

SES no.078; Cover, contents, and others

journal or publication title	Senri Ethnological Studies
volume	78
year	2012-03-30
URL	http://hdl.handle.net/10502/4707

Senri Ethnological Studies 78

Irrigated Taro
(*Colocasia esculenta*)
in the Indo-Pacific
Biological, Social and Historical
Perspectives

Edited by
Matthew Spriggs
David Addison
Peter J. Matthews

SES 78

Irrigated Taro (*Colocasia esculenta*) in the Indo-Pacific

Matthew Spriggs
David Addison (eds.)
Peter J. Matthews

ISSN 0387-6004
ISBN 978-4-901906-93-7
C3039

2012



National Museum
of Ethnology

Senri Expo Park, Suita, Osaka, Japan
Phone 06-6876-2151

Senri Ethnological Studies

Senri Ethnological Studies is an occasional series published by the National Museum of Ethnology. The volumes present in-depth anthropological, ethnological and related studies written by the Museum staff, research associates, and visiting scholars.

General editor

Ken'ichi Sudo

Associate editors

Shiro Sasaki

Yoshio Sugimoto

Yuki Konagaya

Yoshiho Yasugi

Nobuhiro Kishigami

Tetsuo Nishio

Toshio Asakura

For information about previous issues see back page; for further information and free PDF downloads, see the museum website:

<http://ir.minpaku.ac.jp/dspace/handle/10502/48>

For enquiries about the series, please contact:

Publications Unit, National Museum of Ethnology

Senri Expo Park, Suita, Osaka, 565-8511 Japan

Fax: +81-6-6878-8429. Email: hensyu@idc.minpaku.ac.jp

Free copies may be requested for educational and research purposes.

Senri Ethnological Studies 78

**Irrigated Taro (*Colocasia esculenta*)
in the Indo-Pacific**

Biological, Social and Historical Perspectives

Edited by

Matthew Spriggs
David Addison
Peter J. Matthews

National Museum of Ethnology

Osaka

2012

Published by the National Museum of Ethnology
Senri Expo Park, Suita, Osaka, 565-8511, Japan

©2012 National Museum of Ethnology, Japan
All rights reserved. Printed in Japan by Nakanishi Printing Co., Ltd.

Publication Data

Senri Ethnological Studies 78
Irrigated Taro (*Colocasia esculenta*) in the Indo-Pacific
Edited by Matthew Spriggs, David Addison, and Peter J. Matthews
Includes bibliographical references and index.

ISSN 0387-6004

ISBN 978-4-901906-93-7 C3039

1. Archaeology 2. Anthropology 3. Agriculture 4. Ethnobotany 5. *Colocasia* 6. Irrigation
I. Spriggs, Matthew II. Addison, David III. Matthews, Peter Joseph

CONTENTS

Preface.....	i
Acknowledgements.....	v
List of Figures and Tables.....	xi
Part I	
HISTORICAL VIEWS	
From Mendana to Riesenfeld: Early Accounts of and Speculation on Taro Irrigation in the Asia-Pacific Area Matthew Spriggs.....	1
Vernacular Names for Taro in the Indo-Pacific Region: Implications for Centres of Diversification and Spread Roger M. Blench.....	21
Yu Jing (The Book of Taro) Shengzheng Huang (Translated by Jee Yan Chu; introduced by P. J. Matthews)	45
Part II	
EASTERN PACIFIC	
The Taro Wars of the Austral Islands, East Polynesia Robert Bollt.....	53
Wet Taro Cultivation on Atolls: A Techno-cultural Paradox? Jean-Michel Chazine.....	83
Taro Irrigation and Primary State Formation in Hawai'i Timothy Earle	95
Small Valley Irrigated Taro Agriculture in the Hawaiian Islands: An Extension of the 'Wet and Dry' Hypothesis Mark D. McCoy and Michael W. Graves.....	115

Approaches to Dating Wetland Agricultural Features: An Example from Wailau Valley, Moloka‘i Island, Hawai‘i Windy K. McElroy	135
Fluctuation in <i>Colocasia</i> Cultivation and Landesque Capital in Navosa, Viti Levu, Fiji Trevor King	155
Part III	
WESTERN PACIFIC	
‘Certainly the Most Technically Complex Pondfield Irrigation Within Melanesia’: Wet Taro Field Systems of New Caledonia Christophe Sand	167
Produce to Exchange: The Taro Water-Gardens on Vanua Lava (Vanuatu), a Social and Sustainable Place Sophie Caillon	189
Taro Culture in Western Santo, Vanuatu Annie Walter and Fabienne Tzerikiantz	209
Irrigated Taro, Malaria and the Expansion of Chiefdoms: <i>Ruta</i> in New Georgia, Solomon Islands Tim Bayliss-Smith and Edvard Hviding	219
The Decline of Taro and Taro Irrigation in Papua New Guinea R. Michael Bourke	255
Part IV	
SOUTHEAST ASIA	
Recovering, Analysing and Identifying <i>Colocasia esculenta</i> and <i>Dioscorea</i> spp. from Archaeological Contexts in Timor-Leste Nuno Vasco Oliveira	265
Taro Before Rice Terraces: Implications of Radiocarbon Determinations, Ethnohistoric Reconstructions, and Ethnography in Dating the Ifugao Terraces Stephen B. Acabado	285

Ethnobotany and Ecology of Wild Taro (<i>Colocasia esculenta</i>) in the Philippines: Implications for Domestication and Dispersal P. J. Matthews, E. M. G. Agoo, D. N. Tandang and D. A. Madulid	307
CONCLUSION	
Irrigated Taro in the Indo-Pacific: Multiple Perspectives Matthew Spriggs and Peter J. Matthews	341
Index	349
List of Contributors	361

List of Figures and Tables

Part I HISTORICAL VIEWS

Matthew Spriggs

- Figure 1 W. H. R. Rivers' map of the distribution of taro and associated irrigation works (from Rivers 1926). 10

Roger Blench

- Figure 1 Origin of the name of Vigan. 34
- Figure 2 Taro at the edge of rice terraces, Mayoyao, Luzon. 35
- Figure 3 Suggested centers of origin for the lexical roots (*#traw*, **biRaq*, **mV*) of the most common names for 'taro' (*Colocasia esculenta*) in the Indo-Pacific region. 37
- Table 1 Online lexical resources for Asia-Pacific languages. 23
- Table 2 Language phyla in the Indo-Pacific Region. 23
- Table 3 Common Indo-Pacific roots for 'taro'. 24
- Table 4 Reflexes of *#traw*? 'taro' in SE Asian languages. 25
- Table 5 'Taro' in Formosan languages. 26
- Table 6 Oceanic names for 'taro'. 27
- Table 7 The **biRaq* root for 'aroid' in SE Asian language phyla. 28
- Table 8 Reflexes of the root *#poj* in SE Asian language phyla. 29
- Table 9 Miscellaneous terms for 'taro' in SE Asian language phyla. 31
- Table 10 Taro in Austronesian languages of Island SE Asia. 33
- Table 11 Terms for 'taro' and 'paddy' in some branches of Austroasiatic. 34
- Table 12 Dravidian names for taro. 35

Shengzheng Huang

- Figure 1 Image of a rich agricultural landscape from a Later-Han (AD25–220) tomb. 47

Part II EASTERN PACIFIC

Robert Bolt

- Figure 1 Location of the Austral Islands in eastern Polynesia. 54
- Figure 2 Rurutu Island, with nine main districts identified. 58
- Figure 3 Tubuai Island, with three villages identified. 61
- Figure 4 Rapa Island, with main bays identified. 67

Jean-Michel Chazine

- Figure 1 Schematic Sketch of cultivation pit on a low island. 84
- Figure 2 View of a large area of cultivation pits on Tatakoto, Tuamotu. 85
- Figure 3 Examples of shovels: (a) turtle-bone, (b) mother-pearl shell. 86

Figure 4	Variation in pit shapes, and location of taro pits patches on Takapoto atoll, Tuamotu.	87
----------	--	----

Timothy Earle

Figure 1	Extensive taro pondfields at Waimea, Kauai Island, Hawaii'i, with dry hills above.	105
----------	--	-----

Mark D. McCoy and Michael W. Graves

Figure 1	Zones of agricultural production, Northeastern Hawai'i Island.	116
Figure 2	Ages of geologic substrates in Eastern Gulches study area.	117
Figure 3	Known irrigated field complexes in Halawa Gulch.	121
Figure 4	Irrigated Terrace Complex (HLW-3A to -3I), Upper West Halawa Gulch.	122
Figure 5	Barrage-Styled Pondfields (HLW-13), Upper East Halawa Gulch.	123
Figure 6	Examples of Barrage-Styled Pondfields (HLW-13) and associated features, Upper East Halawa Gulch.	124
Figure 7	Irrigated Terrace Complex (HLW-11A to 11O), Lower West Halawa Gulch.	125
Figure 8	Irrigated Terrace Complex (HLW-31A to -31H), Lower Halawa Gulch.	126
Figure 9	East Bank Irrigated Terrace Complex HLW-29A to -29J, Lower Halawa Gulch.	126
Figure 10	West Bank Irrigated Terrace Complex HLW-29K to -29M, Lower Halawa Gulch.	127
Figure 11	Average size of field plots (defined by bunds) in relation to the total area of each field recorded (defined as a single irrigation unit), in a large valley (Anahulu) and a small valley (Halawa).	129
Table 1	Grade of slope for Eastern Gulches.	119
Table 2	Estimate of yield, population supported, and labour required for Halawa Gulch fields.	128

Windy K. McElroy

Figure 1	Map of the Hawaiian Islands with inset of Moloka'i Island.	136
Figure-2	Example of Hawaiian irrigated agricultural complex, or <i>lo'i</i> system.	137
Figure 3	Wailau Valley, showing the 19 <i>lo'i</i> complexes and their names.	138
Figure 4	Calibrated radiocarbon dates for Wailau Valley.	140
Figure 5	Radiocarbon age determination for Wailau agricultural systems.	141
Figure 6	Example of an excavated terrace wall with foundation stones exposed.	141
Figure 7	Possible construction sequence for the Keiu <i>lo'i</i> complex.	143
Figure 8	Possible construction sequence for the Ku'ele <i>lo'i</i> complex.	145
Figure 9	Possible construction sequence for the Kukuinui Mauka <i>lo'i</i> complex.	146
Table 1	Radiocarbon laboratory results, Arizona AMS laboratory and Beta Analytic.	139
Table 2	Other temporal indicators.	147

Trevor King

Figure 1	Graph showing changes in cattle population in Nadroga-Navosa during the 20th century.	160
Table 1	Reported reasons for <i>vuci</i> (wet <i>dalo</i> garden) decline and cessation in Fiji.	157
Table 2	Proximate versus distal causes of decline and cessation.	161

Part III WESTERN PACIFIC**Christophe Sand**

Figure 1	Location of New Caledonia within Island Melanesia.	168
Figure 2	Example of extensive taro terracing on the hills of Col des Roussettes (Central Grande Terre).	170
Figure 3	The dense horticultural layout of banks and ditches on the west coastal flat of Yandé Island (off Northern Grande Terre).	174
Figure 4	Aerial view of the Tiwaka river plain, highlighting the succession of ditches dug for water circulation and the different areas of habitation.	176
Figure 5	Map of the Kadèn site (ETO045) in the central part of Grande Terre (Bopope), combining housing, long dryland cultivation mounds and wet taro terraces watered by a source.	177
Figure 6	Example of high stone-faced walls for taro terracing in the upper part of the Werap valley (Hienghène).	178
Figure 7	Partial view of the extent of terracing around the upper part of Col des Roussettes (Bourail).	179
Figure 8	Map of part of the pondfield wet taro system of Mont Koghi in Dumbea, showing the general layout of terraces that can still be identified today, after over 100 years of abandonment.	180
Figure 9	Example of the link between peridotite mountains and extensive taro terracing in Bourail.	182
Table 1	Radiocarbon dates (¹⁴ C) for taro terrace layers in New Caledonia.	172

Sophie Caillon

Figure 1	The taro water-garden named Rotluō, cultivated by the inhabitants of Vētuboso, Vanua Lava.	190
Figure 2	West coast of Vanua Lava island, Vanuatu, with main villages and main rivers.	191
Figure 3	Eli Field Malau from Vētuboso village is repairing a water channel.	196
Figure 4	Freda Malau from Vētuboso village is weeding her pondfield or <i>qēl</i> while the ground is dry.	198
Table 1	Time sequence for growing taro in <i>qēl</i> .	199
Table 2	Change in the area of taro water-gardens between 1986 and 2002.	202
Table 3	Quantitative data describing taro water-garden production in Vētuboso.	202

Annie Walter and Fabienne Tzerikiantz

Figure 1	Locations on the island of Santo, Vanuatu.	210
Figure 2	A woman from Elia cleaning taro near a taro pondfield that has been rehabilitated by the present generation.	213
Figure 3	The pondfields are supported by earthen walls on which food plants and fruit tree seedlings are also grown.	213
Figure 4	Taro in a pondfield at Sevu.	214
Figure 5	A view of Elia village on the coast below Sevu.	214

Tim Bayliss-Smith and Edvard Hviding

Figure 1	The western Solomon Islands, showing islands and localities mentioned in the text.	220
Figure 2	Remains of a large-scale <i>ruta</i> system of old Kusaghe, located at Kapoara in the valley of river Mase, north New Georgia.	229
Figure 3	Remains of a large-scale <i>ruta</i> system of old Kusaghe, located at Lilosana along the Sengga river, a tributary of the Mase, north New Georgia.	230
Figure 4	Remains of a small-scale <i>ruta</i> system of old Ulusaghe, located at Vao on Gatokae island.	234
Figure 5	Languages of the New Georgia group, western Solomon Islands.	243

R. Michael Bourke

Figure 1	Distribution of the most important food crops in Papua New Guinea.	257
Figure 2	Estimated contribution to food energy of staple food crops at six different periods, 1660 to 2000 AD.	258
Table 1	Rural population growing staple food crops in 2000.	256
Table 2	Estimated production of 18 staple food crops in Papua New Guinea in 2000.	256

Part IV SOUTHEAST ASIA**Nuno Vasco Oliveira**

Figure 1	Location of BCUM in the Baucau area.	266
Figure 2	Entrance to BCUM rockshelter, Baucau.	267
Figure 3	A view from inside BCUM rockshelter.	267
Figure 4	Plan of BCUM showing location of the main excavation areas (2004 and 2005).	268
Figure 5	2x2 metre grid and detail of the 2005 excavations at BCUM.	270
Figure 6	Adding water to sediment samples during flotation.	270
Figure 7	Pouring sediment samples through fine chiffon during flotation.	271
Figure 8	Wet-sieving heavy fraction samples.	271
Figure 9	Drying light fraction samples (the flot).	272
Figure 10	Sorting through dried heavy fraction samples.	272

Figure 11	Collecting modern plant specimens from around BCUM.	277
Figure 12	Modern specimen of <i>Dioscorea alata</i> (100x, radial/longitudinal).	277
Figure 13	Modern specimen of <i>Dioscorea alata</i> (100x, radial/longitudinal section).	277
Figure 14	Modern specimen of <i>Dioscorea esculenta</i> (100x, transversal section).	277
Figure 15	Modern specimen of <i>Colocasia esculenta</i> (100x, radial/longitudinal section).	277
Figure 16	Modern specimen of <i>Colocasia esculenta</i> (150x, transversal section).	277
Figure 17	Prob. <i>Dioscorea</i> sp. from BCUM—sample 1(45x).	278
Figure 18	Prob. <i>Dioscorea</i> sp. from BCUM—sample 1 (100x).	278
Figure 19	Prob. <i>Dioscorea</i> sp. from BCUM—sample 2 (150x).	278
Figure 20	Prob. <i>Dioscorea</i> sp. from BCUM—sample 2 (300x).	278
Figure 21	Prob. <i>Colocasia esculenta</i> from Telupunu (120x).	278
Figure 22	Prob. <i>Colocasia esculenta</i> from Telupunu (150x).	278

Stephen B. Acabado

Figure 1	Left: Map of the Philippines with the province of Ifugao shaded. Right: taro (<i>Colocasia esculenta</i>) on a terrace, vic. Banaue, Ifugao	286
Figure 2	Maher's excavation profile for Ifl (1973).	289
Figure 3	Map showing present-day terraces and sites excavated at Bocos village, Banaue, in 2007	291
Figure 4	Typical basal profile (vertical section) of an excavated terrace wall	293
Figure 5	Probability densities of terrace wall construction of the Bocos terrace system.	295
Table 1	Dates previously obtained from the vicinity of Banaue	288
Table 2	Radiocarbon dates obtained from Burnay district	290
Table 3	TL dates from Kiyangan village and Bintacan Cave	290
Table 4	Agricultural districts and sites tested during the 2007 field season	291
Table 5	Radiocarbon determinations from the 2007 field season	292
Table 6	Probability of post-Spanish construction of Bocos rice terrace walls	295
Table 7	Peralta's (1982) estimations of I'wak household production of taro and sweet potato	299
Table 8	Calculations for cultivating wet and dry taro and amount of time needed to feed a household member	300

P. J. Matthews, E. M. G. Agoo, D. N. Tandang and D. A. Madulid

Figure 1	Upper: fresh corms with leaves, from cultivation, Banaue town market, Ifugao. Lower: Dried entire leaves (blades and petioles) hanging upside down, in street market, Manila city.	309
Figure 2	Survey areas in the Philippine archipelago.	313
Figure 3	Area surveyed in the vicinity of Mt Banahaw, in Luzon.	317
Figure 4	Wild taro growing alongside a wet ditch, at left, between the road and a field with taro.	319
Figure 5	Wild taro (at upper right) alongside one of the Taytay Falls, Mt Banahaw.	320

Figure 6	Wild taro on stream bank at edge of a coconut plantation, near Kidapawan, Mt Apo, Mindanao.	322
Figure 7	Wild taro growing in mud next to a seepage spring, above the Malbour River, Mt Apo, Mindanao.	323
Figure 8	Two popular dishes in which taro leaves are cooked with coconut milk and other ingredients. Upper: <i>pinangat</i> . Lower: <i>laing</i> .	327
Figure 9	Insects associated with wild taro in Luzon and Mindanao.	328
Table 1	Wild and semi-wild (planted without cultivation) taro with edible leaves, collected in vicinity of Mt Banahaw, Luzon Island, Philippines.	321

CONCLUSION

Matthew Spriggs and Peter J. Matthews

Figure 1	Wild taro on a flooded stream bank in northeastern Queensland, Australia.	342
----------	---	-----

Part I
HISTORICAL VIEWS

From Mendana to Riesenfeld

Vernacular Names for Taro in the Indo-Pacific Region

Yu Jing (The Book of Taro)

Part II
EASTERN PACIFIC

The Taro Wars of the Austral Islands, East Polynesia

Wet Taro Cultivation on Atolls

Taro Irrigation and Primary State Formation in Hawai‘i

Small Valley Irrigated Taro Agriculture in the Hawaiian Islands

Approaches to Dating Wetland Agricultural Features

Fluctuation in *Colocasia* Cultivation and Landesque Capital
in Navosa, Viti Levu, Fiji

Part III
WESTERN PACIFIC

‘Certainly the Most Technically Complex Pondfield Irrigation Within Melanesia’

Produce to Exchange

Taro Culture in Western Santo, Vanuatu

Irrigated Taro, Malaria and the Expansion of Chiefdoms

The Decline of Taro and Taro Irrigation in Papua New Guinea

Part IV
SOUTHEAST ASIA

Recovering, Analysing and Identifying *Colocasia esculenta* and *Dioscorea spp.*
from Archaeological Contexts in Timor-Leste

Taro Before Rice Terraces

Ethnobotany and Ecology of Wild Taro (*Colocasia esculenta*) in the Philippines

CONCLUSION

Irrigated Taro in the Indo-Pacific

INDEX

A

abandoned gardens. *See* taro abandonment
Acabado, Stephen B., 285
acridity, 48, 324–328, 332–334
Africa, vernacular names for taro, 22
Agoo, E.M.G., 307
agricultural intensification, 55–56. *See also*
 landesque capital
agroforestry
 Solomon Islands, 225–226, 231–232
 Vanuatu, 214–215
Aitken, R.T., 54, 62–63, 65–66
Alcina, I.F., 308
Alocasia sp.
 New Caledonia, 169, 184
 Philippines, 324, 329
 Tuamotu Archipelago, 88
 vernacular names for, 28–30, 34, 36
Andaman Islands, 22
Anderson, J.W., 4–5
Angkor, 99–100
animal damage, 158–159
Aplosonyx sp (leaf beetles), 328–329, 332
Araceae, 276
archaeology
 overview of, 343–344
 Austral Islands, 70–73
 Hawai‘i, 119–120
 methods, 268–273 (*See also* radiocarbon
 dating)
 New Caledonia, 170–173
 Philippines, 285–302
 Solomon Islands, 222–225
 Timor-Leste, 265–280
 Tuamotu Archipelago, 86
 world, 95–96
architecture
 Austral Islands, 60–61, 66, 70–73
 Hawai‘i, 99, 120

Arum colocasia, 22

atolls

 climate and geography, 83–84
 origins of human settlement, 89–90
 taro cultivation techniques, 84–88
 water lens, 84–88

Australia, 342

Austral Islands

 archaeology, 70–73
 architecture, 60–61, 66, 70–73
 Bounty mutineers in, 63–65, 74
 climate and geography, 53–54, 74–75
 landscape degradation, 55, 57
 Rapa, 66–73
 Rurutu, 57–61
 sociopolitical structure, 55–57, 74–75
 staple food crops, 55, 58–60, 74
 taro abandonment in, 7
 taro cultivation in, 54–55, 69–70
 Tubuai, 61–66
 warfare in, 55–76

B

Balfour, A.J., 227

Bali, 99–100, 107

banana

 Papua New Guinea, 255–260
 Solomon Islands, 220, 222–223, 227,
 231, 233

Banaue (Philippines), 287–291, 315–316

Barrau, Jacques, 55, 168, 170, 181, 203,
 228, 297

Barrus, Susan, 228

Barton, R.F., 285, 287, 294

Bayesian modelling, 291–295

Bayliss-Smith, Tim, 219

Beyer, H.O., 285, 287, 294

biblical theology, 1

Bintacan Cave (Philippines), 290

- birds, taro dispersal by, 331
 blade (taro), 307–309, 311, 324
 Blench, Roger, 21
 Bollt, Robert, 53
 The Book of Taro (Yu Jing), 45–51
Bounty mutineers, 63–65, 74
 Bourke, R. Michael, 255
 Bowie, F.G., 221
 Bradley, Joseph, 225
 Brenchley, Julius, 5
 Burma, 27, 30
 Burnay district (Philippines), 290
 bush swiddens, 233, 236
 Buwaya, 314–315
- C**
- Caillon, Sophie, 189
Caladium esculentum, 22
Canarium, 225, 231–233, 235–236, 241
 cassava. *See also* manioc
 Fiji, 155, 159
 Papua New Guinea, 255–260
 Philippines, 308, 335
 Solomon Islands, 224, 233, 237, 238, 240
 ceremonial food
 atolls, 88–89
 Philippines, 298, 300
 Solomon Islands, 231, 235–236
 Vanuatu, 189–190
 charcoal samples
 dating using, 138–142, 172
 excavation of, 171, 268–273
 Hawai‘i, 138–142
 New Caledonia, 171–172
 Philippines, 290
 Solomon Islands, 242
 Timor-Leste, 242, 268–273
 Chazine, Jean-Michel, 83
 chiefdoms. *See* sociopolitical structure
 China
 cultivation techniques in, 46, 48–50
 food supply, 50–51
 taro cultivation, 343
 vernacular names for taro, 27, 31–32, 45–48
 wild taro, 22, 45, 47–49
 Yu Jing (The Book of Taro), 45–51
 Chinese taro. *See* macabo (*Xanthosoma sagittifolium*)
 Chinnery, E.W. Pearson, 11, 12
 Christian, Fletcher, 63–65
 chronometric analysis, 294–295
 climate
 Austral Islands, 53–54, 75
 Fiji, 155
 Hawai‘i, 118–119, 136
 New Caledonia, 171, 181–182
 Papua New Guinea, 260
 Philippines, 296, 310–311
 taro growth, 311–312
 Tuamotu Archipelago, 83
 Vanuatu, 211–212
 coastal populations
 Austral Islands, 61–62
 Hawai‘i, 104, 173–174
 Papua New Guinea, 260
 Solomon Islands, 224–228, 231–248
Colocasia esculenta. *See* taro
 C. formosana, 117, 313, 315, 316
 C. oesbia, 117, 313, 323
 composting, 88
 Conklin, H.C., 298, 300, 314–316
 construction sequences, dating using, 142–144
 Cook, James, 2, 59, 74, 167–168
 cooking methods, 308, 324–328
 Cook Islands, 3, 7, 88
 Copeland, James, 5
 Cordillera (Philippines), 298–300
Cordyline fruticosa, 70, 197
 corms, 307–308, 311, 324
 corn. *See* maize
 Cribb, J., 345
 crop yields

by cultivation technique, 50
 Hawai'i, 103–106, 128–130
 Philippines, 299–300
 Solomon Islands, 238–239
 Vanuatu, 202–204, 216

croton (*Codiaeum variegatum*), 197

cultivation pits, 84–88, 220–221

culture. *See also* ceremonial food
 atolls, 89–90
 Philippines, 308
 Solomon Islands, 222, 236–238
 Vanuatu, 189–191, 204–205, 209–216

Cyrtosperma chamissonis (swamp-taro),
 24, 88, 221, 255–256

D

Damm, Hans, 11–12

dating methods, 135–152
 radiocarbon (*See* radiocarbon dating)
 thermoluminescence, 287, 295–296

Davao (Philippines), 320–324

deforestation. *See also* landscape
 degradation
 Austral Islands, 69, 75
 consequences of, 99
 Papua New Guinea, 261
 Solomon Islands, 226, 228

Denham, T., 27

De Rochas, Victor, 4

dietary cautions, 48

digging tools, 86, 199

Dioscorea spp. *See* yams

dispersal
 overview of, 343
 atolls, 89–90
 Philippines, 297–298, 331–332
 Timor-Leste, 279–280
 vernacular names and, 21–22, 36–37
 (*See also* vernacular names)

domestication. *See* origin theories; wild taro

dry cultivation
 Austral Islands, 54–55, 69

China, 46, 48–50
 Hawai'i, 104–105
 Melanesia, 220
 Philippines, 298–299
 Solomon Islands, 233, 236
 Vanuatu, 196–200

E

Earle, Timothy, 12, 95

Eastern Gulches (Hawai'i), 115–130

Edwards, E., 54, 73

Egyptocentric origin theories, 1, 8–11

Ellis, William, 62, 64, 74

Emory, Kenneth, 12

engineered landscapes, 98–100. *See also*
 landesque capital
 property rights, 106–109

environmental factors. *See also* climate
 Austral Islands, 53–54, 74–75
 Hawai'i, 115, 118–119
 New Caledonia, 171, 181–182
 Philippines, 310–311
 taro growth, 311–312, 341
 Vanuatu, 211–212

environmental stress. *See* landscape
 degradation

Erskine, James, 4

ethnobotany
 Philippines (*See* Philippines, wild taro)
 reference collections, 274–275, 312,
 314–315
 Timor-Leste, 273–274

European interpretations of taro cultivation,
 1–14
 Fiji, 3, 6–7
 New Caledonia, 4–5, 7, 167–168
 Papua New Guinea, 5–6, 259
 Philippines, 286, 308
 Solomon Islands, 2, 222–228
 Vanuatu, 3–6

exchange systems
 Solomon Islands, 223–244

Vanuatu, 189–191, 202–205

F

famine, 50–51, 74, 330, 345. *See also* food supply

feasting. *See* ceremonial food

Felgate, Matthew, 223

fertiliser. *See* composting

Fiji

climate, 155

irrigation systems, 156

European interpretations of, 3, 6–7

landesque capital, 155–162

landscape degradation, 158

Navosa (Viti Levu), 155–162

staple food crops, 155, 159

taro abandonment, 156–162

floodplains, 174–176

flotation methods, 268–273

flowering (taro), 311–312

fodder, 204, 308, 315, 318, 325, 330, 333, 335

food storage methods

Austral Islands, 58, 70, 74

China, 48

food supply. *See also* staple food crops

Austral Islands, 58–60

China, 50–51

Hawai‘i, 128–130

Papua New Guinea, 255–258

Vanuatu, 202–204

Forster, E., 173

Fox, R.B., 314, 334

Freycinetia monticola, 197

G

Geddie, John, 3–4

gendering of work, 196–198

genetic diversity, of wild taro, 332–334

geological environment, New Caledonia, 180–183

Gesonula sp. (taro grasshopper), 328–329, 332

Ghyben-Hertzberg lens, 84

Glaumont, Gustave, 4, 7, 169, 174–175, 178–179

Goldie, J.F., 228

Golson, J., 12

Grande Terre (New Caledonia), 173–183

Graves, Michael W., 115

H

Halawa Gulch (Hawai‘i), 115–130

Hawai‘i

archaeology, 119–120

radiocarbon dating, 12, 121, 135–152

architecture, 99, 120

climate and geography, 106, 115–119, 136

dry cultivation, 104–105

Eastern Gulches, 115–130

irrigation systems, 101–106

early accounts of, 2–3

labour requirements, 100, 128–130

taro terraces, 120–127, 136–137

yields, 103, 128–130

landscape degradation, 99, 103–104

property rights, 106–109

sociopolitical structure, 96–98, 101–109

sustainable agriculture, 103–104

taro abandonment, 7

Wailau Valley, 135–152

warfare, 97

Hawai‘i Archaeological Research Project (HARP), 120

headhunting, 232, 235

heritage value, of taro terraces, 191–193

Heyerdahl expedition, 71

historical material. *See also* European

interpretations of taro cultivation

dating using, 144–151

taro decline, 259–260

Yu Jing (The Book of Taro), 45–51

Hocart, A.M., 221, 241
 Horne, John, 6–7
 Huang Shengzheng, 45
 hunger (famine), 50–51, 74, 330, 345. *See also* food supply
 Hviding, Edvard, 219
 hydraulic hypothesis, 55, 100–102

I

Ifugao (Philippines), 285–302
 independent invention hypothesis, 10
 India, vernacular names for taro, 30, 34–35
 Inglis, John, 5
 inheritance systems
 Hawai‘i, 106–109
 Vanuatu, 194–195
 inland populations
 Austral islands, 63
 Solomon Islands, 228–229, 239–240
 Vanuatu, 212
 insects, 328–329, 332
 taro beetle (*Papuana*), 196–199, 260
 irrigation systems. *See also* pondfields; taro
 terraces
 overview of, 344–345
 atolls, 84–88
 Austral Islands, 54–55, 69–70
 Fiji, 156
 Hawai‘i, 101, 105–106, 115–130
 historical accounts of (*See* European interpretations of taro cultivation)
 managerial requirements, 100–109
 New Caledonia, 167–184
 Papua New Guinea, 260–261
 Philippines, 298–300
 Solomon Islands, 223–224
 Vanuatu, 189–205, 209–216, 221
 vernacular names for, 35–36

J

Jee Yan Chu, 45

K

Kanaks (New Caledonia), 167–184
 kava (*Piper methysticum*), 215
 King, Trevor, 155
 Kirch, Patrick, 12, 55, 118, 130, 224
 Kolobangara (Solomon Islands), 224–225
 Kotzebue, Otto von, 3
 Kusaghe (New Georgia), 228–231

L

labour requirements
 overview of, 342
 gendering of work, 196–198
 Hawai‘i, 100–109, 127–130
 Solomon Islands, 236
 Lambrecht, Francis, 286
 landesque capital
 Angkor, 99–100
 Austral Islands, 55, 69
 Bali, 99–100, 107
 definition of, 98
 Fiji, 155–162
 Hawai‘i, 98–100, 106–109
 Papua New Guinea, 98
 sociopolitical factors, 98–100, 106–109
 landscape degradation. *see also* deforestation
 Austral Islands, 55, 57
 consequences of, 99, 345
 Fiji, 158
 Hawai‘i, 99, 103–104
 New Caledonia, 171
 land transmission
 Hawai‘i, 106–109
 Vanuatu, 194–195
 language phyla, 23
 Lapita culture, 12, 222–223, 242–244
 leaf beetles (*Aplosonyx* sp.), 328–329, 332
 leaves (taro), 307–309, 311, 324
 Leenhardt, M., 171
 linguistic evidence. *See also* vernacular names

Solomon Islands, 236–238, 242–244
Luzon Island (Philippines), 287–291,
315–320

M

macabo (*Xanthosoma sagittifolium*)
Papua New Guinea, 256–259
Philippines, 315, 318, 325, 329, 333, 335
Vanuatu, 200, 202, 209, 210, 216
MacGillivray, John, 4
Madulid, D.A., 307
Maher, Robert, 287–290
maize
Papua New Guinea, 259
Philippines, 335
Timor-Leste, 273
malaria, 244–247
Manila (Philippines), 316
manioc (*Manihot esculenta*), 200, 202,
209–210, 216. *See also* cassava
Mapping Agricultural Systems of PNG
(MASP), 255, 261
Marovo Lagoon (New Georgia), 225–228,
232–233
Marquesas Islands, 7, 74
Matthews, Peter J., 45, 307, 341
McCoy, Mark D., 115
McElroy, Windy K., 135
megalithic culture, 8–11, 222
Meggitt, Mervyn, 6
Melanesia. *See also specific island*
wet taro in, 220–222
Mendaña, Alvaro de, 2, 221
Menzies, Archibald, 2
Merrill, E.D., 309, 316, 334
Micronesia. *See specific country or*
location
Mindanao Island (Philippines), 320–324
mineral wealth, 8–11
Molano, Juan, 286
Montgomery, James, 3
Morrison, James, 54, 63

Mt Apo (Philippines), 320–324
Mt Arayat (Philippines), 316
Mt Banahaw (Philippines), 316–317
mulching, 88–90
Myanmar, vernacular names for taro, 30

N

Navosa (Viti Levu; Fiji), 155–162
New Caledonia
archaeology, 170–173
geography and climate, 168, 171,
181–183
Grande Terre, 173–183
irrigation systems in, 167–184
European interpretations of, 4–5, 7,
167–168
origin theory based on, 10
population dynamics, 180–183
radiocarbon dating in, 12
New Georgia (Solomon Islands), 219–248
Kusaghe, 228–231
Marovo Lagoon, 225–228, 232–233
Roviana Lagoon, 231–232
Ulusaghe, 232–240
Newton, Henry, 5

O

Oliveira, Nuno Vasco, 265
Open societies, 56, 74
oral history, Solomon Islands, 236
Orientalism, 1
origin theories, 7–12, 342
atolls, 89–90
New Caledonia, 170–173
Papua New Guinea, 11, 310
Philippines, 296–298, 308–310,
329–336
Solomon Islands, 222
Timor-Leste, 273–274
vernacular names and, 21–22, 36–37
(*See also* vernacular names)

P

- Pacific settlement theories, 1, 3, 8–11. *See also* origin theories
- Papuana* (taro beetle), 196–199, 260
- Papua New Guinea
 climate, 260
 irrigation systems, 260–261
 European interpretations of, 5–6, 259
 landesque capital, 98
 origin theories based on, 11, 310
 population dynamics, 260
 staple food crops, 255–260
 taro abandonment, 259–260
 vernacular names for taro, 27–28
 wild taro, 22
- pare* (Austral Islands), 70–73
- Paz, Victor, 275–276, 281
- Perry, William, 7–11
- Peru, 103–104
- petiole, 307–309, 311, 324
- Phapitreron leucotis* (white-eared brown fruit dove), 331
- Philippine National Herbarium, 312, 314–315
- Philippines
 climate and geography, 286, 296, 310–311
 Cordillera, 298–300
 dry cultivation, 298–299
 Ifugao, 285–302
 Luzon Island, 287–291, 315–320
 Mindanao Island, 320–324
 population dynamics, 296
 rice terraces, 285–302
 productivity, 299–300
 radiocarbon dating, 287–296
 taro at edge of, 35
 taro before, 296–298
 staple food crops, 308, 334–335
 taro cultivation in, 296–300, 308–310
 European interpretations of, 286, 308
 origin theories, 296–298, 308–310, 329–336
 vernacular names for taro, 25–27, 30, 35–36, 308–309, 315–324
 wet cultivation, 298–300
 wild taro, 28, 296–297, 307–336
 agricultural history, 334–336
 dispersal of, 297–298, 331–332
 field surveys, 312–330
 as food source, 308, 324–328, 330–334
 reference collection, 312, 314–315
- Phytophthora colocasiae* (taro blight), 259–260
- pigs
 feral, 159, 228
 fodder for, 204, 315, 318, 325, 333
 as food, 202, 231, 237–239
- pit cultivation, 84–88, 220–221
- plant taxa
 dating using, 144–151 (*See also* radiocarbon dating)
 history of plant use, 273–274
 reference collections, 274–275, 312, 314–315
- Plectranthus scutellarioides*, 197
- politics. *See* sociopolitical structure
- Polynesia. *See also specific country or location*
 crop yields, 238
 culture, 87
 food supply, 54–55
 irrigation systems in, 7–8
 origins of human settlement, 89–90
 sociopolitical development, 55–56, 62, 74, 96–97, 104–106, 241–242
- pondfields
 Austral Islands, 55, 69–70
 Hawai‘i, 101, 105–106, 122–126, 136
 New Caledonia, 177–183
 Philippines, 298–299
 Solomon Islands, 223–225, 229–231, 233
 Vanuatu, 191–205, 209–216

- population dynamics
 Austral Islands, 74–75
 malaria and, 246–247
 New Caledonia, 180–183
 Papua New Guinea, 260
 Philippines, 296
 Solomon Islands, 224–225, 228–229,
 246–247
 Vanuatu, 202, 210–212, 215
- pottery
 at archaeological sites, 273, 276, 280
 megalithic culture and, 222
 Solomon Islands, 231, 242
- primary state formation, 95–98
 engineered landscapes in, 98–100
 irrigation systems and, 100–109
- productivity
 by cultivation technique, 50
 Hawai‘i, 103–106, 128–130
 Philippines, 299–300
 Solomon Islands, 238–239
 Vanuatu, 202–204, 216
- property rights
 Hawai‘i, 106–109
 Vanuatu, 194–195
- Psychotria trichostoma*, 197
- Pule, Henry, 228
- Pythium*, 197
- R**
- radiocarbon dating
 Austral Islands, 73
 Bayesian modelling, 291–295
 Hawai‘i, 12, 121, 135–152
 methodology, 137–152
 New Caledonia, 12, 171–172
 origin theories and, 12
- Philippines, 287–296
- Rapa (Austral Islands), 66–73
- reference collections, 274–275, 312,
 314–315
- religious sites, Austral Islands, 71–73
- rice
 Philippines, 285–302
 European interpretations of, 286
 productivity, 299–300
 radiocarbon dating, 287–296
 taro at edge of, 35
 taro before, 285–302, 296–298
 taro before, 343
 Timor-Leste, 273
 vernacular names for, 33–34
- Riesenfeld, Alphonse, 11–12
- Riley, T.J., 12
- river cultivation, Vanuatu, 192–193,
 203–204
- Rivers, William Halse Rivers, 7–11, 220–
 222, 241
- Rosendahl, Paul, 224
- rot* (taro water-gardens), 190–193
- Roviana Lagoon (New Georgia), 231–232
- Rurutu (Austral Islands), 57–61
- ruta* (Solomon Islands), 223–224, 229–231,
 233–235
- S**
- Saccharum officinarum* (sugarcane), 184,
 231
- sago
 Papua New Guinea, 255–259
 Solomon Islands, 225
- Sand, Christophe, 167
- scanning electron microscope (SEM), 269,
 273
- seashore structures, New Caledonia,
 173–174
- Semple, Ellen Churchill, 7–8, 10
- Smith, Grafton Elliot, 8
- Society Islands, 7
- sociopolitical structure
 overview of, 343–344
 Austral Islands, 55–57, 74–75
 Hawai‘i, 96–98, 101–109
 hydraulic hypothesis of, 55, 100–102

- primary state formation, 95–97
 - engineered landscapes in, 98–100
 - irrigation systems and, 100–109
 - Solomon Islands, 231–232, 235, 238–244
 - Tuamotu Archipelago, 86–88
 - Vanuatu, 202–205
 - soil fertility
 - atolls, 83–84
 - Hawai‘i, 118
 - Papua New Guinea, 260
 - Vanuatu, 197–198
 - Solomon Islands
 - archaeology, 222–225
 - cultural traits, 222, 236–238
 - dry cultivation, 233, 236
 - geography, 219, 223–224
 - irrigation systems, 223–224
 - European interpretations of, 2, 221–222, 225–228
 - pondfields (*ruta*), 223–224, 229–231, 233–235
 - labour requirements, 236
 - linguistic evidence, 236–238, 242–244
 - malaria, 244–247
 - New Georgia, 219–248
 - oral histories, 236
 - population dynamics, 224–225, 228–229, 246–247
 - sociopolitical structure, 231–232, 235, 238–244
 - staple food crops, 222–226, 231, 233, 237
 - warfare, 225, 228, 235, 242–244
 - Somerville, B.T., 226–228
 - Speiser, Felix, 6
 - spread. *See* dispersal
 - Spriggs, Matthew, 1, 341
 - staple food crops, 343. *See also* food supply; *specific crop*
 - Austral Islands, 55, 58–60, 74
 - Fiji, 155, 159
 - Papua New Guinea, 255–260
 - Philippines, 308, 334–335
 - Solomon Islands, 222–226, 231, 233, 237
 - Timor-Leste, 273–276
 - Vanuatu, 209, 211, 216
 - state formation. *See* primary state formation; sociopolitical structure
 - Steel, Robert, 3
 - Stitt, J.H., 6
 - sugarcane (*Saccharum officinarum*), 184, 231
 - sustainable agriculture
 - atolls, 87–88
 - Hawai‘i, 103–104
 - Vanuatu, 199–200, 216
 - swampland cultivation, 220
 - New Caledonia, 173–174
 - Vanuatu, 192–193, 203–204
 - swamp-taro (*Cyrtosperma chamissonis*), 24, 88, 221, 255–256
 - sweet potato
 - Austral Islands, 55
 - Papua New Guinea, 255–261
 - Philippines, 296, 298–302, 308, 335
 - Solomon Islands, 223, 224, 233, 237, 238
 - Timor-Leste, 274
 - Vanuatu, 202
- T**
- Taiwan, vernacular names for taro, 26–29
 - Tandang, D.N., 307
 - taro
 - acridity, 48, 324–328–332–334
 - cooking methods, 308, 324–328
 - cultivation of
 - overview of, 341–345
 - abandonment of (*See* taro abandonment)
 - dry (*See* dry cultivation)
 - historical material on (*See* European interpretations of taro cultivation)

- wet (*See* irrigation systems; wet cultivation)
 - dispersal of (*See* dispersal)
 - domestication of (*See* origin theories; wild taro)
 - as food source, 341 (*See also* ceremonial food; staple food crops)
 - growth and flowering of, 311–312, 341
 - insects associated with, 328–329, 332
 - taro beetle (*Papuana*), 196–199, 260
 - names for (*See* vernacular names)
 - plant parts, 307–309, 311, 324
 - taro abandonment
 - overview of, 345
 - Austral Islands, 7
 - European interpretations of, 6–7
 - Fiji, 156–162
 - Hawai‘i, 7
 - Papua New Guinea, 259–260
 - Vanuatu, 7, 189, 201, 212, 215–216
 - taro beetle (*Papuana*), 196–199, 260
 - taro blight (*Phytophthora colocasiae*), 259–260
 - taro grasshopper (*Gesonula* sp.), 328–329, 332
 - taro planthopper (*Tarophagus*), 329, 332
 - taro terraces
 - dating of, 135–152 (*See also* radiocarbon dating)
 - Hawai‘i, 120–127, 136–137
 - heritage value, 191–193
 - New Caledonia, 177–183
 - Philippines, 285–302
 - Solomon Islands, 224–225, 229–231
 - Vanuatu, 189–205
 - Tautain, M. le Dr., 7
 - Tedder, Margaret, 228–231
 - temporal indicators, for dating, 144–151
 - thermoluminescence dating, 287, 295–296
 - Tibet, vernacular names for taro, 27, 31–32
 - Timor-Leste
 - archaeological methods, 268–273
 - archaeological sites, 266–268
 - plant specimens from, 275–280
 - staple food crops, 273–276
 - vernacular names for taro, 274
 - wild taro, 274
 - toxicity (acridity), 48, 324–328, 332–334
 - Traditional Kanak Cultural Complex, 167–184
 - Trans-New Guinea phylum (TNG), 27–28
 - true irrigation, 221
 - Tryon-Hackman Line, 221
 - Tuamotu Archipelago
 - climate and geography, 83–84
 - origins of human settlement, 89–90
 - sociopolitical structure, 86–88
 - taro cultivation on, 84–88
 - Tubuai (Austral Islands), 61–66
 - Tzerikiantz, Fabienne, 209
- U**
- Ulusaghe (New Georgia), 232–240
- V**
- valley fields
 - Austral Islands, 57–76
 - Fiji, 158
 - Hawai‘i, 103–108, 115–130, 135–152
 - New Caledonia, 176–177
 - Solomon Islands, 227
 - Vanuatu, 211–212
 - Vancouver, George, 2, 67
 - Vanuatu
 - dry cultivation, 196–200
 - exchange systems, 189–191, 202–205
 - food supply, 202–204
 - geography and climate, 210–212
 - irrigation systems, 189–205, 209–216, 221
 - European interpretations of, 3–6
 - rot* (taro water-gardens), 190–193
 - land transmission, 194–195
 - origin theory based on, 9–10

- population dynamics, 202, 210–212, 215
 sociopolitical structure, 202–205
 staple food crops, 209, 211, 216
 sustainable agriculture, 199–200, 216
 taro abandonment in, 7, 189, 201, 212, 215–216
 taro culture, 189–191, 204–205, 209–216
 Vanua Lava, 189–205
 vernacular names for taro, 209
 Western Santo, 209–216
 vernacular names, 21–37. *See also specific term*
 irrigation techniques, 35–36
 language phyla, 23
 lexical resources, 23
 paddy rice, switch to, 30–34
 patterns of, 24–30, 37
 #biRaq, 28–29
 common roots, 24
 #ma, 27–28
 #poj, 29–30
 #traw?/#tales, 24–27
 regional
 Burma, 27, 30
 China, 27, 31–32, 45–48
 India, 30, 34–35
 Myanmar, 30
 Papua New Guinea, 27–28
 Philippines, 25–27, 30, 35–36, 308–309, 315–324
 Solomon Islands, 236–238
 Southeast Asia, 30–33
 Taiwan, 26–29
 Timor-Leste, 274
 Vanuatu, 209
 Vietnam, 30
 Vietnam, 30
 Viti Levu (Fiji), 155–162
 volcanic glass dating, 135
- W**
 Wailau Valley (Hawai‘i), 135–152
 wall abutments
 dating using, 142–144
 Hawai‘i, 142–144
 Vanuatu, 200–201
 Walter, Annie, 209
 warfare
 Austral Islands, 55–76
 Hawai‘i, 97
 Solomon Islands, 225, 228, 235, 242–244
 water lens, 84–88
 Western contact. *See* European interpretations of taro cultivation
 Western Santo (Vanuatu), 209–216
 ‘wet and dry’ hypothesis (Kirch), 55, 118, 130
 wet cultivation. *See also* irrigation systems
 overview of, 341–345, 344–345
 atolls, 84–88
 China, 46, 49–50
 dating methods, 135–152 (*See also* radiocarbon dating)
 ecological contexts for, 220–221
 historical accounts of (*See* European interpretations of taro cultivation)
 Melanesia, 220–222 (*See also specific location*)
 Philippines, 298–300
 risks of, 104
 wet-sieving methods, 268–273
 white-eared brown fruit dove (*Phapitreron leucotis*), 331
 Whiteoak, G.W., 6
 wild taro
 overview of, 21–22
 Andaman Islands, 22
 Australia, 342
 China, 22, 45, 47–49
 domestication of (*See* origin theories)
 genetic diversity of, 332–334

- growth of, 311–312
- names for, 24 (*See also* vernacular names)
- Papua New Guinea, 22
- Philippines (*See* Philippines, wild taro)
- Timor-Leste, 274
- Wilkes, Charles, 3
- Williams, John, 3
- Wittfogel, Karl, 100–102, 344
- world archaeology, 95–96

X

- Xanthosoma sagittifolium* (macabo)
 - Papua New Guinea, 256–259
 - Philippines, 315, 318, 325, 329, 333, 335
 - Vanuatu, 200, 202, 209, 210, 216

Y

- yams
 - Austral Islands, 55, 58
 - Fiji, 155
 - New Caledonia, 176, 184, 189
 - Papua New Guinea, 255–259
 - Philippines, 297, 308–310, 334
 - before rice, 297, 343
 - Solomon Islands, 220, 222, 225–226, 231, 233, 237–239
 - Timor-Leste, 273–276
 - Vanuatu, 192–193, 209, 211, 216
 - vernacular names for, 29–30
- Yen, Doug, 12, 170, 221–222, 224–225
- Yu Jing (The Book of Taro), 45–51

List of Contributors

Acabado, Stephen B.

Assistant Professor, Anthropology Program, College of Liberal Arts and Social Sciences, University of Guam, Mangilao, GU 96923. Email: stephen.acabado@gmail.com

Agoo, E. Maribel G.

Associate Professor, Biology Department, De La Salle University, 2401 Taft Avenue, Malate, 1004 Manila, Philippines. Email: esperanza.agoo@dlsu.edu.ph

Bayliss-Smith, Tim

University Reader in Pacific Geography and Fellow of St John's College; Department of Geography, University of Cambridge, Downing Place, Cambridge CB2 3EN, England, UK. Email: tpb1001@cam.ac.uk

Blench, Roger M.

Chief Research Officer, Kay Williamson Educational Foundation, 8 Guest Road, Cambridge, CB1 2AL, United Kingdom. Email: rogerblench@yahoo.co.uk

Boltt, Robert

Professor, Department of Anthropology, College of Social Sciences, University of Hawai'i at Mānoa, 2424 Maile Way, Honolulu, HI 96822-2223, USA (see Acknowledgements, this volume).

Bourke, R. Michael

Adjunct Senior Fellow, State Society and Governance in Melanesia, College of Asia Pacific, The Australian National University, Canberra, ACT 0200, Australia. Email: mike.bourke@anu.edu.au

Caillon, Sophie

Research Scientist at CNRS, UMR 5175 Center for Functional and Evolutionary Ecology, Biocultural Interactions Team, 1919 route de Mende, 34293 Montpellier Cedex 5, France. Email: sophie.caillon@cefe.cnrs.fr

Chazine, Jean-Michel

CNRS CREDO, Maison Asie Pacifique, Université de Provence, 3, place Victor Hugo, 13003 Marseille, France. Email: jmchazine@mailcity.com

Chu, Jee Yan

Research Associate, Department of Biological Sciences, Brock University, 500 Glenridge Avenue, St. Catharines, ON, L2S 3A1, Canada. Email: jeeyan@mail.com (Translator)

Earle, Timothy

Professor Emeritus, Department of Anthropology, Northwestern University, 1810 Hinman Ave., Evanston IL 60208 USA. Email: tke299@northwestern.edu

Graves, Michael

Chair, Department of Anthropology, MSC01-1040, Anthropology 1, University of New Mexico, Albuquerque, NM 87131, USA. Email: mwgraves@unm.edu

Hviding, Edvard

Head, Department of Social Anthropology (and Director, Bergen Pacific Studies research group), University of Bergen, N-5020 Bergen, Norway. Email: edvard.hviding@sosantr.uib.no

King, Trevor

Independent Researcher, and Overseas Coordinator, VNV-FOSLE (*Vitokoni ni Vuci* - Friends of Sustainable Livelihoods and Environment), P.O. Box 8081, Hokowhitu, Palmerston North, Manawatu, New Zealand/Aotearoa. Email: trevorking@pl.net

Madulid, Domingo A.

Professorial Lecturer, De La Salle University, Biology Department, Taft Ave., Manila, Philippines. Email: dmadulid@info.com.ph

Matthews, Peter J.

Associate Professor, Field Sciences Laboratory, Department of Social Research, National Museum of Ethnology, Osaka 565-8511, Japan. Email: pjm@idc.minpaku.ac.jp

McCoy, Mark D.

Lecturer in Archaeology, Department of Anthropology & Archaeology, Te Tari Mātai Tikanga Tangata o Nāiane me Onamata, University of Otago. P.O. Box 56, Dunedin, New Zealand 9054. Email: mark.mccoy@otago.ac.nz

McElroy, Windy K.

Principal, Keala Pono Archaeological Consulting, Hawai'i, USA. Website: keala-pono.com

Oliveira, Nuno Vasco

Visiting Fellow at the School of Culture, History and Language, College of Asia and the Pacific, The Australian National University. Also: P.O. Box 75 Dili, Timor-Leste. Email: nuno.oliveira@anu.edu.au

Sand, Christophe

Director, Institute of Archaeology of New Caledonia and the Pacific (and President, ICOMOS Pasifika), BP: 11423, 98802 Nouméa, New Caledonia. Email: christophe.sand@iancp.nc

Spriggs, Matthew

Professor, School of Archaeology and Anthropology, College of Arts and Social Sciences, AD Hope Building 14, The Australian National University, Canberra, ACT 0200, Australia. Email: matthew.spriggs@anu.edu.au

Tandang, Danilo

Researcher, Botany Division, National Museum of the Philippines, PO Box 2659 CPO, Manila, Philippines. Email: sue93653@yahoo.com

Tzerikiantz, Fabienne

CREDO, Maison Asie Pacifique, Université de Provence, 3, place Victor Hugo 13003 Marseille, France. Email: tz-fab@club-internet.fr

Walter, Annie

IRD (Institut of Researchs for the Development), 911 av Agropolis, 34394 Montpellier
Email: anniwalter@hotmail.com

Senri Ethnological Studies

To obtain free copies, see contact details inside the front cover

No. 1	Africa 1	1978
No. 2	Miscellanea 1	1978
No. 3	Warfare among East African Herders	1979
No. 4	Alaska Native Culture and History	1980
No. 5	Music Culture in West Asia	1980
No. 6	Africa 2	1980
No. 7	The Galela of Halmahera: A Preliminary Survey	1980
No. 8	Chipewyan Ecology: Group Structure and Caribou Hunting System	1981
No. 9	Affluent Foragers: Pacific Coasts East and West	1981
No.10	El Hombre y su Ambiente en los Andes Centrales	1982
No.11	Religion and Family in East Asia	1984
No.12	Under Mt. Zempoaltépetl: Highland Mixe Society and Ritual	1984
No.13	History and Peasant Consciousness in South East Asia	1984
No.14	Regional Differences in Japanese Rural Culture: Results of a Questionnaire	1984
No.15	Africa 3	1984
No.16	Japanese Civilization in the Modern World: Life and Society	1984
No.17	Maritime Institutions in the Western Pacific	1984
No.18	The Encounter of Persia with China: Research into Cultural Contacts Based on Fifteenth Century Persian Pictorial Materials	1986
No.19	Japanese Civilization in the Modern World II: Cities and Urbanization	1986

No.20	Toward a Computer Ethnology	1987
No.21	Cultural Uniformity and Diversity in Micronesia	1987
No.22	The Hanunoo-Mangyan: Society, Religion and Law among a Mountain People of Mindoro Island, Philippines	1988
No.23	The Museum Conservation of Ethnographic Objects	1988
No.24	Cinematographic Theory and New Dimensions in Ethnographic Film	1988
No.25	Japanese Civilization in the Modern World III: Administrative Organizations	1989
No.26	Japanese Civilization in the Modern World IV: Economic Institutions	1989
No.27	Culture Embodied	1990
No.28	Japanese Civilization in the Modern World V: Culturedness	1990
No.29	Japanese Civilization in the Modern World VI: Religion	1990
No.30	Cash, Commoditisation and Changing Foragers	1991
No.31	Africa 4	1992
No.32	Significance of Silk Roads in the History of Human Civilization	1992
No.33	500 Años de Mestizaje en los Andes	1992
No.34	Japanese Civilization in the Modern World VII: Language, Literacy, and Writing	1992
No.35	Unity and Diversity of a People: The Search for Fulbe Identity	1993
No.36	From Vedic Altar to Village Shrine: Towards an Interface between Indology and Anthropology	1993
No.37	El Mundo Ceremonial Andino	1993
No.38	Japanese Civilization in the Modern World IX: Tourism	1995
No.39	Native Middle American Languages: An Areal-Typological Perspective	1995

No.40	Japanese Civilization in the Modern World XI: Amusement	1995
No.41	New Horizons in Tibeto-Burman Morphosyntax	1995
No.42	Coastal Foragers in Transition	1996
No.43	Essays in Northeast African Studies	1996
No.44	Northern Minority Languages: Problems of Survival	1997
No.45	Time, Language and Cognition	1998
No.46	Japanese Civilization in the Modern World X: Technology	1998
No.47	Fringe Area of Highlands in Papua New Guinea	1998
No.48	Japanese Anthropologists and Malaysian Society: Contributions to Malaysian Ethnography	1998
No.49	The Anthropology of Korea: East Asian Perspectives	1998
No.50	Living with <i>Śakti</i> : Gender, Sexuality and Religion in South Asia	1999
No.51	Japanese Civilization in the Modern World XVI: Nation-State and Empire	2000
No.52	Japanese Civilization in the Modern World XIV: Comparative Studies of Information and Communication	2000
No.53	The Social Economy of Sharing: Resource Allocation and Modern Hunter-Gatherers	2000
No.54	Japanese Civilization in the Modern World XVII: Collection and Representation	2001
No.55	Cultural Change in the Arab World	2001
No.56	Identity and Gender in Hunting and Gathering Societies	2001
No.57	The Value of the Past: Myths, Identity and Politics in Transcaucasia	2001
No.58	Social Change and Continuity in a Village in Northern Anhui, China: A Response to Revolution and Reform	2001

No.59	Parks, Property, and Power: Managing Hunting Practice and Identity within State Policy Regimes	2001
No.60	Self- and Other-Images of Hunter-Gatherers	2001
No.61	Anthropology of Untouchability: “Impurity” and “Pollution” in a Southern Indian Society	2001
No.62	The Culture of Association and Associations in Contemporary Japanese Society	2002
No.63	Hunter-Gatherers of the North Pacific Rim	2003
No.64	Japanese Civilization in the Modern World XVIII: Alcoholic Beverages	2003
No.65	Wartime Japanese Anthropology in Asia and the the Pacific	2003
No.66	Circumpolar Ethnicity and Identity	2004
No.67	Indigenous Use and Management of Marine Resources	2005
No.68	Usos del documento y cambios sociales en la historia de Bolivia	2005
No.69	Pastoralists and Their Neighbors in Asia and Africa	2005
No.70	Updating the San: Image and Reality of an African People in the 21st Century	2006
No.71	Music and Society in South Asia: Perspectives from Japan	2008
No.72	Hunter-Nature Relations and the Historical Backgrounds of Hunter-Gatherer Cultures in Northeast Asian Forests: Russian Far East and Northeast Japan	2009
No.73	Interactions between Hunter-gatherers and Farmers from Prehistory to Present	2009
No.74	Written Cultures in Mainland Southeast Asia	2009
No.75	Issues in Tibeto-Burman Historical Linguistics	2009
No.76	Tourism and Glocalization: Perspectives on East Asian Societies	2010
No.77	Objectivization and Subjectivization: A Typology of Voice Systems	2012

平成24年3月30日 発行

Senri Ethnological Studies 78

編者 Matthew Spriggs
David Addison
Peter J. Matthews

編集・発行 人間文化研究機構
国立民族学博物館

〒565-8511 吹田市千里万博公園10-1
TEL. 06(6876)2151 (代表)

印刷 中西印刷株式会社
〒602-8048 京都市上京区下立売通小川東
TEL. 075(415)3155 (代表)
