

Spirit of Enterprise



The 1993 Rolex Awards



BURI

Contents



indicates a Rolex Laureate



indicates an Honourable Mention

The Selection Committee	vi
Foreword by Sir Edmund Hillary	xvii
Preface by André J. Heiniger	xix
Introduction by David W. Reed	xxi

Section 1

Applied Sciences and Invention

Cranio-facial growth, aesthetics and language problems in children with cleft lip or palate <i>Carmen Casal Sanchez</i>	3
Decontamination of radioactive oily wastes <i>Roger Leon Bélanger</i>	6
Human-powered helicopter <i>Wallace Brown Scherer</i>	9
Regenerating denatured auditory nerve cells <i>Wang Jiazheng</i>	12
Mollusc shells or shell proteins in adhesives, rubber, pharmaceuticals, etc. <i>Gary Kraidman</i>	15
 A human-powered load-carrying quadricycle for China <i>Karl Mack Miller</i>	18
Gymnastics for cosmonauts <i>Frantisek Jahoda</i>	21
A scanning electron microscopic study of European palaeolithic symbolic engraved systems <i>Alexander Marshack</i>	24
Ultrasound guided cryosurgery in the treatment of liver and prostate cancer <i>Gary Mark Onik</i>	27
Studying remote glaciers <i>Beáta Csathó</i>	30
Preventing shoulder disorders in stroke patients <i>Richard Salcido</i>	33

	Silkworm larvae as bio-reactors for vaccine production <i>Prabhakara Velagapudi Choudary</i>	36
	Double eccentric-movement cutting tool <i>Richard E. Arnegger</i>	39
	Integrating the aridan tree into tropical medicine <i>Clement Oladapo Adewunmi</i>	42
	Early detection of hearing impairment in high-risk new-borns <i>Raúl Federico Pelli Noble</i>	45
	Winter excavation of polar dinosaurs <i>Thomas Hewitt Rich</i>	48
	Solar-powered milling-machines for millet grinding in the Sahel <i>Javier Gustavo Schunk</i>	51
	Moving again to break the bonds of paralysis <i>Jerrold Scott Petrofsky</i>	54
	Cut-and-break rock excavation for mining <i>Christopher Alan A. Bunker</i>	57
	Stair-climbing wheelchair for the handicapped <i>Jean Reimann</i>	60
	Living Museum of Parchment and Illumination <i>Jean-Pierre Nicolini</i>	63
	Temperature-dependent sex determination and the conservation of endangered reptiles <i>David P. Crews</i>	66
	New methods for recycling of mixed plastics scrap <i>Hans Georg Ludwig Menges</i>	69
	Pasteurizing camel's milk and making camel's cheese in Mauritania <i>Nancy M. Abeiderrahmane</i>	72
	Tele-assistance column <i>Franco Navoni</i>	76
	Trees for Araouane <i>Ernst W. Aebi</i>	79
	A spherical imaging system <i>Paul Hilts</i>	82
	Innovative dobby for traditional weaving in developing countries <i>Abdul Wasey Omar</i>	85
	Prevention of hospital-acquired infection <i>Timothy John Jay Inglis</i>	88
	Manufacturing low-cost homes made of paper and box-board <i>Herbert G. Yates</i>	91
	Project Dengke — technology with love <i>Melvin Orde Wingate Richardson</i>	94
	Magnetotactic 'compass' bacteria for laboratory instruments <i>Peter Meserol</i>	97
	A new design of dome for astronomical observatories <i>Ethan Wilson Clifton</i>	100

Control of Kuwait blowouts <i>Larry H. Flak</i>	103
Micro-environment for the Egyptian Museum's Royal mummy collection <i>Nasry Iskander</i>	106
A system to increase airport and ground-traffic safety during fog <i>Carlo Viberti</i>	109
Spatial paintings illustrating the atomic geometric grid of the universe <i>Lina Galleazzi</i>	112
A foldable crab trap <i>Pablo M. Tejada</i>	115
 Personal, automated instrument for measuring eye pressure in glaucoma patients <i>Jörg Draeger</i>	118
Ecuador rain forest international headache project <i>Ethan Russo</i>	121
Muscular and skeletal traction in orthopaedic treatment <i>Donald Alfred Jordon</i>	124
Bicycle crank axle to increase the cyclist's efficiency <i>Carlo Raimondi</i>	127
 Distributing free-of-charge a device for handwriting Braille <i>Lawrence Sherman Hawk</i>	130
Environmental Camps for Conservation Awareness (ECCA) <i>Anil Chitrakar</i>	133
A round cerebral retractor for brain surgery <i>Shlomo Constantini</i>	136
Simple concentrating solar cooker for poor semi-desert countries <i>John Wilfrid Wright</i>	139
A human-carrying, engine-powered ornithopter <i>James Duncan DeLaurier</i>	142
Preserving meat on the Equator: The clay meat ball <i>David Omobamidele Alonge</i>	145
Seal and sea lion protection using high power sonic fields <i>Stephen G. Boucher</i>	148
Short descriptions of projects submitted by:	151
<i>George Oliver, Constantine Koutrouvelis, Mels Sluyser, Deddy Muchtadi, John Mulenga Chimumbwa, Mark Alfred Gillman, Alfredo Calendación, Husnik Boyardjian, Jean-Louis Martin, Steven J. Brams, Allan Everett Marble, David C. Breholz, Victor Olawale Adetimirin, Mike Topping, Anfrititis Thalasselis, Chris- topher Eagleton Wilde, Brian William Walker, David Mark Hedges, Corliss An- nette Sandoval, Giandomenico Sassi, Harinarayana Tirumalachetty, Elizabeth M. Rogers, Phillip Edward Vinall, Liisa Viikari, Boris M. Petrikovsky, Kevin Turley, Alan Scott Austin, Murray Saffran, Roland Magnin, Shafiqul Hoque, Richard M. White, Anne Dranginis, James Olson, Ngwa Mbembo Na Zoka Nyamowala, Jorge Alberto Pérez-Peraza, Giuliana Galli, Adrian Henry Krieg, Edward R. Clinton, Arcady R. Mushegian, Oyewale Tomori.</i>	

Section 2

Exploration and Discovery

Imawellen project for the survival of Tuareg nomad civilization <i>Jean-Claude Bourgeon</i>	163
Expedition to Amund Ringnes Island <i>Randall James Oszcewski</i>	166
The search for the Forest of Jade: The Maya Mountains Archaeological Project <i>Peter S. Dunham</i>	169
 Listening to the sound of caterpillars calling ants <i>Philip James DeVries</i>	172
Exploiting a natural resource in orbit <i>Thomas Carl Taylor</i>	175
Local Lands: An agency to develop sustainable tourism in the former Soviet Union <i>Catherine Mary Ratcliff</i>	178
Searching for a living form of platypus in South America <i>J. Richard Greenwell</i>	181
 Bringing the baidarka back to the Aleutian Islands <i>George Bernard Dyson</i>	184
<i>Forma quadrata Italiae</i> — the plan of Roman Italy <i>Giancarlo Cataldi</i>	187
Sea cycling the Russian/American heart lands: River life along the Volga and Mississippi <i>Robert C. Hatchell</i>	190
Diamond Reef(R) scuba diving education to preserve coral reefs <i>Peter Allen Wallingford</i>	193
 Across the Arctic Ocean via the North Pole without logistic support <i>Stephen John Martin</i>	196
Origin, evolution and extinction of the first flying vertebrates <i>Alexander Wilhelm Armin Kellner</i>	199
Speleology and biology of Mexican caves <i>José Guadalupe Palacios</i>	202
Searching for evidence of the Iron Age in north-east Mali <i>Jean-Pierre Duhard</i>	205
 Omnimax filming of the aurora borealis <i>Robert Hugh Eather</i>	208
Reconstructing the Trojan War from ancient texts <i>Eberhard Zangger</i>	211
Exploring the land God made in anger: Searching for human origins in Namibia <i>Glenn Carter Conroy</i>	214
Landscapes of discovery: Photographic re-exploration of Australia <i>Edward Stokes</i>	217

 High-altitude diving in Tibet with the Manas Project <i>Bryan Woodward</i>	220
Searching for the oldest harnessed horse <i>Dragos Gheorghiu</i>	223
Madagascar expedition: On the trail of the Vazimbias <i>Lucien Castagnède</i>	226
The first dinosaur from Arabia <i>Louis L. Jacobs</i>	229
 Exploring the Río La Venta canyon <i>Antonio De Vivo</i>	232
Great Papuan Plateau Expedition <i>Jean-François Pernette</i>	236
Time machine theatre <i>Allan Maurice Groves</i>	239
 Bush pilot expedition on 'seven continents' <i>Thomas Claytor</i>	242
Rediscovering Africa's ancient astronomers <i>Laurance R. Doyle</i>	245
The <i>Aldebaran</i> marine research and broadcast vessel <i>Frank Schweikert</i>	248
 Documenting Australia's ancient rock art <i>Grahame Leslie Walsh</i>	251
Caves of Thunder — an expedition to the world's largest underground river in Irian Jaya <i>Steven Michael Jones</i>	254
Brunelleschi's secret in constructing the cupola of Florence cathedral <i>Massimo Ricci</i>	257
 Remote examination of ancient shipwrecks in the Sea of Marmara <i>Willard Newell Bascom</i>	260
Himalayan expedition fully integrating people with mental disability <i>William Leslie Mumford</i>	263
Managing coastal resources in the Philippines <i>Alan Tyler White</i>	266
 Field tests of Roman cavalry equipment <i>Marcus Sylvester Junkelmann</i>	269
Search for the Battle of Migdal <i>Shelley Wachsmann</i>	272
Journey to the Temple of the Celestial-Eye <i>Monica Esposito</i>	275
 Speleology in an underground river in south-east Spain <i>Bernhard Pack</i>	278
Chinese horses and Gaucho horses <i>Antonio de Pádua Bertelli</i>	281
Greenland Expedition Society — rescuing Second World War aircraft from the Greenland ice cap <i>Ernest Patrick Epps</i>	284

Reconstructing the Carthusian Monastery at Cazalla de la Sierra, Seville	287
<i>Maria del Carmen Ladrón de Guevara y Bracho</i>	
 Archaeology in Túcume, Peru, and Chacona, Canary Islands	290
<i>Thor Heyerdahl</i>	
Deep-sea hydrothermal vent animals: Survivors from the dinosaur age?	293
<i>Verena Tunnicliffe</i>	
The science, mathematics and technology levels of the megalith builders	296
<i>N. Jean Hunt</i>	
 Recovering Sir Francis Drake's 'Cophin of Lead' from the Caribbean	299
<i>Michael Turner</i>	
First round-the-world expedition by horse-drawn caravan	302
<i>David R. Grant</i>	
Joint recovery of underwater artefacts in the China Seas	305
<i>Zhao Hongye</i>	
 Sailing round the North Pole for science, technology and adventure	308
<i>Janusz Kurbiel</i>	
Short descriptions of projects submitted by:	311
<i>Alain Délétroz, Philip D. Supina, Mario Angel Rivera, Christopher Thomas Newman, Giuseppe Tenti, Antonio Martin Ruiz Mariscal, Ann Cyphers Guillén, Kevin John Goulding, Tristan Jones, Lyal Bayton Harris, Cesare Baj, Luis Torres Fontes, Richard Berne Wilson, Branko Kirigin, Carolyn V. Prorok, Philippe Feret, Charlotte Miller Warren, Jean-Pierre Barbary, Willem Krommenhoek, William F. Romain, JingKe Li, Dennis Jungerberg, Paolo Geronazzo-Alman, Michael Johnston, Patrick Michel, Viviane Rose Wilcox, Ray Matheny, Jeremy Brade, David Childress, Lois Ann Forbes, Giovanni Badino, John Lambropoulos, John B. Carlson, Patrick Jules Joseph Poitevin, Yong Bum Cho, Marc Le Cocq, Christian Germon, Rubelite Kawena Johnson, Edith Kristan-Tollmann, Sergio Borroni.</i>	

Section 3

The Environment

- Soil testing procedure to economize on fertilizer use in land management 323
Kodoth Padinhare V. P. Nair
- A biological strategy to help restore coastal marine ecosystems 326
Michael Stachowitsch
-  Conserving Tibetan monasteries in western Sichuan 329
How Man Wong
- Eco-development and wildlife management in the Andaman and Nicobar Archipelago 332
Romulus Earl Whitaker, III
- Studying Australian rain forest beetles and their ecological role 335
Trevor J. Hawkeswood
-  World's first comprehensive manual on dry stone walling 338
Richard Nevill Tufnell
- Eagle World: The first complete collection of raptors 341
Peter Reshetniak
- Dehorning African rhinos for their own survival 344
Joël Berger
-  Imitating the fog basking beetle to collect water in the desert 347
Stuart Clyens
- Community sanctuaries for wildlife conservation 350
Robert H. Horwich
- Saving Africa's orchids 353
Fred Kwame Dokosi
-  An environmental friendly thermo-acoustic refrigerator 356
Steven Lurie Garrett
- Parallels: A photographic study of life above and below water 360
Norbert Wu
-  International Ornithological Centre of the Straits of Messina 363
Anna Maria Giordano
- Captive breeding of endangered small wild cat species 366
Pat Mansard
-  Promoting cultivation and marketing of the tarap and its fruit 369
Serudin Tinggal
- Peace through education at the University of Development 372
Pisit Sarawichitr
- Adding value to angora rabbit hair produced in China 375
Benton Andrew Dawes

 A reptile and amphibian conservation centre for Cyprus <i>Hans-Jörg Wiedl</i>	378
Ecology and behaviour of ringed seals under Arctic sea ice <i>Brendan Patrick Kelly</i>	381
 Telecommunication information and warning network for major marine ecological disturbances <i>Ernest Herbert Williams, Jr.</i>	384
Treatment and rehabilitation programme for the handicapped <i>Cletus Soosayan</i>	387
 Global network for monitoring ozone, solar ultraviolet radiation and atmospheric parameters <i>Forrest Marion Mims, III</i>	390
Small animal conservation in the Puna area of Chile, Bolivia and Argentina <i>Pablo A. Marquet</i>	394
Establishing Coupled Agro-Forest Ecosystems (CAFE) in Luzon Islands <i>Nestor T. Baguion</i>	397
 New environment from co-ordinated knit and mural art designs <i>Michio Matsuda</i>	400
Cleaning up the mountains at the 8,000-m level <i>Cécile De Vos</i>	403
Non-governmental organizations networking in initiatives for environmental improvement <i>Luis Lopezllera Mendez</i>	406
 Transplanting coral to restore reefs in the eastern Pacific <i>Héctor M. Guzmán</i>	409
Wildlife veterinary and animal husbandry information network — South-East Asia <i>Suzanne Isabelle Jackson</i>	412
Restoring and promoting the Crispiano canyons of Taranto, Italy <i>Gianfranco Tonti</i>	415
 A scientific study to conserve the Chilean huemul <i>Alejandro Frid</i>	418
Trees for Mother Earth and the environmental focus of the Navajo Nation <i>Willard Ferris Johnson</i>	421
 Coir for horticulture and soil regeneration <i>Lee St. Lawrence</i>	424
Interns for Peace and its environmental project <i>Bruce Cohen</i>	427
 A health education manual for the Amazonian Indians <i>Aldo Lo Curto</i>	430
Investigation of northern elephant seal skin disease <i>Peigin Barrett</i>	434

South-East Asia's first insect museum <i>Kazuya Nakamoto</i>	437
 Rehabilitating and conserving the Tapartó River basin <i>Gustavo Restrepo Restrepo</i>	440
The Belize Zoo and Tropical Education Centre <i>Sharon Matola</i>	443
 The 'Lemu' Patagonian forest conservation project <i>Lucas Chiappe</i>	446
The 'Jagadeeshwar II' solar cooking water pre-heater <i>A. Jagadeesh</i>	449
Improved natural pollination of cocoa <i>Allen M. Young</i>	452
 Wildlife sanctuary for endangered cycad plants <i>Cynthia Giddy</i>	455
Temperate rain forest tree conservation programme <i>Christopher Nigel Page</i>	458
Recycling waste water in the arid regions <i>Abdullahi Garba Abubakar</i>	461
 Co-operative agro-forestry for sustainable green development in India <i>Vinayakrao Patil</i>	464
Malabon Zoo, Dinosaur Museum, Aquarium and Tropical Rain Forest classroom <i>Emmanuel Tangco</i>	467
 Re-creating the green mantle of the Peruvian Andes <i>Pablo Enrique Sanchez Zevallos</i>	470
Short descriptions of projects submitted by:	473
<i>Lazarus Musa Samdi, Cuthbert Kashingo Omari, Eve Tunette Broughton, Bruce George Frederick Asmus, Radu Andrei, Bernard Laurance d'Abrera, Juan Carlos Chebez, Mihai Cristea, Louis Wilhelm Liebenberg, James Alan Gilman, Mohamed Naceur Mahjoub, Carlo Scimone, Olivier Barrière, Giorgio Gamberini, Carlos Enrique Galindo-Leal, Maximilian Gege, Anand Paithankar, Vernon Paul Varner, Pier Giorgio Leonardi, Alain Michel D. Gioda, Juan Vicente Sanchez, Henry Frankel, Bernhard Wilhelm Krautzer, Richard J. Elroy, Michael W. Fox, James Neil Barnes, Romeo Dominguez, Michael James Tyler, John Cain Halas, Alessandro Belli, Thomas Joseph Kelly, Edilberto Buiser, Xixian Gao, Jean-Marc Verstraete, Thomas A. Reisner, Celeste Acevedo Gomez, Tej Kumar Shrestha, John Mateer Rutherford, Thierry Jean, André Porion, Frithjof Praetsch.</i>	
Name index	487
Country index	509