curators since the demise of the Soviet Union and its standard narrative of State progress.

Abstracts of all papers were included in *BPC5*. Prof. MacLeod is now working with the authors to publish the full text of their papers in a future issue of *Pacific Science*.

Several other sessions included interesting papers relevant to the Pacific. At a session on “Voyages of Science/The Science of Voyages,” **Jordan Goodman** (University of Manchester Institute of Science and Technology) spoke on “Mr. Huxley’s Voyage? Making Imperial Space and Knowledge in the mid-19th Century.” And in a session entitled “Readers, Writers, and Audiences, 1500-1900,” **Ellen Valle** (University of Turku, Finland) discussed the influence of correspondence format in the making of knowledge from the colonies, in her paper “From Sloane to Owen: Epistolary Episodes in the Construction of Natural History.” Finally, a heavily attended session on “Maps for Enlightenment: Cartography and Science in



At the evening session, "Creating Memories" (l. to r.): Roy MacLeod, Alexia Bloch, John Barker, and Fritz Rehbock

the Eighteenth Century," featured papers by **Matthew Edney**, **Anne Godlewska**, **Michael Bravo** and **Michael Dettelbach**. The commentator was **John Heilbron**.

I must confess, however, that my favorite contributions to the meeting were non-Pacific, namely the back-to-back papers by **Katharine Anderson** and **Alison Winter**, on the Victorian use of lower animals as components of scientific instruments. The underlying assumption was that animal instincts would be more acute and reliable than human rationality. The first paper described the "Tempest Prognosticator" displayed at the Great Exhibition of 1851, in which leeches were employed to signal coming storms, or so it was claimed by inventor George Merriweather. The second paper described the "Snail Telegraph," which employed the sympathetic attractions between snail pairs to transmit wireless messages around the world. What a pity it didn't work: "escargotic power" might have eased substantially the tyranny of Pacific distances in the 1850s!

Mary Jo Nye (Oregon State University) delivered the annual society lecture, which she titled "The Cultural and Political Sources of Science as Social Practice." She explored the social context of Michael Polanyi's career in physics and philosophy of science, in order to illuminate the changing fashions of 20th-century science historiography, which she described as a progression from heroes to ideas, then to communities, and finally to scientific practice.

PUBLICATIONS

A number of the Pacific Circle papers presented at the XIXth Pacific Science Congress in Sydney in 1999 have been published as "Historical Perspectives on Pacific Science," a special issue of *Pacific Science*, Volume 54, Number 3, July 2000, under the editorship of Roy MacLeod. Those papers include:

Roy MacLeod and **Philip F. Rehbock**, "Developing a Sense of the Pacific: The 1923 Pan-Pacific Science Congress in Australia"

John Gascoigne, "Motives for European Exploration in the Pacific in the Age of the Enlightenment"

John Andrews, "Natural History in New Zealand: The Legacy of Europe"

Ruth Barton, "Haast and the Moa: Reversing the Tyranny of Distance"

Robert C. Kiste and **Mac Marshall**, "American Anthropology in Micronesia, 1941-1997"

M. D. Merlin, "A History of Ethnobotany in Remote Oceania"

Donald Avery, "Wartime Medical Cooperation across the Pacific: Wilder Penfield and the Anglo-American Medical Missions to the Soviet Union and China, 1943-1944."

For copies of this issue, contact the University of Hawaii Press, 2840 Kolowalu Street, Honolulu, HI 96822, USA.

NEW MEMBERS

Welcome to **Jordan Goodman**, a Senior Lecturer in History at the University of Manchester's Institute of Science and Technology (UMIST). Some of you might have met Dr. Goodman at the recent HSS conference in Vancouver, where he delivered a paper on T. H. Huxley (see above). Jordan writes the following to introduce himself:

"My main interest in recent years has been in cultural history, and the history of science and medicine, mostly in the nineteenth and twentieth centuries. I have published journal articles and books in these fields, including: *Tobacco in History: The Cultures of Dependence* (Routledge, 1993); *Consuming Habits: Drugs in History and Anthropology* (1995), an edited volume; and *The Story of Taxol: Nature and Politics in the Pursuit of an Anti-Cancer Drug* (Cambridge, 2001).

"My current research project focuses on the scientific voyage of HMS *Rattlesnake* (1846-1850) on the eastern coast of Australia, the southern

coast of New Guinea and the Louisiade Archipelago. I am particularly interested in exploring relationships on the voyage as they interacted with scientific practice—natural history collecting, surveying and mapping—and the imperial commissions in making space for commerce, settlement and political leverage in the region. This research is being supported by the Royal Society and the British Academy.”

Greetings also to **Mark McNally**, Assistant Professor in the Department of History at the University of Hawaii, Manoa, who is also pursuing research of likely interest to members of the Pacific Circle. Mark writes that his research interests are in early modern Japanese intellectual history and that he is currently preparing a book manuscript on the discursive and institutional development of Japanese nativism. Related to this project, he is working on two smaller projects dealing with the history of science in Japan:

“The first is a study of the impact of Western astronomical theory on the development of nativist discourse during the 1790-1830 period. A handful of Japanese scholars studied Dutch astronomical works and were encouraged by them to re-interpret Japan’s mythological origins in a metaphorical way, eschewing the literal interpretation favored by traditional literary scholars. This study focuses on the work of one nativist in particular who used this metaphorical approach to justify his interests not in astronomy, but in spirits and the afterlife.

“The other study...involves the practice of Chinese medicine as a vocation for nativists. While nativists argued against what they saw as the pernicious influence of Chinese culture on Japan, many were forced to make a living as physicians of Chinese medicine. I want to examine this phenomenon as a disjuncture between nativist ideology and practice. Nativists of the eighteenth century saw no conflict between their scholarly interests and their medical practices. It was not until the nineteenth century that they realized the contradiction, and they began to argue for a uniquely Japanese form of medical practice, one that had close affinities with Western medicine. This development was significant institutionally, and it helped give shape and coherence to nativism as an important intellectual movement of the 1850s and 1860s.”

Welcome, as well, to **Gary Kroll**, an Assistant Professor in the History of Science Department at the University of Oklahoma, Norman. Gary recently completed his dissertation, entitled *Exploration in the Mare In-*

cognita: Natural History and Conservation in Early Twentieth Century America. This study included chapters on the New York-based Explorers Club, Roy Chapman Andrews, Robert Cushman Murphy, William Beebe, the Pacific Science Board, Rachel Carson, and Eugenie Clark.

Garry writes from Norman: "...with credentials in both American History and the History of Science, my research brings together environmental history and science studies—concentrating on western knowledge systems—mostly through the quasi-science of twentieth-century natural history. Writing a dissertation on oceanic natural history, exploration, and conservation has given me an appreciation of the role of the Pacific Ocean as a key economic and strategic frontier after World War II. My research in this area has focused on the Pacific Science Board's 'big natural history' initiative aimed at the postwar Micronesian Trusteeship. That chapter will likely become part of a wider cultural, social, and environmental history of Micronesia in the post-war period. While historical treatment of this time and place has generally concentrated on nuclear testing in the northern Marshalls, I propose to highlight some of the interesting clashes between Western and Micronesian cultures in the southern territories, and the implications for changes in land-use."

IUHPS/DHS NEWS

The Annual Report of the Pacific Circle for 1999 was submitted earlier this year to the Secretary General of the International Union for the History and Philosophy of Science, Division of History of Science. Copies are available by contacting Peter Hoffenberg at <peterh@hawaii.edu>.

The Inaugural Symposium of the Commission on the History of Meteorology, IUHPS, will be held at the upcoming XXIst International Congress of History of Science in Mexico City. Prof. James R. Fleming, President of the Commission, calls for papers on "International Perspectives on the History of Meteorology: Science and Cultural Diversity." Papers are requested on international aspects of the history of meteorology, including scientific, environmental, social, political and cultural issues. Please send your name, affiliation, paper title and brief abstract to:

Prof. James R. Fleming, President
Commission on History of Meteorology
STS Program

5881 Mayflower Hill
Colby College
Waterville, ME 04901, USA.
Email: jriflemin@colby.edu.

The newsletter for the IUHPS-IAU Joint Commission on Astronomy is available at <<http://www.astropa.unipa.it/IUHPSnews/index.html>>. Contact Illeana Chinnici, Secretary, for further information.

PACIFIC WATCH

The Department of Oceanography at the University of Hawaii, Manoa, will offer a maritime archaeology course between June 18 and July 13, 2001. This is a hands-on experiential class and part of the Graduate Maritime, Archaeology and History certificate program. The course includes lectures, field trips and a near-shore/in-water training project in submerged cultural resources surveying techniques. The field work will feature ten days of camping and systematic surveying of selected shipwreck sites on Lanai, one of the Hawaiian islands with a significant number of unsurveyed and unstudied shipwrecks. Students and faculty will systematically chart and record the sites using global positioning satellite systems, baseline trilateration, EDM laser systems and other technologies. Students will then compile the results as a final project. For more information, please contact Hans Van Tilburg at <hkvant@hawaii.edu> or the University of Hawaii's Department of Oceanography at <ocean@soest.hawaii.edu>.

CONFERENCE REPORTS

Sujit Sivasundaram (Department of History and Philosophy of Science, Cambridge University) has been kind enough to send the following report on the Fourth British-North American Joint Meeting of the BSHS, CSHPS and HSS, held in St. Louis, MO., on August 3-5, 2000:

The conference saw much debate on the future of the discipline, living up to its title, "At the Millennium: What is to be done?" **Jan Golinski** gave the keynote address, highlighting the increasingly important role that narrative plays in the history of science. He commented that historians should learn more about how to use narrative by studying how it is used in popular

histories of science. It was said that cultures use narrative to assert identity, and further that the rise in multi-culturalism may see a greater explosion in the use of this genre. It occurred to the author that historians must however be careful in the categories they adopt in framing their narratives. Biography, a theme that was discussed in the keynote address, does have its disadvantages in making the reader focus exclusively on an individual and thereby fostering notions of genius. Constructing a narrative around the category of the nation may be similarly unhelpful, as it may be found to foster notions of nationalism that hinder the historian's task.

The remainder of the conference was divided into theme sessions. "Scientific Ways of Seeing: A Re-Vision" was particularly strong, showing how historians may interpret the material objects of display. **Emma Spary's** presentation on shell collections may be of interest to members of the Pacific Circle. She discussed the arrangement of shells and demonstrated how the aesthetics of display contributed to the impression that the natural world was authored. **Anne Secord** and **Anke te Hessen** also directed the attention of the delegates to the labor surrounding illustrations and the various functions they may perform. Anne spoke of how illustrations could be used in recruiting new botanists, while Anke argued that the cupboard in which natural specimens were displayed allowed a particular form of access and a different attitude towards naturalia.

Running parallel to that session was one titled "The History of Science in National Context," which included **Rod Home** speaking on Australia and New Zealand. That paper might be of particular interest to Pacific Circle members.

The overall program showed a strong commitment to visual and material culture, emphasizing that this trend is now very central to the discipline. Even in an area such as science and religion, which has traditionally been characterized by a focus on the doctrine of natural theology, the materiality of the book was said to be highly illustrative. In a session titled "Reading 'Books of Nature'," **Jonathan Topham** urged that greater attention be paid to the textual features of the sources and their means of production.

The conference ended with an ambitious plenary session, "What is to be Done?" **Lesley Cormack**, **Ludmilla Jordanova**, and **Ron Numbers** spoke as representatives of the three host societies. They spoke about the state of the discipline and its future in the next millennium. Among the issues raised were: the neglect of world science because of the constraints of language; the need to engage with the wider public about the understanding of science; the relationship between the new cultural history of science

and the history of ideas; the relationship between the history of science and other disciplines; the need for more master narratives; the neglect of comparative history; the danger that micro histories will lead to greater specialization; and the neglect of pre-modern history of science.

Richard Sorrenson (Department of History and Philosophy of Science, Indiana University) also forwarded a short report of the meeting. He highlighted the opportunity to meet again with Australasian, British and Canadian colleagues, as well as attend stimulating sessions on the eighteenth century and scientific instruments. Richard writes that "Two sessions in particular showed how much the history of science has been strengthened by taking the materiality of science seriously. The first, 'Scientific Ways of Seeing' emphasized the centrality of the production and organization of scientific images to the practice of natural history in the eighteenth century, while the second, 'New Directions in the History and Material Culture of Experiment,' highlighted the complexities of making matter do what it was supposed to do. **Ludmilla Jordanova's** commentary on the former was a masterpiece of its genre: trenchant, intelligent and forward looking."

FUTURE CONFERENCES & CALLS FOR PAPERS

14-17 February 2001. Annual Meeting of the Association for Social Anthropology in Oceania, at the Miccosukee Resort, Miami, FL. Sessions range from gender, race, and religion to critical ethnography and popularizing Pacific anthropology. For additional information, please see the Association's website at <<http://www.soc.hawaii.edu/asao/pacific/hawaiki.html>>.

17-19 February 2001. 13th Annual Symposium on the Maritime Archaeology and History of Hawaii and the Pacific, to be held at the Hawaii Maritime Center, Pier 7, Honolulu, HI. The four paper sessions for this year's conference will be: Submarines and the Evolution of Undersea Technology; Pacific Maritime History; Current Projects in Pacific Maritime Archaeology; and Education and the Community. Field trips include an historic water tour of Pearl Harbor's West Loch, hosted by the U.S. National Park Service. Send inquiries to <ocean@soest.hawaii.edu> and consult the conference website at <http://www2.hawaii.edu/mop/gmahcp/mop_symp2001.html> for additional information.

10-11 April 2001. “Space, Culture, Power” at the University of Aberdeen. Papers are invited to discuss, apply, or interrogate the terms space, culture, and power in theoretically-informed ways. Further details from Dr. Phil Withington, Lecturer in Cultural History, Old Brewery, University of Aberdeen, Aberdeen, Scotland, AB24 3UB. Email: p.j.withington@abdn.ac.uk.

19-21 April 2001. “Exhibiting Culture/Displaying Race,” the Interdisciplinary Nineteenth-Century Studies 16th Annual Conference, to be held at the University of Oregon, Eugene, OR. Please contact Profs. Shari Huhndorf or Richard Stein, English Department, University of Oregon, Eugene, OR 97403 or by email at incs2001@oregon.uoregon.edu. Full information is available at: <http://oregon.uoregon.edu/~incs2001/>.

10-11 May 2001. “Lost, Stolen, or Strayed? The Fate of Missing Collections,” the 13th International Conference of the History of Natural History Society, to be held in Leiden, The Netherlands. Gina Douglas, Meetings Secretary, is currently putting together the program and welcomes presentation proposals. Please contact her at gina.douglas@ukgateway.net.

1-6 June 2001. “The Integration of Natural and Social Sciences in the New Pacific Millennium,” the Tenth Pacific Science Inter-Congress, will be held at the University of Guam. Topics to be discussed include health, science and climate change. For information, please contact Joyce Marie Camacho, 10th PSI-C Coordinator, Graduate School & Research, University of Guam Station, Mangilao, Guam 96923. Email: jcamacho@uog9.uog.edu. Information is also available at the conference website:

<http://www.10psiguam.html>.

20-24 June 2001. “Maury III: The Machine in Neptune’s Garden— Historical Perspectives on Technology and the Maritime Environment,” the Third Biennial Conference on the History of Oceanography, to be held at the Monterey Bay Aquarium Research Institute, Monterey, CA. Please contact Gary Weir, U.S. Naval Historical Center, 805 Kidder Breeze Street SE, Washington Naval Yard, Washington, D.C. 20374-5050. Email: weir.gary@nhc.navy.mil.

24 June-1 July 2001. “Geological Resources and History: Rocks and Dinosaurs,” the annual meeting of INHIGEO, to be held in Lisbon and Aveiro. Please contact Prof. Manuel Pinto, Department of Geosciences, University of Aveiro, 3810-Aveiro, Portugal. Email: mpinto@geo.ua.pt.

25-28 June 2001. Annual Conference of the Australasian Association for the History, Philosophy and Social Studies of Science, to be held at the University of Melbourne, Parkville, Victoria, Australia. Conference streams include: History and Sociology of Medicine; History of Science and Technology; Sociology of Science and Technology; Public Understanding of Science and Medicine; and Philosophy of Science. Contact Neil Thomason at <n.thomason@hps.unimelb.edu.au>.

8-14 July 2001. XXIst International Congress of History of Science, to be held in Mexico City. The conference theme is "Science and Cultural Diversity." See above, pages 2, 8.

18-22 July 2001. Meeting of the International Society for the History, Philosophy, and Social Studies of Biology, at Quinnipiac University in Hamden, Connecticut. Please contact:

David Valone at <david.valone@quinnipiac.edu> or

Kathy Cooke at <kathy.cooke@yale.edu>.

10-14 September 2001. Seventh International Leibniz Congress, at Technische Universität Berlin. For additional information, contact Prof. Hans Poser, Institut für Philosophie, Wissenschaftstheorie, Wissenschafts und Technikgeschichte der TU Berlin, Ernst-Reuter Platz 7, D-10587 Berlin, Germany.

8-11 November 2001. Annual Meeting of the History of Science Society, to be held in Denver, CO. Please contact <hssexec@u.washington.edu> for further information.

11 November 2001. "British Naturalists in their Local Setting," at Rewley House, Oxford. Speakers will include Anne Secord, Arthur Chater, and David Allen. Further details available from the Administrative Assistant, Day and Weekend Schools, OUDCE, 1 Wellington Square, Oxford, England OX1 2JA. Email: pppdayweek@contend.ox.ac.uk.

PRIZES, GRANTS AND FELLOWSHIPS

The Royal Society of London now provides grants to support publication of research in the history of science, technology, and medicine. The funds are

intended to help defray the costs of publishing scholarly books that are likely to have a limited sale, or which need, for example, to be illustrated with expensive plates. Grants are also available for limited identifiable research in the above areas and to attend overseas conferences. Application forms and further details are available from Miss J.E.C. Lewis, The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG, England or from the Society's website at <<http://www.royalsoc.ac.uk>>.

The East-West Center at the University of Hawaii, Manoa, is pleased to announce its 2001 South Pacific Islands Scholarship Program competition. Up to seven merit-based scholarships will be awarded to individuals from South Pacific countries to pursue Bachelor's and Master's degrees at U.S. institutions in fields related to Pacific developmental needs. Those fields include environmental sciences and health. The application deadline is February 1, 2001, for awards beginning August, 2001. Application information and materials are available from <pidpusia@eastwestcenter.org> and at <<http://pidp.ewc.hawaii.edu/pidp/Awards/spsaward.htm>>.

The British Society for the History of Science awards the Singer Prize every two years to the writer of an unpublished essay based on original research in any area of the history of science, technology, or medicine. The Prize is intended for younger scholars or recent entrants into the profession. Candidates must be registered for a postgraduate degree course or have completed such a course within the last two years. Essays must not exceed 8,000 words, including notes. For further information, please contact the BSHS Secretary at <SMH4@leicester.ac.uk>.

"Scientific Exchanges Between Islam & Europe: The Making of the Modern World, 1300-1800" is the subject of the 2001-2002 Rockefeller Foundation Fellowship in the Humanities at the University of Oklahoma. Applications are invited from scholars situating their research in the history of science within the broader framework of comparative studies of Islam and the West, the creation of modern "Western" and "Islamic" identities, and questions of "civilizational" difference. Possible topic areas include transmission of scientific ideas between Islam and the West, the roles of various communities as political and economic factors in this transmission, comparisons of knowledge structures and the institutionalization of knowledge, and the role of travelers. Information/application materials: Dr. F. Jamil Ragep, History of Science Department, 601 Elm Street, Room 622, The University of Oklahoma, Norman, OK 73019-3106, USA. Email: jragep@ou.edu.

ARCHIVES AND COLLECTIONS

Navigational Aids for the History of Science, Technology and the Environment (NAHSTE) is funded by the Research Support Libraries Programme and aims to bring together traditional and new forms of access to library and archival information to support academic research. NAHSTE opens up outstanding collections of archives, manuscripts and journals to historical research in two main fields: the history of technology and the history of the environment. Further details are available from the Project Archivists, Sarah Dobson <Sarah.Dobson@ed.ac.uk> and Andrew Thomson <Andrew.Thomson@ed.ac.uk>. The NAHSTE website can be accessed at <<http://www.nahste.ac.uk>>.

The Moving Images of the Pacific Islands web site has been updated for those interested in videos and films about the Pacific. Over 100 new titles have been added and the guide now includes information about over 2400 films and videos, including materials about distribution. The site can be accessed at <<http://www.hawaii.edu/oceanic/film>>. If you have any questions or suggestions, please contact Julie Walsh at <jjwalsh@hawaii.edu>.

A new web site devoted to the life and work of Alfred Russell Wallace can be accessed at <<http://www.wku.edu/smithch/index1.htm>>.

The United States Geological Survey (USGS) has issued Circular 1179 in CD-ROM format. It includes Mary Rabbit's short history of the Survey, previously issued as Circular 1015, and Renee Jaussaud's finding aid for Record Group 57, USGS and predecessor federal surveys. For a free copy, write or fax: USGS Information Services, Box 25286, Federal Center, Denver, CO 80255 USA; fax: 303-202-4693. Please specify file 21-1179.

BOOK AND JOURNAL NEWS

Mains'l Haul: A Journal of Pacific Maritime History invites scholars and students to submit articles for publication on any aspect of humanity's relationship to the Pacific Ocean. Papers on relevant topics of social, cultural and labor history are strongly encouraged, as well as those from traditional maritime history perspectives. Please send submissions of 3,000 words

or fewer in length, plus endnotes to: Mark Allen, Editor, *Mains'l Haul*, San Diego Maritime Museum, 1306 North Harbor Drive, San Diego, CA 92101 USA. Additional information about the journal and submissions can be found at <www.sdmaritime.com/journal>. Articles should be for both a general and scholarly readership.

Interested in issues of anthropology, museum studies and indigenous histories in the Pacific? If so, please consult *COMA, the Bulletin of the Conference of Museum Anthropologists*. This journal serves as a forum for discussing a range of cultural heritage issues from a variety of perspectives, including those of relevance to the human sciences. Inquiries can be directed to the current editor, Lindy Allen, Indigenous Cultures Program, Museum Victoria, P. O. Box 666E, Melbourne, Victoria 3001, Australia.

The British Journal for the History of Science has a new book editor and is looking to expand its coverage of recent literature. Scholars interested in reviewing for the *Journal* should contact Dr. Ben Marsden, Lecturer in Cultural History, University of Aberdeen, Aberdeen AB24 3UB, Scotland, United Kingdom.

Merval Hoare has recently published *Norfolk Island: A Revised and Enlarged History: 1774-1998*. This book provides an authoritative account of the Island's history and conservation from the perspective of a long-time resident. For information, contact: Central Queensland University Press, P.O. Box 1615, Rockhampton, Queensland 4700, Australia.

Astronomy Across Cultures: The History of Non-Western Astronomy (Kluwer Academic Publishers, Cloth, ISBN 0-7923-6363-9) is now available. Edited by Helaine Selin, this is volume one of the new series, *Science Across Cultures: The History of Non-Western Science*. Sun Xiaochun serves as the advisory editor. Contributing scholars discuss astronomical knowledge and beliefs in various non-European and non-mainstream U.S. cultures, including, but not limited to, Chinese, Native American, Aboriginal Australian, and Polynesian. For example, Michael E. Chauvin has contributed an essay entitled "Useful and Conceptual Astronomy in Ancient Hawaii." This and the other essays seek to address connections between science and culture, and relate the astronomical practices to the cultures in which they were produced and practiced. All of the essays are accompanied by illustrations and an extensive bibliography.

The Pacific Islands: An Encyclopedia (University of Hawaii Press, Cloth, ISBN 0-8248-2265-X), edited by Brij V. Lal and Kate Fortune, brings together in one text information on major aspects of Pacific Island life, including the physical environment, economy, history and culture. The information was compiled by some of the world's leading scholars from the Pacific, Canada, Japan, Europe and the United States. The encyclopedia includes a CD-ROM containing hyperlink connections between cross-referenced section titles and sections, a library of all maps reproduced in the encyclopedia, and a photo library.

Judith A. Bennett's *Pacific Forest: A History of Resource Control and Contest in Solomon Islands, c. 1800-1997* (Brill Press and White Horse Press, Cloth, ISBN 1-874267-09-X) is now available from The White Horse Press at <<http://erica.demon.co.uk>>. This volume explores the use of the forests of the Solomon Islands from the prehistoric period up to the end of 1997 when much of the indigenous commercial forest had been logged. Prof. Bennett analyzes the forest policies and practices of both the colonial and post-colonial governments.

Research updates on "The Global Eighteenth Century: The Four Corners of the Earth" are published in the Spring 2000 *Newsletter* of the William Andrews Clark Memorial Library in Los Angeles, CA. Anna Neill's discussion of "James Morrison's Tahiti" might be of particular interest to Pacific Circle members. Her study rethinks previous assumptions about the sailors' Tahitian experience, including the history of the H.M.S. *Bounty* and the interactions between its crew and Pacific islanders. There is considerable discussion about Pacific botany and ethnography.

BOOK REVIEWS

Roy M. MacLeod, ed. *The 'Boffins' of Botany Bay: Radar at the University of Sydney, 1939-1945*. (Historical Records of Australian Science, Volume 12, Number 4). Canberra: Australian Academy of Science, 1999. Pp. 411-493. Notes, bibliography. \$AUS15 or \$AUS20 (orders outside of Australia), paper. ISBN 0727-3061.

Roy M. MacLeod, ed. *Science and the Pacific War: Science and Survival in the Pacific, 1939-1945*. (Boston Studies in the Philosophy of Science, Volume 207). Dordrecht: Kluwer Academic Publishers, 1999. Pp.

320. Bibliography, index, illustrations. \$US149, cloth. ISBN 0-7923-5851-1.

The 'Boffins' of Botany Bay is a special thematic issue edited by Roy MacLeod. Most of the text is produced by Harry Minnett, longtime Australian specialist in radar, antenna research, and radio astronomy. One interesting contribution from other first-hand observers details the wartime training of Australian radar officers organized by Prof. Victor A. Bailey, recipient of one of the first two Ph.D. degrees awarded, in 1924, by Oxford University. Two useful contributions concern the potential for use of radar records in the National Archives of Australia and in the Australian central science research organization, the CSIRO.

There is good stuff here and, although the title *'Boffins' of Botany Bay* is a stretch, one sees the growth of Australian radar efforts from the ionosphere and radio physics work of Prof. John Marsden, the brilliant but troublesome David F. Martyn, and staff members, including George Munro, Jack Piddington, and Minnett himself, among others. Fred W. G. White was borrowed, or stolen, from New Zealand and contributed a great deal to Australian radar defense. I knew a number of these figures or their students, and the narrative rings absolutely true as to the genius of Joseph Pawsey. He contributed tremendously to antennae during World War II and in the great period of Australia's rise to world leadership in radio astronomy antenna design in the two decades following that war. Pawsey's early death was a severe loss to radio astronomy.

What were the challenges to obtaining or quickly developing, powerful, sensitive, mobile radar defense equipment in Australia? The background in ionospheric physics was key, since the early radars operated at HF and VHF frequencies and ionospheric technologies and techniques were the springboard for further development. The contribution in Australia of Lloyd Berkner and the Carnegie Institution in Washington's support of ionospheric research at Watheroo were both valuable, although neither is mentioned in this volume. In Australia, in 1939, there was little or no equipment available from Britain. High power vacuum transmitting tubes were in very short supply; some Eimac tubes came from California; some 'micropup' tubes were available. Until American radar sets became the norm in the Pacific campaigns, Australia had to develop its own.

This is a story of the struggles through lack of coordination in design and in development, and of the lack of interest in developing early air warning radar. It is also a story of conflict and misunderstanding between science and the military. These same themes occur in the story of the development of radar and radar countermeasures in the United States: lack of

interest, suspicion, conflict between agencies and services, and long delay between conception and the final product in operation in the field.

Two related sources might be mentioned here. First, this reviewer's modest article "Ionospheric and Radio Physics in Australian Science since the Early Days" in R. W. Home and S. G. Kohlstedt, eds. *International Science and National Scientific Identity* (Kluwer, 1991), pp. 181-204, which traces the beginnings of radio physics research in Australia, utilizing interviews with numerous Australian radio pioneers. Second, Louis Brown's recently published world-wide history of World War II radar, including Japanese radar, which would be a most useful source for comparison. Brown's encompassing work is *A Radar History of World War II: Technical and Military Imperatives* (Institute of Physics Publishers, 1999).

MacLeod's special issue is a good read and Minnett's reflections are very valuable. They are also relevant to the second volume of essays under consideration, *Science and the Pacific War: Science and Survival in the Pacific, 1939-1945*. This collection emerges partly from a conference commemorating the fiftieth anniversary of the end of World War II. Contributions are from fourteen historians working in Australia, the United States, New Zealand and Canada. As MacLeod notes in the editor's Introduction, readers are doubtless more familiar with studies of the Second World War in the Atlantic and Europe, rather than in the Pacific. This collection opens up new territory, but, unfortunately, the editor's attempts to secure contributions from Japanese scholars were unsuccessful. That inclusion would have strengthened the volume.

The book is organized into three parts. Part One, by American scholars mostly, speaks largely to "fringe" areas of scientific activity during the War: botany, disease, ethnography, and the peregrinations of scientific consultants in the field. Part Two presents articles by Australian and New Zealand scholars on mobilizing the universities, medical experimentation, anthropology, and radar and radio communications research in New Zealand. The latter is a companion paper to those in the MacLeod-edited collection on Australian radar discussed above. Part Three discusses chemical and biological warfare experiments in Japan, Allied and Japanese intelligence gathering, and Japanese efforts at electronic and radar research.

Although marginal in terms of size and cost, in fact, some of the natural and social science researches seem to have set the stage for more productive work in the decades following the War. Oceanographic surveying during and just after the War in the Pacific led Roger Revelle and others to major findings subsequently in Plate Tectonics. While the travels of a few

epidemiologists, toxicologists and specialists in tropical medicine and botany did not make “Big Science,” malaria affected half a million servicemen just among the Americans alone in the Pacific. In some of the island campaigns, disease was a bigger challenge than enemy gunfire. The volume under review does not mention it, but arthritis and rheumatic diseases also were very costly. As trench foot and frostbite led to heavy casualties in Europe, malaria and rheumatism contracted in the Pacific led to many troops becoming incapacitated. This reviewer, as a boy living on military hospital bases in Texas and Arkansas, remembers seeing hundreds of those thus afflicted. One topic, engaged in throughout the volume, concerns the different standards then employed for use of humans in testing drugs and weapons—against malaria, biological warfare, and nuclear devices. War-time conflict and differing goals among scientists, industry and the military is an endemic theme, whether in Japan, Australia, Canada or the United States. It is illustrated in several of the papers in this volume.

“Go it alone” was a daunting situation for a couple of years for those Australian and New Zealand scientists and engineers, when the traditional dominance of Britain and to a lesser extent American goods came up against the cut-off of supplies in the early Pacific War. Both transfer of American know-how and buildup of Australian design and production increased during the War and Australia closed the conflict with more ambitions of self-reliance.

C. Stewart Gillmor
Wesleyan University

David W. Forbes, ed. *Hawaiian National Bibliography: 1780-1900. Volume 1, 1780-1830*. Honolulu: University of Hawaii Press, 1999. \$100, cloth. ISBN 0-8248-2042-8.

The first volume of David W. Forbes’s three-volume *Hawaiian National Bibliography* is an impressive book, and anyone doing research on Hawaiian history ought to have a copy. There are over 700 references, with comprehensive bibliographic information and extensive annotations by Forbes. The dates for this first volume span the time from the first mention of the Hawaiian islands, in a German newspaper in 1780, to the end of the 1820s. The books listed are exclusively from Europe and the United States, which provides an important resource for understanding how Hawaii was assimilated into western accounts of the world. The bibliography is the result of many years of research in libraries and archives around the world, and contains some very interesting information on the early books that were

published on Hawaii. One particularly fascinating book is *A Catalogue of the Different Specimens of Cloth* (Forbes #139) which contains over thirty pieces of kapa specimens from Cook's voyages sewn into the binding. The book is extremely rare.

Another interesting bibliographical tidbit describes how John Rickman's *Journal of Captain Cook's Last Voyage to the Pacific Ocean* was first published with an introduction that mentioned how this voyage "will be the last that ever will take place for the sole purpose of discovery in that unfruitful sea, where nothing is to be expected but a few unprofitable islands thinly scattered...." (Forbes #33) A new introduction, which completely changed this assessment, was printed after the book was published, and owners of the book were asked to tear out the first introduction and replace it with the new one.

Beyond such details, one thing that becomes obvious through the bibliography is the extent to which Captain Cook's accounts of the Hawaiian Islands dominated the printed accounts for decades. Of the 768 references in the bibliography, there are 101 that list Cook as the author. And, if accounts ascribed to Cook dominate, the other works that are tied to his third voyage (by Rickman, Ellis, etc.) and all the books about Cook (by Kippis, Samwell, and others) make such domination that much more complete.

The importance of Cook's voyages suggests how narrow the understanding of Hawaii was. It was not until Le Perouse's *Voyage De La Perouse Autour Du Monde* (first published in 1797 and translated into English in 1798), Vancouver's *A Voyage of Discovery* (first published in 1798), and the Russian navigators of the late 18th century, that any substantial new and different information was published. Even then, the new information more or less followed Cook's lead. Later texts tied together exploration and both military and economic exploitation—they were all part of the "militant geography" of the 19th century, to use Joseph Conrad's phrase.

As a book, the *Hawaiian National Bibliography* is well designed. The entries are organized by years and within each year by either the author or the title, in the case of anonymous books. The text is generally easy to read and there is ample space in the margins for notes. The bibliography would have been easier to use if the book included more sophisticated indexes and cross-references. For instance, an index organized around the different print formats (books versus magazine articles, for example) or the different languages would be useful. As it is, the book includes a single index that combines authors and titles. Where multiple editions of a work are included, the index also notes the year of publication.

There were some mistakes in the index. For instance, the index lists the editions of Cook's third voyage published in 1784 as "61-71, 73-75, 80, 82, 83," when in fact reference 72 should be included (a reprint of the Dublin Edition) while the last three references should not be indexed under Cook. Reference 82, for example, is a reprint of Parkinson's journal from Cook's first voyage with an abridged account of the second and third. Concerning the reprint of Parkinson's journal, there is a theoretical issue at stake. When should Cook be listed as the author? While the index is primarily a listing of authors and titles, "Cook, James, Third Voyage of" is neither. Copies of the Admiralty's edition, which list Cook as the author, are included alongside various summaries of the voyage by a wide range of authors, from Clerke to whoever prepared the abridgement for Parkinson's *Journal of a Voyage*. It would have been more appropriate to make these distinctions clearer, so that the index entry for "Cook, James" would list the books of which he was the author and a separate entry could include all of the accounts of the third voyage.

Of course, even describing Cook as an author simplifies the relationship between the authors and the texts. Sometimes Forbes's attribution is wrong. For instance, in the entry for *The British Navigator* (Forbes #48), Cook is given as the author. But in the description, Forbes notes that the text, published in 1783, is "probably derived from the Rickman account" (p. 40). So, why should Cook be listed as the author? Rickman, or whoever performed the derivation, would be a more appropriate candidate for authorship.

And so it is with the Admiralty's edition. Cook is closely connected to this edition, but he was dead by the time it was printed, and the published account of the voyages, which included an entire volume based on Captain James King's journal, was produced by Dr. Douglas (who had assisted Cook in the product of the second voyage). King and Douglas occur sporadically in the index, but not in relation to the Admiralty's edition, which has Cook listed as the sole author. The result is that Cook, by dominating his voyage, dominates the bibliography, while almost everyone else who played a role in producing the accounts of his third voyage are pushed to one side.

While these criticisms of Forbes's index and authorial attribution may appear narrowly focused, they point to a general concern for the way that the bibliography cleans up a complex, messy set of books and magazines, in which texts and authors intermingle.

Turning from the organization of the bibliography to focus on its content, each reference includes extensive information on the book, including the complete text of the title page, the physical characteristics of the book,

and Forbes's own annotations. These describe peculiar aspects of the book or connect the reference to other books in the bibliography.

By constructing a comprehensive list, the *Hawaiian National Bibliography* creates a new dynamic, where the first question, at least for book collectors, is whether a particular book is "in Forbes," or not. This is a challenge that the book sets up. Other researchers are, from time to time, expected to find books concerning the Hawaiian islands which are not listed here. And so, for instance, Forbes does not list the description of the Sandwich Islands included in Volume II of Blomfield's *A General View of the World*, published in England in 1804 and 1806 (pp. 655 and 666). The entry in this book gives no additional information, but the goal of the bibliography is not to mark the presentation of different information. Rather, the goal is to mark the production of different publications, most of which were copies, one way or another, of a small number of key texts.

But there are also challenges to the book that are more critical of the way that the bibliography was formed. In particular, the book begins with a citation of a three-page article in a German newspaper—"the printed mention of 'O-why-he'"—and includes several other newspaper articles from the 1780s. The references to newspapers and shorter pieces within other works become sparser and sparser as the bibliography progresses. Instead, what dominates Forbes's bibliography are the books containing accounts of the voyages of Cook and La Perouse, the reports by the missionaries (Ellis in particular), and the geographical compendia of the late-18th and early-19th centuries.

There are almost no references to suggest how the Hawaiian Islands became part of the European literary and social imagination. Forbes includes some references to novels, such as John O'Keefe's *A Short Account of the New Pantomime called Omai, or, a Trip round the World* (first published in London in 1785) and *Karahman; an Owhyheean tale* (first published in Boston in 1822). But references to works outside of the scientific community are uncommon. For instance, Forbes does not mention Jehoshaphat Aspin's *Cosmorama; a View of the Costumes and Peculiarities of all Nations* (published in 1827 in London). In that book, the description of the Sandwich Islands is the last entry and runs over three pages. It also contains pictures of "Sandwich Islanders," "Taheitans," and "New Zealanders."

Published letters and journals from the time, which would have contained some discussion of Hawaii, are also noticeably absent from Forbes's bibliography. No reference is given, for instance to William Cowper's let-

ters, which were first published in 1817. In a letter dated October 30, 1784, Cowper reflects on the competing accounts of the Sandwich islands, and tends to favor a closer connection with the classical Greek ideas in opposition to the missionary account, which described the islanders in terms of savagery (Letter No. 177 in William Cowper, *The Life and Works*, Volume 5, Robert Southey, ed. London: Baldwin and Cradock, 1835, pp. 93-95). Cowper's discussion is far from original. But, as with newspaper articles, published letters and diaries would nonetheless give a sense of how Europeans understood and debated issues connected to the peoples of the Pacific and to the Hawaiians in particular. Perhaps Aspin and Cowper count as references that are "not in Forbes," but their absence may also be connected to the kinds of references that Forbes is trying to find and make available.

On the other hand, the bias in Forbes's bibliography may be connected to the resources that Forbes had available to him: first, the already-existing bibliographies from the libraries and archives, which would have made book titles and subject headings much more accessible; and, second, specialized libraries and archives in Hawaii, which would have made the ephemera connected to the missionaries much more accessible than equally obscure references in European literature and popular culture.

One implication of this tendency in the bibliography is that the discussion of Hawaii during this period is limited, more or less, to exploration journals, views of the world, and missionary reports. We do not get a sense of how Hawaii, along with the rest of the places around the Pacific, were brought into the debates, primarily in Europe, over the character of different nationalities and races, or the relative value of civilized and natural human states.

The *Hawaiian National Bibliography* thus suggests the extent to which the book and the printing press had become tools of empire, creating a system of texts (primarily in Europe and America) through which the fate of the world was debated. The native populations, reduced to a silence peculiar to oral cultures, were located in the texts as passive objects to be studied, described, and transformed by the outside.

Brian Richardson
University of Hawaii, Manoa

[Ed. Note: Volumes II and III of the *Hawaiian National Bibliography* will be reviewed in an upcoming issue of the *Bulletin of the Pacific Circle*.]

George Forster. *A Voyage Round the World*. Nicholas Thomas and Oliver Berghof, eds. Honolulu: University of Hawaii Press, 2000. Volume I: Pp. xvii, 476 and Volume II: Pp. xv, 477-860. Notes, index, illustrations, bibliography. \$US115, cloth. ISBN 0-82482-209-16.

On March 22, 1775, a ship with bleached sails and a generally shabby look, appeared in Table Bay at the Cape of Good Hope. It was the *Resolution*, captained by James Cook and returning from 27 months away from all European settlements. Another four months were needed to get the rest of the way back to England. The expedition had made the first recorded crossing into the southernmost reaches of the Atlantic Ocean and charted new regions of the South Pacific, firmly locating places that earlier explorers had mentioned, but without precisely recording their coordinates, especially Easter Island, the Marquesas, Tonga, and Vanuatu. As in all the Cook voyages, artists had been sent along to record the sights, and many of the men on the trip evidently kept journals as well. But before anyone could disembark at Cape Town, the journals and notes of the seamen and officers were collected and sealed. Not, however, the journal of the Captain himself or the naturalist who accompanied him. In the end, their two sets of records would be the basis for competing accounts of the huge voyage.

Now, for the first time since 1777, the English-language story of that voyage as told by Cook's competitor, George Forster, has been republished in English with annotation. A previous edition (1968-1972) of both the English and German versions of the journal plus associated materials had appeared in the German Democratic Republic as part of the complete edited works of Forster. Rediscovered and celebrated in the GDR because he was one of the few Germans intellectuals who publicly and actively sympathized with the French Revolution, Forster's reward in GDR days was an edition from the Academy of Sciences. The scholarly annotation there is in German (and is keyed to the German edition of the book, which George Forster had also produced).

This new edition from the University of Hawaii Press, in two handsomely bound volumes, will be far more available and accessible to an English-speaking readership. It was prepared by Nicholas Thomas and Oliver Berghof, who also edited the first reissue of Forster senior's *Observations* (University of Hawaii Press, 1996). Johann Reinhold Forster, a German naturalist who had been living in England for some years before he suddenly got the invitation to sail with Cook, thought he was to be the official chronicler of the voyage. When he lost that privilege due to a quarrel with the Admiralty, his son, who had been his assistant on the expedition, wrote

and published the account instead. Now the editors, through knowledge of the works of both men, can sort through the similarities and differences in what the father and son recorded and how they analyzed their observations, a task that had previously barely begun. Their introduction includes helpful sections on some of Forster's and Cook's other writings about exploration and Oceania. As they consider the anthropology of the voyage, what they think is the most lasting contribution of the book, they especially focus on the quasi-racist element of Forster's narrative (p. xxxiii). Thomas and Berghof argue that Forster's notion of race was not grounded in biology in the way of many nineteenth- and twentieth-century versions of that concept, but in climate and history. This discussion is continued quite effectively in the notes to Forster's text.

Forster's book is an ambitious effort to record and discuss all the natural history of the trip, including ethnographies of every place visited, beginning (tediously) at Madeira and the Cape Verde Islands, continuing throughout three southern summers among the islands of the South Pacific, before concluding with Patagonia, St. Helena, Ascension, and the Azores. (In their close attention to this ethnographical aspect of the trip, the book is dedicated to Marshall Sahlins and Anne Salmond; the editors take less notice, for example, of how many of Forster's other observations, such as those on volcanoes, fit in the history of science). We read a book like this in dialogue with what has been learned in the two and a quarter centuries since it was written, and given the range of Forster's observations, all the help provided by the annotation is invaluable. For many readers today, the special draw of a new edition is the annotation, especially the hope of finding out what scholars since Forster's time have deduced about his observations. In fact, reading the notes along with the rest is so much a part of today's reader's response to Forster's account that I constantly found myself wishing that this material had been located at the bottom of each page rather than cumbersomely at the back of each volume. Happily, the new edition addresses the most glaring weakness of the original: its lack of engravings. Since George Forster refers frequently to the engravings that were included in Cook's account, it is a significant advantage to have them included here.

The appendices contain a number of additional documents. They begin with a translation (for the first time, to my knowledge) of the introduction to the German version of Forster's *Voyage*, an introduction the editors speculate may have been written by Johann Reinhold, and continue with the furious and lengthy attack by William Wales, astronomer on the trip. Wales had

combed through every sentence and phrase of the Forster volumes, his blood boiling at each possibly negative insinuation about himself or the other men on the ship. The next appendix contains George Forster's remarkably effective and sarcastic reply, followed by another leaflet he wrote outlining his father's quarrel with the Board of Admiralty. That leaflet is in the form of a letter to the Earl of Sandwich, head of the Board.

Of course, it is always possible to quibble. One note oddly attempts to clarify a reference to a servant by identifying him as Anders Sparrman, the young botanist whom George Forster always respectfully and correctly calls Dr. Sparrman. The Academy edition notes that the Forsters took a manservant with them on the trip, a man named Ernest Scholient. Thus when George writes that a servant carrying a bag of their collected plants was knocked down, he must surely be referring to Scholient and not Dr. Sparrman (see Volume II, note 3, p. 472). A more important issue is the difficulty of following the tracks of the complex voyage on the maps. The inconsistent mix of old and new place names make it hard to match Forster's account with places on the maps, unless one already knows them. Maps showing specific sections of the trip would have been a most welcome aid. Most of all, these two volumes represent a fresh examination of records of early Polynesian and European contacts that have only become more fascinating and more valuable with time. And by being readily available, the volumes invite more reconsideration about gender, art, class, emerging British nationalism, and, more specifically, the relation between this early work and Forster's later radicalism. The basic texts are now all available in modern editions.

Ruth Dawson
University of Hawaii, Manoa

Narender K. Sehgal, Satpal Sangwan and Subodh Mahanti, eds. *Uncharted Terrains: Essays on Science Popularisation in Pre-Independence India*. New Delhi: Vigyan Prasar, 1999. Pp. 158. 150 Indian Rs, cloth. ISBN 81-7480-056-5.

The public understanding of science is becoming a matter of increasing importance today, simply because modern science can no longer expect the level of support and growth it commanded until now, purely on its claims of exclusive knowledge. It is now being called upon to show it to be so, and demonstrate its usefulness to the public good. An increasing audience within both government and commerce demands this. This is a trend found in both the developed and the developing countries. Earlier science in colonial

India, the region in time and space which the text *Uncharted Terrains* covers, enjoyed a support from the British Raj which was more or less guaranteed. The Indian public at the time, however, had mixed perceptions. In post-independence India, therefore, such a guarantee of support could not be assumed. Many scientists, writers and academics in pre-independence India sensed this emerging situation and went about to prepare for it, by both popularizing a science received from the Raj and to some extent, as pointed out in this book, by vernacularizing it. Jawharlal Nehru in his mission for post-independent India had envisaged a key role for science and technology. It appears from this text that the ground for his mission had already been prepared in colonial India. In the creative centers of science, however, no such situation was envisaged and thus they have been caught unawares by the rising call for accountability. This timely book is not only valuable as a document in the Public Understanding of Science (PUS) in colonial India, but it also forms an historical text of value to those in the developed West, struggling as such to maintain a high level of support for science.

The book under review consists of selected papers from a series of seminars conducted in several parts of India on the broad theme of science-popularization efforts before independence in 1947. Those seminars had been organized by the Vigyan Prasar, a society for the popularization of science backed by the government of India. The book is divided into three parts. The first part, entitled "Boundaries of an Emerging Discipline," states the problematic of the diffusion and social appropriation of science amongst the Indian polity. It also gives an overview of the early (late nineteenth-century) attempts at understanding and popularizing science. The second part, "Science at the Metropolis," covers the attempts at science popularization in Bengal; but it is not clear why the coverage is limited only to this region. The articles in this section are arranged around the characters of some of its chief actors. The city of Calcutta has been singled out and treated in a separate article as it appears to have played a central role.

The article on Ramendrasundar Trivedi is particularly interesting; the author, Santanu Chakravarti, shows an exceptional understanding of the revolutionary developments in physics which occurred in Europe and which were studied by Ramendrasundar. His attempts at a serious dialogue with those developments from an Indian cultural perspective, while at the same time bringing these dialogues into the public domain, forms an intriguing example; it is captured well in this article. Here was a case of not simply popularizing a "received science," but also critically examining its develop-

ments and presenting it as interesting material to intelligent laypersons. Ramendrasundar's focus on the scientific work of Ernst Mach seems to foreshadow some of today's intense debates on modern cosmology. Indeed, Ramendrasundar's attitude to science forms a middle way between the extremes of the fawning admiration of some of the popularizers, and the rejectionist approach of the critics of modern science in post-independence India. His writings in Bengali generated a number of new scientific terms in Bengali and his easy prose made a difficult branch of science interesting.

The third and final section, "Vernacularisation in the Peripheries," covers attempts at both the PUS project and its simultaneous vernacularization. This section contains Kamlesh Mohan's interesting article on the scientist-popularizer, Ruchi Ram Sahani. It portrays the conflict created in the mind and actions of a proselytizing scientist, who also harbored strong feelings of nationalism. The article also covers an important Islamic science writer, Munshi Zakaullah, and suggests both the importance of his contribution and the distinctive flavor of his writings in Urdu.

The stated desire to shun the so-called stereotype of the empire-science problematique by the editors detracts from this collection of excellent essays. It would have otherwise covered a wider debate on the Public Understanding of Science, more relevant to the emerging discourse on science itself. It does though, despite its self-inflicted limitations, add much to the understanding of the acceptability and relative success of modern science in modern India. This text does not, however, throw light on the important question of its relative failures in modern India.

Arjuna De Zoysa
Open University of Sri Lanka

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