

Contents





indicates a Rolex Laureate











indicates an Honourable Mention






The Selection Committee	vi
Foreword by George Van B. Cochran	xv
Preface by André J. Heiniger	xvii
Introduction by David W. Reed	xix





Section 1 – Applied Sciences and Invention





The new workers of the sea <i>Marc Simon Bollon</i>	3
Can we turn back the wheel of evolution and produce extinct forms of life? <i>Keizō Kamata</i>	6
Research and development of robotic components <i>Mark E. Rosheim</i>	9
A waste-recycling biogas generator for farm self-sufficiency <i>Felix D. Maramba</i>	12
Precolumbian musical instruments of the south and central-south Andes <i>José Vicente Pérez de Arce</i>	15
Novocel – An invention to save jute from the fate that befell indigo <i>Abu Raihan Mahiuddin Muhammad Manzur-i-Khuda</i>	18
Maintaining biological tissue viability by preventing prolonged energy-production arrest  <i>Guy René Raymond Jean Renault</i>	21
New candidates for the prawn culture industry <i>I-Chiu Liao</i>	24
Capuchin monkeys as aids for high-level quadriplegics <i>Mary Joan Willard</i>	27
Astronomical observatory in southern France <i>Luc Vanthoeck</i>	30
Small medical first-aid unit  <i>Simón Patricio Ponce</i>	33
Daedalus – A human-powered flight from Crete to mainland Greece <i>John Sholar Langford, III</i>	36







	Vision substitution for congenitally blind children in Mexico <i>Paul Bach-y-Rita</i>	39
	MFV <i>Listaos</i> – Medical and technical aid for the Indian Ocean archipelagos <i>Jacques Luc Autran</i>	43
	“Living contact lenses” to correct childhood and adult functional blindness <i>Marguerite Bridget McDonald</i>	46
	Using large amateur telescopes in the visual search for comets <i>Rolf Georg Meier</i>	49
	Device for taking photographs from a point high above the ground <i>Claude Lambolez</i>	52
	Design of windpumps for manufacture in Third World countries <i>Michael Harries</i>	55
	Rebuilding a heart from skeletal muscle <i>Larry Warren Stephenson</i>	58
	Spinal cord injury disabilities – Prevention, treatment and rehabilitation <i>Suseela Varma</i>	61
	A quick, economical and effective solution to prison overcrowding <i>Donald Leo Kiselewski</i>	64
	Oxfam water-supply scheme packs for emergency and long-term purposes <i>James Charles Howard</i>	67
	Miniature self-imaging stamp device <i>Michael John Parkes</i>	70
	Input-saving mechanization for small paddy farmers <i>Amir U. Khan</i>	73
	Bioconversion of lignocellulose into a protein ingredient for animal feed <i>Manuel D. Marcelo</i>	76
	Miniature hand-held and eyeglass-mounted infrared travel aids for the blind <i>Forrest Marion Mims, III</i>	79
	Developing shrimp aquaculture and transferring the technology to developing countries <i>Dan Cohen</i>	82
	Using locally available plant materials as ophthalmic surgical swabs <i>Erasmus Oluchukwu Chukwudi Oji</i>	85
	Development of artificial-bone tissue <i>Petr Patka</i>	88
	Using appropriate technology for tidal channel and river closures <i>Johannes Van Duivendijk</i>	91
	Autism in children: Finding the cause and cure <i>Bernard Rimland</i>	94
	Rectangular container for maturing table wine in wood <i>Leslie Ross Macdonald</i>	97
	Computer-aided design (CAD) and manufacture (CAM) of dental prostheses <i>François Duret</i>	100







	Illuminated tip for positioning endotracheal tubes <i>Richard Moss Heller</i>	103
	Navigation and fisheries research project for the sightless <i>Andrew Gilbert Henry Hay</i>	106
	Deep Flight: A new class of underwater research and exploration vehicles <i>Graham Hawkes</i>	109
	The quest for tropical paraplegia <i>Gustavo Campos Román</i>	112
	Using computerized vocal synthesis in measuring instruments for blind people <i>Rinaldo Canalis</i>	115
	Project Rainbow – New Rice™: For better use of world food resources <i>Jeanne M. Cox</i>	118
	Belihuloya hydropower project <i>Gamini Samarasinghe</i>	121
	Diver's position-fixing and telemetry system <i>Bryan Woodward</i>	124
	Roadways that "talk" <i>Hugh Bradner</i>	127
	Developing live electronic holography <i>Ronald L. Kirk</i>	130
	Short descriptions of projects submitted by: <i>Kurt Lewis Borman, Karsten Werner Jochims, Alister Voller, Bela John Edward Zettl, Nicole Bournias-Vardiabasis, Joseph Bonaventura, Juan Carlos Chachques, Ove Kurt Nordstrand, Christine Rohani Longuet, Dimitris Joannis Stankourakis, Aubrey Harry Moula, Roberto Ortaleza Kee, Patrick Moyna, Faiz Faris Bebawi, Muhammad Ikramul-Haq, Raymond Joffre Claxton, José Jacobó Storch de Gracia y Asensio, Stanislas Saffissou, Juma Athumani Kapuya, Kenneth Arthur Austin, Dimitris Anagnostopoulos, Yusoff Mohd Nik, Orley Robert Taylor, Jr., Angel María Jadán Peralta, Diana Teresa Erujimovich de Wainberg, Peter Lomax, Frank Maine Bateson, Luis Katz, Ioan Muraroiu, Benjamin L. Allen, Jr., Daniele Bedini, Mudumbi Parthasarathy, Thomas J. Karass, Mohamed Aly El-Banby, Arthur Cecil Gee, Jorge Samuel Molina Buck, Tomás Alejandro David del Solar y del Solar, Karl-Heinz Krahn, Robert Michael Silva, Ken Heimreid.</i>	133
	Section 2 – Exploration and Discovery	143
	Exploring the Arctic with small, purpose-built motor sailing boats <i>Janusz Kurbiel</i>	145
	Small cetaceans of the South American sector of the Antarctic and Subantarctic <i>Rae Natalie Prosser Goodall</i>	148
	Promoting sports diving for disabled people <i>David Royston</i>	151
	People of the World as they are – where they are – painted by Texana <i>Texana</i>	154
	Vegetation survey of Western Australia <i>John Stanley Beard</i>	157
	Himalaya Soaring Expedition to study meteorology in Nepal <i>Alvaro de Orleans-Borbon</i>	160

	Retracing Amundsen's route to the South Pole <i>Neil Forbes McIntyre</i>	163
	Ornithological exploration of New Guinea's mountains <i>Jared Mason Diamond</i>	166
	Revitalizing Lake Nipissing's transportation history <i>Bessel J. VandenHazel</i>	169
	Unlocking the mystery of the underwater columns of the Lost City of Nueva Cadiz <i>Richard Sammon</i>	172
	A centre to study haemorrhagic syndrome due to skin contact with caterpillars <i>Carmen Luisa Arocha-Piñango</i>	175
	Roman occupation of West Gloucestershire <i>Maurice Fitchett</i>	178
	Ethnoecology of the Bischarin – Documenting a disappearing culture <i>Steven Michael Goodman</i>	
	Orbiting Unification Ring Satellite <i>Arthur Ray Woods</i>	184
	Maritime archaeology and the search for shipwrecks in the Cape Verde Islands <i>Erick Henri-Emmanuel Surcouf</i>	187
	The Transcanada Expedition <i>Stewart Holmes</i>	190
	Sarawak 87 – Studying the world's largest known underground karstic room <i>Eric Gilli</i>	193
	Astronomical detection of missing Egyptian 5th dynasty sun temples <i>Ronald Allen Wells</i>	196
	Korean butterflies – Exploration and classification <i>Kyong Chol Chou</i>	199
	Exploring sacred mountains and ancient ceremonial centres in the Andes <i>Johan Gjefsen Reinhard</i>	203
	Archaeological and ethnographical research in western Tassili-n-Ajjer, Algeria <i>Juergen Friederich Kunz</i>	206
	In the wake of Sir Francis Drake – A photographic record of his life and voyages <i>Michael David Turner</i>	209
	Surveying the rock art of West Darling, New South Wales <i>Robert George Gunn</i>	212
	Early human Pacific settlements – Sea level changes and underwater artifacts <i>John Richard Hutchinson Gibbons</i>	215

Exploration of the caverns of the Maya Mountains of Belize and Guatemala <i>Thomas Edward Miller</i>	218
A history of Venetian sculpture of the early Renaissance <i>Anne Markham Schulz</i>	221
Rediscovering the "Paper Age" of antiquity and Man's early flight <i>Isadore William Deiches</i>	224
 Geoglyphs in the Iquique Province of northern Chile <i>Sixto Guillermo Fernandez</i>	227
Archaeological and historical remains in southern Iran <i>Reinhard Pohanka</i>	230
Protecting the fossil deposits of the Araripe Plateau <i>Alexander Wilhelm Armin Kellner</i>	233
 The Andros Project – The 1987 international Blue Holes project <i>Robert John Palmer</i>	236
A squid's eye view of the mesopelagic ocean <i>Ronald Keith O'Dor</i>	239
Preservation of the Chaouia Berbers in the Aurès Mountains of Algeria <i>Christian Sorand</i>	242
 Discovering, rehabilitating and protecting reptiles in Burma, India and China <i>Nicole Andrée Viloteau</i>	245
Exploring the underwater island of Cordell Bank, California <i>Robert William Schmieder</i>	248
New evidence on Colonel Fawcett and the lost cities of Brazil <i>René Jean-Antoine Chabbert</i>	251
Women to the Pole – A study of the polar ice <i>Madeleine Griselin</i>	254
 Exploiting cave water for the nomads in Somalia <i>Ürs Ehrsam</i>	257
The material culture of Mozambique <i>Henrik Ellert</i>	260
Theodolite measurement and computation of megalithic astronomical alignments in Ancient China <i>Jean-Pierre Voiret</i>	263
Recovering artifacts from the wreck of the Swedish East Indiaman <i>Drottningen af Swerige</i> <i>Jean-Claude Joffre</i>	266
Nicaraguan folklore in music and song <i>Salvador Cardenal</i>	269
Reconstructing the prehistoric environment of the Sahara and Sahel <i>Henri J.F. Dumont</i>	271
The fishes of Easter Island <i>John Ernest Randall</i>	274
The cave art of India <i>Vishnu Shridhar Wakankar</i>	277

Exploration of submerged caves in search of biological treasures <i>Jill Yager</i>	279
Chinese T'ang Dynasty tomb murals and their reproduction <i>Hongxiu Zhang</i>	282
Short descriptions of projects submitted by: <i>Jürg Wüthrich, Jochen Hasenmayer, Per Erik Asson Löwdin, Charles Albert Edward Ramble, Panayote Gregoriades, Raymond Edwin White, Jr., Hugo Rafael Mancuso, Juan Haroldo Antonio Rodas Estrada, Marina Ann Cords, John Patton O'Neill, Lili Pan, Jerzy Michniewicz, Subagh Singh Winkelstern, James Owen Merion Roberts, Gloria Joyce Fedirchuk, Robert B. Schoene, James M. Nollman, W. Scott Hoover, Maria Eugenia Romero, Boyd MacNeil Dixon, Thomas Mitchell Iliffe, George Walter Frame, William Bruce Saunders, Donald Carl Johanson, Alessandro M. Strohmenger, Simon Patrick Ellis, Alwyn Howard Gentry, Steve Robert Gill, Bernadette Guyot-Jullien, Taranath Shenoy, Leonardo Adamowicz, Frank Griffith Dawson</i>	285
Section 3 – The Environment	293
A search for the Sumatran rabbit <i>John Etheridge Cormack Flux</i>	295
The Buddhist perception of nature – A new perspective for conservation education <i>Nancy Lee Nash</i>	299
 The four seasons of lynx <i>Michel Strobino</i>	302
 A demonstration farm in the dry zone of Falcón State, Venezuela <i>Silvia Diana Matteucci</i>	305
Antarctic contamination – A barometer for world pollution? <i>Marco Morosini</i>	308
Rescuing the dorado in the Paraná, Paraguay, Uruguay and Plate River basin <i>Manuel Pereira de Godoy</i>	311
 Reversible hormonal contraception – An alternative to culling free-ranging lions <i>Humphrey John Leask Orford</i>	314
Rehabilitating marine mammals and sea turtles <i>Robert Schoelkopf</i>	317
“Bild-Dokumentation WALD” – Photographic documentation of forest disintegration in Switzerland <i>Christian Mehr</i>	320
 Re-establishing mangrove forests on the coasts of the Arabian peninsula <i>Motohiko Kogo</i>	323
<i>Trafficking</i> – A family board game <i>Peter Thomas Spinks</i>	326
Disease-free buffalo herds for food and power in African developing countries <i>John Beatty Condy</i>	329
Conserving the desert-dwelling elephant and rhino by involving the local tribal communities <i>Garth Leslie Owen-Smith</i>	332

	An expedition to the crocodile caves of Ankarana, Madagascar <i>Jane Margaret Wilson</i>	335
	Semi-Arid Lands Training and Livestock Improvement Centre Kenya (SALTICK) <i>Robert Percival Slade</i>	338
	For a free Pyrenean migration of European birds <i>Joël Tanguy Le Gac</i>	341
	Development of an International Crocodile Bank <i>Zahida Whitaker</i>	
	Using the snail kite to control schistosomiasis in Egypt <i>Marc Bennett Garnick</i>	
	A process for regenerating water by aeration <i>Thomas Engel</i>	350
	Ethno-ornithology – Studying the names of and cultural beliefs about birds in Kenya	353
	<i>Aneesa Kassam</i>	
	Toxic waste – An ocean dilemma <i>John Christopher Fine</i>	356
	Reducing mortality and increasing fertility in Burmese timber elephants <i>Michael Henry Woodford</i>	
	Systematic research on the ground beetles of Nepal <i>Pierre Morvan</i>	
	Wild plant derivatives as an alternative to conventional insecticides <i>Angel Lagunes-Tejeda</i>	366
	Versatile ricehull-based building material to combat ricehull pollution <i>Roman Gammad S. Barba, Sr.</i>	369
	Rescuing endangered lemurs in Madagascar <i>Roland Albignac</i>	372
	Field research and photography for a book to help protect the world's bats <i>Merlin Tuttle</i>	
	Managing the maleo <i>Renatus Wilhelmus Rembertus Jozef Dekker</i>	378
	Large mammals and biological conservation – Collecting data and applying them to other species <i>Joel Berger</i>	381
	The black robin – Back from the brink of extinction <i>Donald Vincent Merton</i>	384
	The Signatus Project – A strategy for wolf conservation in Portugal <i>Francisco José Petrucci Gutteres da Fonseca</i>	387
	Studying and conserving bats in France <i>Jean-François Noblet</i>	
	Ngare Sergoi Rhino Sanctuary <i>Anna Hepburn Merz</i>	393

Achieving maximal genetic variation in the cheetah and establishing an endangered-species embryo bank <i>Bruce Clement Davidson</i>	396
A contribution to the protection of the chimpanzee species <i>Margaret Elspeth Lea Templer</i>	399
Adaptive agriculture <i>François Jean-Marie Couplan</i>	402
The Newark Collaboration Group – A public-private partnership  <i>Gregory Sinclair King</i>	405
Help for do-it-yourself building in Argentina  <i>Jaime Nisnovich</i>	408
How I became a “mother gorilla” <i>Yvette Leroy</i>	411
Portawalk safety apparatus <i>John Corica</i>	414
A new future for the Belgians – Making Belgium a truly polyglot country  <i>Jean-Pierre Gailliez</i>	417
Atoll wildlife conservation in the Republic of the Maldives <i>Paul Adrian Webb</i>	420
Cartographic survey of karstic areas in Wallonia <i>Claude De Broyer</i>	423
The Seabird Colony Creation Project  <i>Stephen W. Kress</i>	427
A decade of integrated crane conservation efforts in the Indian subcontinent  <i>Steven Erling Landfried</i>	430
Reclamation of quarry wasteland – An integrated approach <i>René Daniel Haller</i>	433
Community-based sanctuary for the black howler monkey  <i>Robert H. Horwich</i>	436
Protection of Jentink’s duiker in Liberia  <i>Vivian John Wilson</i>	439
European scientists to study the Amazonian rain forest at Maracá  <i>John Henry Hemming</i>	442
Short descriptions of projects submitted by: <i>Samuel Harvey Gruber, Matt Murphy, Federico Raúl Jerf, Bernard Laurance D’Abrera, Steven Allen Nyanzi, Peter Reshetniak, Luis Vazquez Noriega, Fahrudin Teskeredzic, Carl Frederick Jordan, Francesco Nardelli, Paul Sommers, Alfredo Alejandro Lichter, Hugh Daniel Williams, Jan Reban, Christian S. Welzel, Ramon Planas i Torres, Geneviève Marie Desportes, William Lloyd Franklin, Juan Antonio Bravo-Perea, Stephen Michael Dawson, Heinz Helmut Hänel, August Raggam, Claude-Henri Pavard, Javier Antonio Alonso, Lorenzo B. Ballecer, George Hayward Craven, Francis Lauginie, Ian Gregory Koblick, Maurizio Costantino, Indubhai Patel, Ramón Antor Castellarnau, Christopher Dike Nagano</i>	445
Name index	453
Country index	457