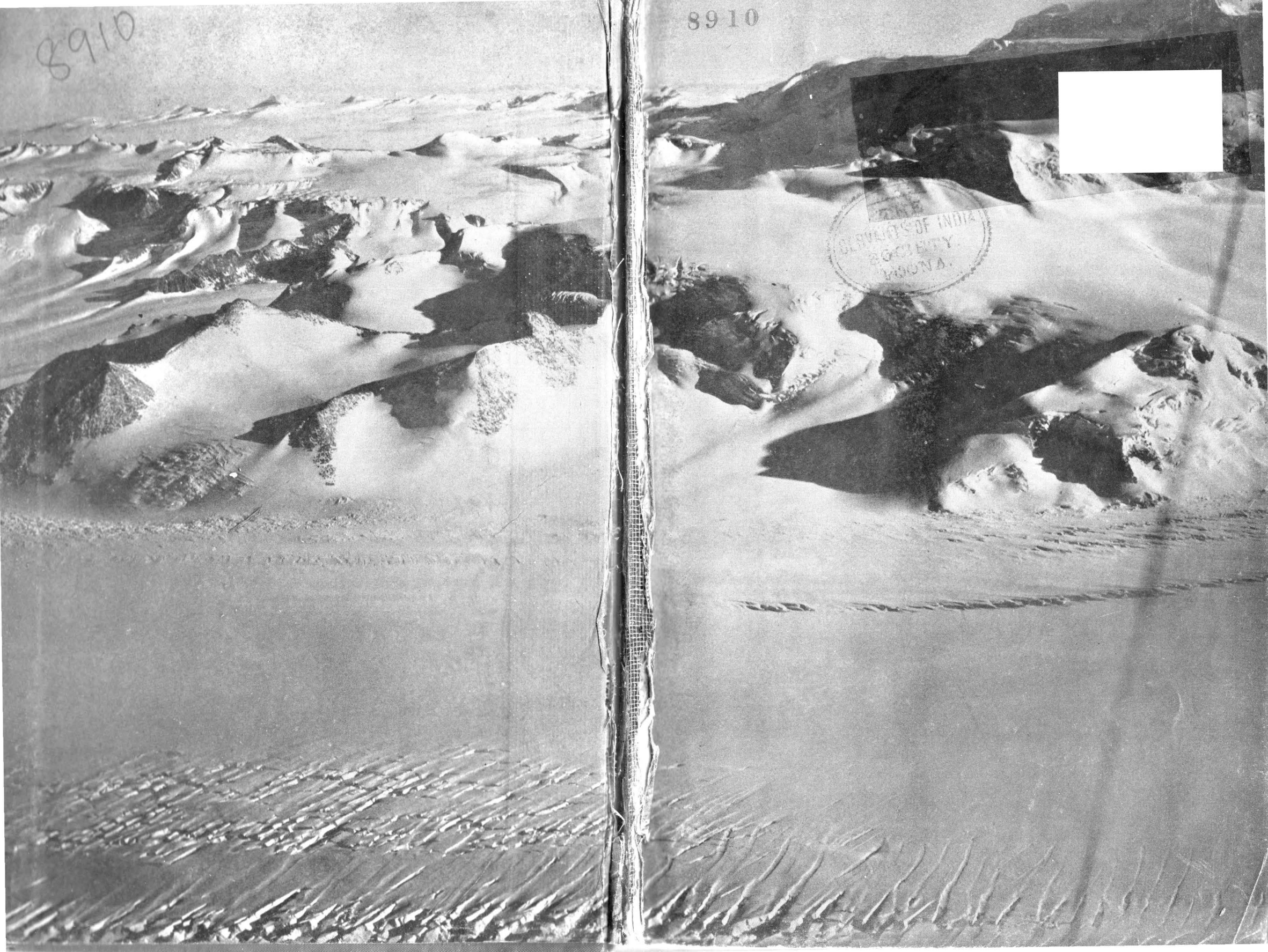


8910

8910



THE GOVERNMENT OF INDIA SOCIETY POONA.

LITTLE AMERICA

AERIAL EXPLORATION IN THE ANTARCTIC
THE FLIGHT TO THE SOUTH POLE



RICHARD EVELYN BYRD.
Rear Admiral, U. S. N., Ret.

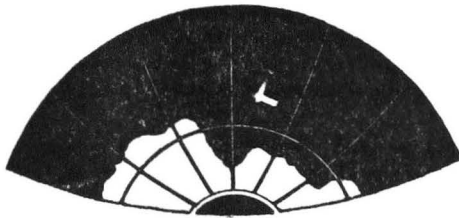
LITTLE AMERICA

AERIAL EXPLORATION IN THE ANTARCTIC
THE FLIGHT TO THE SOUTH POLE

By

RICHARD EVELYN BYRD

Rear Admiral, U.S.N., Ret.



WITH 74 ILLUSTRATIONS AND MAPS

G. P. PUTNAM'S SONS
NEW YORK LONDON

1930

LITTLE AMERICA

~
Copyright, 1930

by

Richard E. Byrd

First Impression, November, 1930

Second Impression, November, 1930

Third Impression, December, 1930

Fourth Impression, December, 1930

All rights reserved. This book, or parts thereof, must
not be reproduced in any form without permission.

SET AND PRINTED BY
THE KNICKERBOCKER PRESS

MADE IN THE U. S. A.

TO MY MOTHER
ELEANOR BOLLING BYRD

FOREWORD

THE efficiency of a polar expedition varies on the whole according to the adequacy of its preparations, the worth of its equipment and scientific gear, the services of its personnel and staff of scientists and the length of its stay in the field. These things require a great deal of money nowadays, and no explorer could possibly foot the bill on the strength of his own pocketbook. He is dependent upon the generosity of friends and the public. This has been true in my case especially, for the problem of financing two of my last three expeditions has fallen first upon me and then upon friends. This last expedition to the Antarctic was, for reasons explained in subsequent pages, a costly one. Preparations for it were extensive, its equipment and scientific gear was new, modern and, in many cases, especially designed for the problem; its scientific staff was more than competent and the expedition itself was away from the United States for nearly two years. This was according to the original plan, the realization of which was possible only through the support of friends, who out of their keen interest in scientific research provided the sinews of exploration.

To them, therefore, I must acknowledge my debt first of all. In a sense this is the debt of the nation, for the expedition, which had for its immediate objectives the investigation of the south polar regions, had also as its purpose the extension of national efforts in a field which had been sadly neglected, the Antarctic continent.

So many names come into mind at once that it is difficult to know where to begin.

There are, for example, Mr. John D. Rockefeller, Jr., and Mr. Edsel Ford. They were not only principal backers of this last expedition, but also of the North Polar expedition. What they gave me in friendship, sympathy and aid when things were darkest are beyond price.

There are men and organizations that stand with them—

Mr. Charles Evans Hughes, the Fisher brothers, Mr. Vincent Astor, Dr. John H. Finley, Dr. Isaiah Bowman and the American Geographical Society, Mr. K. H. Fulton, Mr. George Coe Graves, Mr. George A. Thorne, Jr., Mr. R. W. Bingham, Mr. Paul Block, Mr. Charles V. Bob, Mr. Robert W. Daniel, Mr. Charles F. de Ganahl, Mr. F. Fuller, the Daniel Guggenheim Fund for the Promotion of Aeronautics, Mr. August Heckscher, Mr. George L. Johnson, Mr. Sam Katz, Paramount News, Mr. F. H. Rawson, Estate of Henry W. Oliver, Mr. Julius Rosenwald, the late Thomas Fortune Ryan, The Tidewater Oil Company, Mr. William H. Todd, Mr. Harold S. Vanderbilt, Mr. Donald Woodward and Mr. Robert S. Breyer.

To the National Geographic Society and its officers, Dr. Gilbert Grosvenor and Dr. John Oliver La Gorce, I owe much. They assisted in the financing of the first expedition I accompanied to the Arctic, and to this last expedition to the south polar regions they made a large contribution, in addition to supplying the services of one of our scientists. They stood squarely behind the expedition, ready and eager to help in every way.

So, too, in the case of my dear friend, Mr. Raymond B. Fosdick. Time and time again, when the going was discouragingly hard he came to the fore and smoothed the way.

To Mr. Adolph Ochs, publisher of the *New York Times*, Mr. Arthur Sulzberger and Mr. Frederick T. Birchall, both of the *Times*; Mr. Joseph Pulitzer, publisher of the *St. Louis Post-Dispatch*; Mr. David Lawrence, of the Consolidated Press, and the editors and publishers of the associated newspapers which published the reports on our expedition, I have a large obligation. They understood what we were up against and were always thoughtful and cooperative.

There are as well the hundreds of American firms which most generously donated valuable supplies. And there were also hundreds of persons who helped the expedition in many ways—giving money, services and cooperation. Among these I include the hundreds of persons who made small contributions to the expedition.

There are many more, all equally deserving of mention, and it is a pity that they cannot all be mentioned. Merely

to list the names would fill many pages; and my publishers are already in despair at the number that have thus far appeared.

Yet I do not feel that the story of the expedition is too fully told. There are many things which, I have been informed, are not interesting to the general public but belong rather to the four fat volumes dealing with the scientific results of the expedition on which the scientific staff is now working. So, presto, out they go.

Then, too, there are incidents which, because of their distance from the main scene of operations, could not be incorporated except as a very incongruous tail on a story the body of which is perhaps much too large. I have in mind such an incident as that which took place on the arrival of the *Eleanor Bolling* at Panama, in May, 1930, on the return home. It was the first time these men had set foot on American soil in nearly two years. They eagerly looked forward to their first holiday in two months after a blistering voyage across the Pacific. Yet when told, on landing, that the *City*, which was 500 miles out, was shy of coal, beset by head winds, and far behind her schedule, they instantly volunteered to cut the holiday short and go out to her assistance. It made no difference that they were short-handed themselves. Captain Brown and his crew put out to sea without hesitation; and Chief Engineer McPherson went into the fireroom and handled a shovel himself.

This is typical of many such beautiful acts that are part of the memory of the expedition. It was the spirit of the men throughout. If only for that reason I regret the structural limitations of the book. And if I have failed to mention the names of any members of the expedition, I hope it will be understood that the omission was not deliberate. They were all worthy.

But, here, the tail has become the head, the groans of the publishers are increasing and I had better desist with the hope that if I have left unsaid anything that should be said, it will be understood that the inexorable limits of space, as publishers measure it, have made it necessary.

R. E. BYRD

CONTENTS

CHAPTER	PAGE
I.—NOTES FROM A JOURNAL	3
II.—THE PLAN—THE PREPARATION AND THE PROBLEM	24
III.—THROUGH THE PACK	49
IV.—WE ESTABLISH A BASE	77
V.—THE BATTLE TO UNLOAD	98
VI.—DISCOVERY BY FLIGHT	117
VII.—DISCOVERY OF A NEW LAND TO THE EASTWARD .	139
VIII.—INCIDENT ON THE ROCKEFELLER MOUNTAINS .	159
IX.—WINTER—BIRTH OF A CITY	188
X.—CIVILIZATION DOES NOT MATTER	207
XI.—MORE PLANS AND PREPARATIONS	238
XII.—THE START OF THE SOUTHERN PARTIES	271
XIII.—THE BASE-LAYING FLIGHT	305
XIV.—FLIGHT TO THE SOUTH POLE	326
XV.—EASTWARD BEYOND THE HORIZON	346
XVI.—DEATH OF A CITY	365
XVII.—THE GEOLOGICAL SLEDGE TRIP	393
APPENDIX	413
INDEX	417

ILLUSTRATIONS

	FACING PAGE
RICHARD EVELYN BYRD, REAR ADMIRAL U. S. N., RET. <i>Frontispiece</i>	
DR. LAURENCE M. GOULD, GEOLOGIST AND SECOND IN COM- MAND	36
CAPTAIN ASHLEY C. MCKINLEY, AERIAL SURVEYOR AND THIRD IN COMMAND	36
CAPTAIN FREDERICK C. MELVILLE, MASTER OF THE <i>City of New York</i>	37
CAPTAIN GUSTAV L. BROWN, MASTER OF THE <i>Eleanor Boll- ing</i>	37
THE ROSS BARRIER	44
A TYPICAL ANTARCTIC TABULAR BERG IN THE PROCESS OF DECAY	44
THE <i>City</i> TAKES GREEN WATER OVER THE WINDWARD RAIL	45
THE <i>City of New York</i> IN PACK ICE	80
THE <i>Eleanor Bolling</i> IN THE PACK	81
THE <i>City of New York</i> AT DISCOVERY INLET	96
AERIAL VIEW OF THE <i>City of New York</i> BERTHED ALONG- SIDE THE BAY ICE IN THE BAY OF WHALES	97
THE DOGS, BLESS 'EM, WITH PAUL SIPLE, BOY SCOUT	100
A WEDDELL SEAL AND CRAB-EATER SEAL HAVE A SLIGHT DISAGREEMENT	101
WHO, INDEED, BUT THE EMPEROR PENGUINS!	108
ALL IN A DAY'S UNLOADING	109

	FACING PAGE
DOG TEAM ON THE BAY ICE, WITH PRESSURE RIDGES IN BACKGROUND	128
THE CREW OF THE <i>Eleanor Bolling</i>	129
THE AVIATION MECHANICS	144
THE FORD HANGAR, WITH MULROY AND PARKER IN BACK- GROUND	144
THE <i>City</i> AND THE <i>Bolling</i> UNLOADING ON THE BARRIER IN THE BAY OF WHALES	145
SEA SMOKE	148
UNLOADING THE <i>Floyd Bennett</i> FROM THE <i>Bolling</i> TO THE BARRIER	149
THE MESS HALL, WITH THE NORWEGIAN HOUSE IN THE REAR UNDER CONSTRUCTION	156
"SO LONG, GOOD LUCK." THE WINTER PARTY BIDS CREW OF THE <i>City of New York</i> FAREWELL	157
MEN AT WORK DURING BLIZZARD BUILDING TUNNEL	160
THE WINTER PARTY	161
THE FOKKER ON A FROZEN LAKE AT ITS BASE IN THE ROCKEFELLER MOUNTAINS	176
VICTIM OF THE WIND'S FURY	176
LITTLE AMERICA	177
COMMANDER BYRD AT THE ENTRANCE OF THE HOLE LEAD- ING TO THE ADMINISTRATION BUILDING	192
A FROZEN INFERNO	193
THE LONELIEST CITY IN THE WORLD	208
CHARLES E. LOFGREN, PERSONNEL OFFICER	209
GEORGE W. TENNANT, CHIEF COOK	209
VICTOR H. CZEGKA, MACHINIST	209
RUSSELL OWEN OF THE NEW YORK <i>Times</i>	228
MARTIN RONNE, TAILOR	228

ILLUSTRATIONS

XV

	FACING PAGE
THE RADIO DEPARTMENT	228
THE MAIN SNOW TUNNEL	229
BALCHEN AND STROM BUILD A SLEDGE	236
ROTH, RUCKER AND JUNE AT WORK	236
DR. FRANCIS DANA COMAN	237
WILLIAM C. HAINES	237
FRANK T. DAVIES	237
COLD WEATHER CLOTHING	256
"IT ISN'T SO HOT"	257
THE AVIATION PILOTS IN CONFERENCE IN THE LIBRARY	272
RETURN OF THE SUN	273
DOG TEAMS HAULING LOADS ON THE BARRIER AS SEEN FROM THE AIR	292
THE GEOLOGICAL PARTY	293
THE GEOLOGICAL PARTY AT AMUNDSEN'S CAIRN	293
THE SUPPORTING PARTY	300
DE GANAHL AND WALDEN ON THE TRAIL COMMUNICATE WITH BASE	300
THE END OF A LONG HAUL	301
THE CREVASSES AT LAT. 82° 12' S.	320
FISHER MOUNTAIN	321
THE SOUTH POLAR PLANE, THE <i>Floyd Bennett</i>	336
OVER "THE HUMP"	337
ON THE WAY TO THE POLE	340
THE PLATEAU IN THE NEAR VICINITY OF THE SOUTH POLE	341
IN THE GRIP OF THE ICE AGE	348
COASTING DOWN THE GLACIER WITH RUTH GADE ON THE RIGHT	349

	FACING PAGE
AN ICE ISLAND SEEN ON THE FLIGHT TO THE EASTWARD	352
OPEN WATER IN ICE-COVERED LAND DEFIES THE ICE AGE	353
AN UNUSUAL GLACIER OF THE EDESEL FORD RANGE	368
WHALES TRAPPED IN A CRACK THAT SUDDENLY OPENED UP	369
AN ANTARCTIC SKYSCRAPER VENTURES INTO THE BAY OF WHALES	372
THE <i>City</i> IN HER TOUGHEST BATTLE	373
A WELCOME SIGHT	380

MAPS

LITTLE AMERICA, ANTARCTICA	232
FIELD OF OPERATIONS OF THE GEOLOGICAL SLEDGING PARTY	400
BAY OF WHALES	416
MAP OF THE REGION FROM THE ROSS SEA TO THE SOUTH POLE, SHOWING ROUTES OF VARIOUS FLIGHTS AND SLEDGE TRIPS OF THE BYRD ANTARCTIC EXPEDITION	416

LITTLE AMERICA

APPENDIX

WINTER PARTY—LITTLE AMERICA.

C. D. Alexander
Bernt Balchen
George H. Black
Quin A. Blackburn
Christoffer Braathen
Kennard F. Bubier
Jacob Bursey
Richard E. Byrd
Arnold H. Clark
Francis D. Coman
Frederick E. Crockett
Victor H. Czegka
Frank T. Davies
Joe de Ganahl
E. J. Demas
James A. Feury
Edward E. Goodale
Charles F. Gould
Laurence M. Gould
William C. Haines
Malcolm P. Hanson
Henry T. Harrison, Jr.
Harold I. June
Charles E. Lofgren
Howard F. Mason
Ashley C. McKinley
Thomas B. Mulroy
John S. O'Brien
Russell Owen
Alton N. Parker
Carl O. Petersen
Martin Ronne
Benjamin Roth
Joseph T. Rucker
Paul A. Siple
Dean C. Smith
Sverre Strom

George W. Tennant
 George A. Thorne, Jr.
 Willard Van der Veer
 Norman D. Vaughan
 Arthur T. Walden

OFFICERS AND CREW *Eleanor Bolling*, VOYAGE BAY OF WHALES
 —DUNEDIN, N. Z., FEBRUARY 1929.

Captain Gustav L. Brown, Master
 Charles J. McGuinness, 1st Mate
 Harry R. King, 2nd Mate
 Frank McPherson, Chief Engineer
 John Cody, 1st Assistant Engineer
 Elbert J. Thawley, 2nd Assistant Engineer
 Haldor Barnes, Medical Officer
 Lloyd K. Grenlie, Radio Engineer
 H. N. Shrimpton, Radio Operator
 Leland L. Barter
 John Buys
 Ben Denson
 Carroll B. Foster, Jr.
 Frank Fritzson
 Charles L. Kessler
 John Olsen
 A. Walker Perkins
 R. Perks
 George Sjogren
 Lyle Womack

OFFICERS AND CREW, *City of New York*, VOYAGE BAY OF
 WHALES—DUNEDIN, N. Z., FEBRUARY 22, 1929.

Captain Frederick C. Melville, Master
 Bendik Johansen, Ice Pilot (also 2d mate)
 *Harry Adams, 1st Mate
 S. D. I. Erickson, 3d Mate
 Ralph F. Shropshire, Hydrographer
 Esmonde M. O'Brien, Chief Engineer
 John J. Bayer, 1st Assistant Engineer
 John L. Sutton, 2d Assistant Engineer
 Lloyd V. Berkner, Radio Engineer
 Arthur Berlin
 Max E. Boehning

* Relieved Sverre Strom as 1st Mate, who stayed at Little America as
 a member of the Winter Party.

Arthur B. Creagh
 William Gavronski
 Sydney Greason
 John Jacobson
 Richard W. Konter
 Louis Reichart
 S. Edward Roos
 Vaclav Vojtech
 Percy J. Wallis

OFFICERS AND CREW *Eleanor Bolling* ON LAST VOYAGE, DUNEDIN,
 N. Z.—NORTHERN EDGE OF ICE PACK, FEBRUARY 1930.

Captain Gustav L. Brown, Master
 Charles J. McGuinness, 1st Mate
 Harry Adams, 2d Mate
 Frank McPherson, Chief Engineer
 Elbert J. Thawley, 1st Assistant Engineer
 Leland L. Barter, 2d Assistant Engineer
 *Haldor Barnes, Medical Officer
 Lloyd K. Grenlie, Radio Engineer
 G. Samson, Radio Operator
 H. Austin
 D. Blair
 John Buys
 M. W. Dobson
 Carroll B. Foster, Jr.
 William Gavronski
 W. Harvey
 J. Jones
 Charles L. Kessler
 N. Newbold
 Frank Paape
 A. Walker Perkins
 R. Perks
 Louis Reichart

OFFICERS AND CREW, *City of New York*, VOYAGE DUNEDIN,
 N. Z.—BAY OF WHALES, ARRIVING FEBRUARY 18, 1930, TO
 EMBARK WINTER PARTY.

Captain Frederick C. Melville, Master
 Bendik Johansen, Ice Pilot and 1st Mate
 S. D. I. Erickson, 2d Mate

* Services of medical officer loaned to *S. S. Kosmos*, as doctor had been lost in an airplane used by that vessel in connection with whaling operations. Dr. Barnes joined the *Kosmos* via the *City of New York*.

A. B. Robinson, 3d Mate
Esmonde M. O'Brien, Chief Engineer
John J. Bayer, 1st Assistant Engineer
John L. Sutton, 2d Assistant Engineer
Hilton L. Willcox, Medical Officer
Ralph F. Shropshire, Hydrographer
Lloyd V. Berkner, Radio Engineer
J. R. Orbell, Radio Operator
W. J. Armstrong
Arthur Berlin
John R. Bird
A. C. Brustad
Arthur B. Creagh
R. Eva
W. Gribben
Richard W. Konter
Walter Leuthner
F. Lockwood
J. Robinson
S. Edward Roos
Alan Innes Taylor
Vaclav Vojtech
Percy Wallis
M. C. Woolhouse
R. Young

INDEX

- Adams, Lieut. Harry, 72
 Adare, Cape, 44
 Adelie Land, wind velocities in, 13;
 minerals in, 39; discovery of, 42
 Admiralty mountain range, 43-4
 Aerial surveying, types of, 204-5
 Aircraft, problem of use of, in the
 Antarctic, 13 ff.
 Airplane exploration, cost of, 8;
 first flight over the Barrier, 102 ff.;
 to King Edward VII Land, 117 ff.;
 discovery of the Rockefeller
 mountains, 124-5; second flight to
 the east and discovery of new
 land, named for Captain Scott,
 139 ff.; photographic mapping sur-
 vey of coast line, 143-4; Prof.
 Gould's expedition for geological
 survey of Rockefeller mountains,
 167, 168, 170, 173, 174 ff.; base-
 laying flight preliminary to polar
 flight, 305 ff.; the flight to the
 South Pole, 326 ff.; flight of the
 Ford to the eastward of Little
 America, 346 ff.
 Airplanes, the expedition's three,
 32-3
 Alexandra Mountains, 47 *n.*, 106,
 121, 124, 350
 Alice W., Mount, 407
 America, trans-Atlantic flight of,
 14 *n.*
 Amundsen, Roald, 14, 22, 24, 26, 35,
 47, 164, 166, 186*n.*, 291, 311 ff., 331,
 332, 340, 341, 344; passage of
 southern ice pack, 18; tent left at
 South Pole by, found by Scott,
 22; first to reach South Pole,
 24 *n.*; advice on project to reach
 South Pole by airplane, 24-5; on
 the Great Barrier as a base and
 his theory of the formation of
 Bay of Whales, 86; effort to lo-
 cate his camp in Bay of Whales,
 194-6; uses dogs for his dash for
 the South Pole, 240-1; moun-
 tains seen by, 249 and *n.*; finding
 of cairn left by, by Geological
 Party, 360, 408-9
 Amundsen-Ellsworth aerial expedi-
 tions in the Arctic, 14 *n.*
 Andresen, Captain, 69, 361, 370
 Antarctic, cost of expeditions to, 8;
 season of possible passage to the
 continent through the ice pack,
 12 *n.*; problem of using aircraft
 in, 13 ff.; wind velocities in, 13-
 14; visibility conditions in, 15, 80;
 importance of coal in problem of
 basing in, 16; difficulties of reach-
 ing the continent through the ice
 pack, 17-18; economic resources
 of, and a brief sketch of its ex-
 ploration and our knowledge of,
 38 ff.; ancient beliefs regarding,
 40-1; estimates of coastal limits
 of continent, 45; a continent still
 in the ice age, 46-7; deglaciation
 of, 46 *n.*; winter tempera-
 tures, 191, 197, 230 ff., 273; ef-
 fect of the winter on personnel,
 197-9; the Antarctic night, 228,
 229; study of radio conditions in,
 268-9; center of the Antarctic ice
 sheet, 337; theory that Antarctic
 is not a continent but a series of
 islands, 346-7
 Arctic Expedition, the MacMillan,
 of 1925, 10; Amundsen-Ellsworth
 aerial expeditions in, 14 *n.*
 Aurora australis, 197, 224 *n.*, 228-9
 Axel Heiberg Glacier, 243 *n.*, 314,
 315, 316, 319, 330, 331, 332, 342,
 343, 347, 393, 402, 405
 Balchen, Bernt, senior in charge of
 aviation unit, 14 and *n.*, 33, 79, 81,
 88, 92, 102, 118, 123, 124, 139, 167,
 329 ff.
 Balleny Islands, 18, 361
 Barnes, Dr. Haldor, assistant medi-
 cal officer, 31, 361, 391
 Barratt, Edgar, 155, 156
 Barratt, Roswell, 155, 156
 Base-laying flight in preparation for
 flight to South Pole, 305 ff.
 Bay of Whales, wind conditions
 make it a place of comparative
 safety for aircraft, 14; reasons for
 selection as base of expedition, 47;
 Murray's description of, 84-5;
 Shackleton at, 84-5, 86; Amund-
 sen's theory of formation of, 86;

- Bay of Whales—*Continued*
 ice conditions in, 86-7; the expedition reaches, and establishment of base at, 87 ff.; Little America located at, 92; ground survey of, 346, 376
- Bayer, Teddy, engineer on the *City of New York*, 100, 148
- Beardmore Glacier, 312, 313
- Beaufort Scale for measuring wind velocities, 13 n.
- Bellinghausen, Russian Admiral, 42
- Bennett, Floyd, 24, 33-4, 327, 341
- Berkner, Lloyd V., radio engineer, 37, 139
- Berlin, Arthur, 107, 147
- Bernacchi, Cape, 39 n.
- Betty, Mount, 360, 408, 409
- Biltmore Hotel, New York, expedition headquarters at, 25
- Black, George, supply officer, 92
- Blackburn, Quinn, topographer, 78, 159-61, 216
- Bolling, Eleanor*, cost of the ship and her outfitting, 11, 28; question of her fitness for service in the ice, 28; rough passage to Norfolk, 30-2; start for New Zealand, 37; arrival at Dunedin, New Zealand, 50; takes *City* in tow for the South, 55; returns to New Zealand, 67; second trip South, 101, 108; arrival at Bay of Whales and unloading of, 126 ff.; narrow escape from destruction by falling ice from the Barrier, 130-2; returns to New Zealand 132, 137; third voyage south, 150, ff.; sets out again for south, 376; sent back for coal, 380; returns south, 386, 390, 391
- Boots for the Antarctic, 235-6
- Borchgrevink, winters in the Antarctic, 44; at Bay of Whales, 85, 86
- Bowman, John McEntee, 25
- Braathen, Chris, 88, 97, 208
- Bremen* relief flight, 14 n.
- Brophy, Richard G., 25, 38, 52, 82, 91, 161
- Brown, Captain Gustav, of the *Eleanor Bolling*, 28, 31, 50, 67, 108, 126, 127, 130, 137, 153, 155, 370, 372, 380
- Bubier, Sergeant Kennard, aviation mechanic, 102, 212
- Bumstead sun compass, 314, 327
- Burrage, Admiral, 31
- Burse, Jack, 59, 115, 162
- Camping equipment for sledge journeys, 258-60
- Carmen Land, the supposed, 47, 142, 185, 311, 315, 318, 319, 320, 343, 344, 359, 393, 396, 408
- Carnegie Institution, 264
- Chamberlin, Clarence, 103
- Charles V. Bob Mountains, 319 n.
- Cherry-Garrard, Apsley, 23, 40 n., 207, 366
- City of New York*, cost of the ship and her outfitting, 11, 28; formerly named *Samson*, 25 and n.; qualities and drawbacks of, 26-7; trip to New York across the Atlantic, 29-30; start for New Zealand, 37; arrival at Dunedin, New Zealand, 52; departure for the South, 55; through the pack ice to Ross Sea in tow of the *Larsen*, 70 ff.; in the Ross Sea and at the Great Ice Barrier, 77 ff.; at Bay of Whales, 87 ff.; unloading of, 93 ff.; attempted explorations to the east in, abandoned, 137, 144-5; her departure for the north, 147-8; her perilous northern voyage, 150-5, 172, 173; starts south, 364; beset by ice and storms, 367, 368 ff.; wins through the pack, 381; forced 300 miles off course by severe gales, 383 ff.; arrival at Bay of Whales and departure for north with the expedition, 388, 389 ff.
- Clark, Arnold, 134, 211, 264
- Clark, Frank W., 34
- Clothing, Antarctic, 232 ff.
- Coal, importance of, in problem of basing in the Antarctic, 16
- Coal beds in south polar regions, 39
- Colbeck, Cape, 144, 349, 350
- Coman, Dr. Francis D., 21, 35, 209
- Commonwealth Bay, 13
- Cook, Captain James, 28; quoted on south polar regions, 39; discoveries of, 41-2
- Copper, deposits in the Antarctic, 39
- Cost of polar expeditions, 8; of the Byrd expedition, 10-12
- Crab-eater seals, 99
- Creagh, Hump, 100
- Crevasses, 226-7
- Crockett, Frederick E., 22, 37, 162
- Crown Prince Olav range, 312, 316
- Czegka, Victor H., machinist, 156, 202, 250, 260
- David, Prof. T. Edgeworth, 39-40, 45
- Davies, Frank D., physicist, 37, 155, 203, 264
- Daylight saving time in the Antarctic, 196, 280
- De Ganahl, Joe, 95, 131, 162, 298-301
- Demas, E. J., aviation mechanic, 59, 102

- Denison, Cape, 13, 36 *n.*
 Depot laying expedition on the Barrier, 161-2, 163 ff., 170, 172, 173-4
 Diaz, Bartholomew, 41
 Dietrichsen, Captain, 29, 30
 Discovery Harbor, 82
 Discovery Inlet, 78-80, 376, 390
 Dogs, the expedition's, 34; sickness among cured by proper diet, 50-1; wisdom of liberal supply of, 91-2; in winter quarters, 189-91, 216-19; food for, on sledge journeys, 257-8
 Don Pedro Christophersen, Mount, 315, 343
 Drake, Sir Francis, 41
 Duncan, Jim, of Dunedin, 49, 270
 Dunedin, New Zealand, 49
 D'Urville, Antarctic discoveries of, 42
- Edsel Ford Range, 357
 Ellsworth, Lincoln, 24
 Erebus, Mount, 44
- Fairchild plane, the expedition's, 33; unloading of 101-2; first flights of, 102 ff.; flight to King Edward VII Land in, 117 ff.; second flight to the east, 139 ff.; rescue of Rockefeller Mountain geological expedition by, 176 ff.; winter quarters of, 188
 Falkland Islands, 42
 Ferrar, Hartley, 45
 Feury, Jim, fireman, 100
 Fisher, Lawrence P., 12
 Fisher Brothers, 12
 Fisher Mountain, 316 *n.*, 317, 333, 334
 Flags, use of as trail and base markers, 166, 395-6
 Floyd Bennett, airplane, *see* Ford airplane
 Floyd Bennett Harbor, 103
 Fokker plane, the expedition's, 33; successful trials of, 138; flight to the east, 139 ff.; expedition for geological survey of Rockefeller Mountains, 167; wrecked by storms, 180 ff.
 Ford, Edsel, 12
 Ford tri-motored airplane, the expedition's, 32-3; unloading of at Bay of Whales, 128, 129, 132; winter quarters for, 188-9; preparation for polar flight, 305 ff.; the base-laying flight, 309 ff.; the flight to the Pole, 326 ff.; flight to the eastward of Little America, 346 ff.; flight for study of Barrier, 376-7
 Fram, Amundsen's ship, in southern ice pack, 18
 Framheim, Amundsen's camp on Bay of Whales, 86, 88, 89; effort to locate, 194-6
 Frost-bite, 191-2
- Gama, Vasco da, 41
 Gardiner, Binnie & Halliburton, of Wellington, 50
 Gatewood, Captain, 29
 Geological Party under Dr. Gould, and Supporting Party, preparations for their journeys, 248 ff.; preliminary sledge trips and work of Supporting Party, 282 ff.; departure of Geological Party, and reports of its progress, 302, 304, 306, 307 ff., 323 ff., 346 ff., 365 ff.; return of party to Little America, 374-5; Dr. Gould's account of the trip and its scientific accomplishments, 393 ff.
 Goodale, Edward E., 22, 37, 162
 Gould, "Chips," 100, 125, 155, 217
 Gould, Laurence M., Dr., 21, 37, 54, 82, 92, 93, 134, 155, 209, 221, 272, 279; made second in command of expedition, 81; air expedition for geological survey of Rockefeller Mountains, 167, 168, 170, 173, 174 ff.; wreck of Fokker plane and rescue of party by the Fairchild, 180 ff.; preparations for journey of Southern or Geological Party, 248 ff.; preliminary sledge trips, 282 ff.; departure of the party and reports of its progress, 302, 304, 306, 307 ff., 323 ff., 346 ff., 365 ff.; return of party to Little America, 374-5; his account of the Geological Party's expedition and its scientific accomplishments, 393 ff.
 Graham Land, 46, 347
 Greason, Sydney, commissary steward, 35
 Great Ice Barrier, the, discovery of, 44; the expedition reaches, 77-8; birthplace of icebergs, 78, 87; Amundsen on use of, as a base, 86; exploration of, in the Fairchild plane, 102 ff., 117 ff.
 Grenlie, Lloyd, radio engineer, 37
 Guggenheim, Harry, 188 *n.*
- Haines, William C., meteorologist, 37, 54, 67, 108, 116, 118, 170, 176, 187, 231, 262, 274, 309, 321, 326
 Hal Flood Bay, 120 *n.*, 139, 143, 349
 Hanson, Malcolm P., radio engineer, 30, 36, 116, 131, 163, 267
 Harrison, Henry, meteorologist, 39, 67, 131, 132, 209, 262, 326
 Haycocks, 297
 Hayes, "Antarctica," cited, 8 *n.*, 45 *n.*, 86 *n.*

Hope, Mount, 46 *n.*

Icebergs, 65; formation of, 78, 87

Ice pack, season of possible passage through to Ross Sea, 12 *n.*; difficulties of reaching Antarctic continent through, 17-18; passage of *City of New York* through, in tow of *Larsen*, 70 *ff.*

Influenza epidemic, 96

Iron ore in the Antarctic, 39

Japanese Antarctic Expedition, of 1911, 47 *n.*

Johansen, Bendik, pilot, 379

June, Harold, 81, 102, 118, 139, 167, 328 *ff.*

Kennelly-Heaviside Layer, radio phenomenon, study of, 268-9

Killer whales, 100, 111, 112

King Edward VII Land, discovery of, 45, 47; flight to from Little America in the Fairchild airplane, 117 *ff.*

Konow, Magnus, 38

Kosmos, whale ship, 390, 391

Land, new, to the east of Bay of Whales, named for Captain Scott, 142; east of 150th meridian named Marie Byrd Land, 351-7

Larsen, C. A., Norwegian mother whale ship, services and assistance to expedition, 9, 16, 17, 19, 28, 38, 49, 70, 76, 151 *ff.*, 362, 390

Lawrance, Charles L., 32

Lichens, 404, 406

Lindbergh Inlet, 105

Little America, the expedition's base on Bay of Whales, selection of the site, 92; removal of supplies to, 93 *ff.*; the trail to, 149; building and organization of, 155 *ff.*; the various structures of, 156-7; snow tunnels connecting the various units, 158; the radio towers, 158; the radio station, 163; winter at, 188 *ff.*; the dogs and their quarters, 189-91, 216-19; the winter routine and duties in preparation for spring, 199 *ff.*, 207 *ff.*; personalities and characteristics of, 208-16; games and other winter diversions, 219 *ff.*; winter weather conditions and temperature record, 230-1; plans and preparations for the spring journeys and the polar flight, 241 *ff.*; return of the sun, 272; digging out, and preparing for southern journeys, 274 *ff.*; fears that ice conditions may keep expedition at,

another year, 365 *ff.*; dismantling of and departure from, 382-3, 387, 388-9

Liv's Glacier, 315, 316, 317, 318, 320, 330, 331, 332, 333, 345, 346, 347, 399, 400, 401, 402

Lofgren, Charles E., personnel officer, 15, 38

Macquario Island, 36 *n.*

Magellan, Strait of, 41

Magnetic observations, 264-6

Malcolm, Dr. John, of Otago University, 51, 257, 395

Marie Byrd Land, 357, 358, 359, 406, 407, 408

Mason, Howard F., radio engineer, 30, 36-7

Mawson, Sir Douglas, abandons idea of using aircraft in the Antarctic, 13; on wind velocities in the Antarctic, 14; experience with motor transport, 34 *n.*; experiment with radio, 36 *n.*; quoted on polar research, 40; belief that Wilkes found Antarctic continent, 43

McGuinness, Charles J., mate of the *City of New York*, 22, 37

McKinley, Ashley C., aerial surveyor, third in command of the expedition, 21 and *n.*, 31, 37, 54, 81, 92, 134, 142-4, 155, 185 *n.*, 189, 201, 204, 205, 209, 279, 327 *ff.*, 351 *ff.*

MacMillan Arctic Expedition of 1925, 10

McMurdo Sound, 46 *n.*, 86

McPherson, Frank, Chief Engineer of the *Bolling*, 31

Melville, Captain Frederick, in command of the *City of New York*, 37, 50, 147, 151, 152, 154, 364, 381, 385, 386

Meteorological observations, 262-4

Mill, Dr. Hugh, "Siege of the South Pole," cited, 39 *n.*, 40 *n.*

Mineral resources of the Antarctic, 39-40

Motor transport, the expedition's, 34; other explorers' experience with, in the Antarctic, 34 *n.*

Mulroy, Thomas B., chief engineer and fuel engineer, 16 and *n.*

Murray, James, biologist of Shackleton's 1908 expedition, 84

Nansen, Fridtjof, 7, 20

Nansen cooker, 200, 258

Nansen, Mount, 314, 315, 316, 317, 333, 334, 343, 344, 357, 396, 399, 400, 402-4, 405, 409

New Zealand, hospitality of its people, 49, 55

- Nilsen, Captain, of the whale ship *C. A. Larsen*, services and assistance to the expedition, 15, 16, 17, 19, 49, 70-1, 76, 87, 151 ff.
- Nilsen, Mount, 141
- Nimrod*, Shackleton's ship, in southern ice pack, 18
- North Pole, first flight by air to, 24
- Nunatak Mountain, 121, 124, 349
- O'Brien, J. S., 397, 401
- Ochs, Adolf, 388
- Ole Englestad, Mount, 314, 315
- Owen, Russell, New York *Times* correspondent, 20, 38, 168, 192-3, 222-3
- Parka, or Eskimo overcoat, 232-3
- Parker, Captain Alton, aviation pilot, 15 and n., 79, 81, 139
- Peary, Robert E., 24, 36
- Pemmican, 35
- Penguins, 73, 98-9, 358, 366, 367-8
- Personnel of the expedition, selection of, 21-3
- Petersen, Carl O., radio engineer, 37, 162
- Petrels, 303
- Photographic laboratory at Little America, and its operation, 201 ff.
- Photographs, aerial, geographical value of, 204
- Polar expeditions, cost of, 8
- Pressure ridges, 226, 249 n.
- Prestrud, Lieut. K., 47, 121, 124, 349
- Prince Albert mountain range, 44
- Queen Maud Mountains, 33 n., 243 n., 249, 255, 313, 318-19, 323, 330, 344, 393, 396, 401, 408
- Radio, the expedition's equipment, 36-7, 367-9; ends isolation of polar exploration, 91, 143; communication with United States effected, 116; the main station at Little America, 163; study of radio conditions in the Antarctic, 268-9
- Radio beacon, 307
- Radio compass, 66; directional results with, 307
- Railey, Captain Hilton Howell, 11 and n., 25-6, 373, 377
- Rasmussen, Knud, 107
- Rockefeller, John D., Jr., 125
- Rockefeller Mountains, discovery of, 124-5, further exploration of, 140-1; Prof. Gould's air expedition for geological survey of, 167, 168, 170, 173, 174 ff.; definite location of, 185 n.
- Ronne, Martin, 22, 208, 250
- Ross, Sir James Clark, first to break through the ice pack to Ross Sea, 17-18; discoveries in the Antarctic by, 42, 43-4
- Ross Ice Barrier, *see* Great Ice Barrier
- Ross Sea, season of possible passage through ice pack to, 12 n.; discovery of, 18, 43; the expedition reaches, 76; ice islands in, 122, 123
- Roth, Sergeant Benjamin, 38, 131
- Rucker, Joseph, photographer, 56, 170, 171, 232
- Ruth Gade Mountain, 314, 315, 336, 343, 344, 405, 407
- Sabine, Mount, 43
- Safety rules of the expedition, 82-4
- Sastrugi, 141, 171, 316, 318, 398, 399
- Scott, Captain Robert F., cost of his expeditions to the Antarctic, 8; difficulties in southern ice pack, 18; finds tent left at South Pole by Amundsen, 22; experience with motor transport, 34 n.; use of telephone, 36 n.; mineral discoveries in the Antarctic, 39; discoveries on his first expedition, 45; at Bay of Whales, 85, 86; new land named for, 142; deaths of his party after reaching the South Pole, 240-1; at the Pole, 341
- Scott Island, 64, 122
- Scurvy, precautions against, 35-6
- Seal meat as food, 99, 101
- Seals, 71, 99, 168, 189
- Shackleton, Sir Ernest, cost of his second expedition to the Antarctic, 8; passage of southern ice pack in 1908, 18; experience with motor transport, 34 n.; mineral discoveries in the Antarctic, 39; at Bay of Whales, 84-5, 86
- Shropshire, Ralph, assistant to scientific staff, 38
- Siple, Paul, Boy Scout, 95, 112, 190
- Sir James Clark Ross*, whaling ship, 28, 37
- Skis, use of, for aircraft, 33
- Skua gulls, 99
- Sledge journeys, food and equipment for, 248 ff., 394-5
- Sledges, 251, 277
- Sleeping bags, 236-7
- Smith, Dean C., aviation pilot, 14, 56, 81, 209, 317
- Smith, William, 29
- Snowfall record, 274
- Snowmobile, the expedition's Ford, 34, 134, 188, 285, 293, 294; loss of, 302, 303, 310
- South Georgia, 42

- South Pole, Scott finds flag left by Amundsen at, 22; Amundsen first to reach, 24 *n.*, 240-1; plans for the airplane flight to, 242 ff.; baselaying flight in preparation for flight to, 305 ff.; the successful flight to and return, 326 ff.; mountain ranges around, 336-7; altitude at, 340
- South Shetland Islands 42, 46
- South Victoria Land, 315, 316, 352
- Strom, Sverre, mate of the *City of New York*, 57, 61
- Sun, the last sight of, 196; the return of, 272
- Sutton, John, 110
- Sverdrup, Dr. H. U., 225 *n.*
- Tapley, Hon. Harold L., 49, 161, 270
- Temperature, Antarctic winter, 191, 197, 230 ff., 273
- Tennant, George W., Chief Cook, 35, 57, 125
- Terra Nova*, Scott's ship, in the ice pack, 18
- Terror, Mount, 44
- Thawley, E. J., 131, 132
- Thorne, George, 107
- Tierra del Fuego, 41
- Times*, the New York, assistance of, 36
- Todd, Herbert, 29
- Todd, William, 28
- Van der Veer, Willard, photographer, 38, 56, 170, 171, 232
- Vaughan, Norman D., 22, 37, 51, 114, 162
- Vermeli, Captain, of whaler *Nilsen Alonzo*, 370 ff., 372, 379
- Ver-sur-Mer Inlet, Bay of Whales, 92, 149, 226, 358
- Visibility conditions in the Antarctic, 15, 80
- Walden, Arthur T., 34, 37
- Weddell Sea, 47
- Weddell seal, 99
- Wellington, New Zealand, 49, 50
- Whale meat as food, 101
- Whales in the Bay of Whales, 99-100
- Whaling in the Antarctic, 39, 68
- Wilhelm Christophersen, Mount, 314, 343
- Wilkes, Captain Charles, explorations in the Antarctic, 42-3
- Wilkins, Sir Hubert, 46
- Wilson, Dr. Edward Adrian, 45
- Wind Records, 225
- Wind velocities in the Antarctic, 13-14

