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TABLE OF CONTENTS

Introductory Articles

THE EDITOR EXPLAINS .. .. i.
REPRESENTATIVE CONTRIBUTORS .. (70 *portraits*) .. .. .. v.
PLAN OF THE WORK .. .. .. viii.
SERIES OF KEY MAPS .. .. x. (8 *maps*)
THE ROMANCE OF TRAVEL. *Joseph Conrad* .. .. xviii.

Descriptive Chapters

ABYSSINIA AND ERITREA. *Charles F. Rey* 1
AFGHANISTAN. *Lieut.-Col P. T. Etherton* 17
AFRICA *Evans Lewin* 33
ALASKA *Vilhjalmur Stefansson* .. 39
ALBANIA. *Henry Baerlein* 59
ALSACE-LORRAINE. *Percy Allen* .. 75
AMERICA, NORTH. *B. C. Wallis* .. 97
AMSTERDAM *Dr J. Morgan-de-Groot* 101
ANATOLIA. *Sir William Ramsay* .. 115
ANDALUSIA *Henry Leach* 137
ANGOLA *Colonel Statham* 171
ANTARCTICA *Frank Debenham* .. 189
ANTWERP. *Emile Cammaerts* .. 213
ARABIA *Rosita Forbes* 223
ARCTIC LANDS. *Vilhjalmur Stefansson* 259
ARGENTINA. *F. A. Kirkpatrick* .. 287
ARMENIA *W. Llewelyn Williams* .. 309
ASIA. *Demetrius C. Boulger* .. 321
ASSAM. *Sir Bampfylde Fuller* .. 325
ATHENS. *A. J. B. Wace* 337
ATLANTIC ISLANDS. *Marion Newbigin* 367
AUSTRALIA. *Sir W. Beach Thomas* .. 413
AUSTRIA. *Crawfurd Price* 461
BAGDAD. *Sir Percival Phillips* .. 497
BALEARIC ISLANDS. *E. G. Harmer* .. 517
BARBARY STATES. *Henry Leach* .. 533
BARCELONA *Henry Leach* 629
BELGIUM *Charles Sarolea* 653
BELGRADE. *Sir Percival Phillips* .. 693
BENGAL, BIHAR and ORISSA *Edward E. Long* 703

List of Colour Plates

AFGHANISTAN :
Collecting Wood on the Borderland 21
On a Pass of the Hindu Kush .. 22
Borderland Nomads 23
Glacier on the Chitral Border .. 24
A Mountain Precipice 25
Rock-throned Fortress 26
Native Caravan 27
Fruit Market 28
ANDALUSIA :
Gate of Justice 141
Court of Lions 142
Cathedral of Córdova 143
Sala de Reposo 144
Captive's Tower 145
Chasm of the Guadalevin .. 146
Step-street of Albaicin 147
Vineyard of Málaga 148
ARABIA :
Houses of Jeddah 245
Great Mosque of Mecca .. 246
Camel Caravan in Yembo .. 247
Gorge of Petra 248
Site of Petra 249
Jebel Musa 250
Citadel in Yemen Province .. 251
Ed-Deir Temple 252
ATHENS :
Columns of the Parthenon .. 341
Caryatid Figures of the Erechtheum 342
On the Acropolis Height .. 343
View of the Acropolis 344-5
The Propylaea 346
View from the Acropolis .. 347
Ancient Arch of Hadrian .. 348
AUSTRIA :
Benedictine Abbey of Melk .. 469
Hoch-Osterwitz Castle 470
Danube Between Linz and Vienna 471
On the Shore of Traunsee .. 472
The Hohen-Salzburg 473
Ankogel from Seebach Valley .. 474
In an Alpine Valley 475
Gateway in Salzburg 476
BARBARY STATES :
Shrine of Mulai Idris 549
Oasis of Gafsa 550
Islam's Holiest African City .. 551
The Glory of Biskra 552
On the Edge of the Shott el Djerid 553
Gate of the Desert 554
City of Kairwan 555
Muezzin in Tunis 556
Home of the Deys 556
BELGIUM :
View of Bruges from Belfry .. 645
Quai Vert, Bruges 646
Bruges, Domestic Architecture .. 647
Canal Between Bruges and Damme 648-9
Béguinage, Bruges 650
Church and Citadel, Dinant .. 651
Louvain, Hôtel de Ville .. 652

Pages in Photogravure

ALSACE
Women Workers in the Fields 77
Cathedral Tower of Strasbourg 78
Modern Quarter of Strasbourg 79
The Heart of Strasbourg .. 80
In the Town of Saverne .. 81
Strasbourg's Stately Minster 82
Bridges across the Rhine .. 83
Small Town of Niederbronn 83
Towers of Haguenau and Mulhouse 84
Old Buildings of Colmar and Ribeauville .. 84

ANATOLIA
Gateway of Imperial Kiosk 117
Lava Cones near Mount Argaeus 118
Aqueduct of Paradise 119
Fountain of Anatoli Hissar 119
Ruins of Mosque at Komeh 120
Ahum Kara Hissar .. 121
Panorama of Brusa .. 122
View of Budrum 123
In the Poppy Fields .. 124

ANTARCTICA
Mouth of an Iceberg Grotto 181
Ridged Berg in South Bay 182
Mount Erebus and Cape Bird .. 183
Mount Discovery and Vince Cross 183
Penguins on Cape Royds .. 184
Penguins in Summer Sun 185
Explorer's Depot on Ross Island 186
At the Foot of Barne Glacier 187
Weddell Seal on the Ice .. 188

ANTWERP
Cathedral from Quay Van Dyck 205
The Schelde's Right Bank 206
Old Guild Houses .. 207
In the Grand' Place .. 208
In the Place Verte .. 209
In the Docks 210
Corner of Van Dyck Quay 211
Antwerp's New Bourse .. 212
Plantin-Moretus Museum 212

ARCTIC LANDS
Northern Prairie Lands .. 269
Arctic Butterflies 269
Hauling Seal up the Shore 270
A Day's Catch 271
Snow Owls 272
Eider-duck .. 272
Marmot of the Arctic .. 273
A Large Trout .. 273
On the Recherche Glacier 274
Recherche Glacier from Joseph's Bay 275
Spruce Forests in the Yukon 276

ATLANTIC ISLANDS
The Gran Pico 381
Funchal from the Sea .. 382
Fort of Pico 383
Camara de Lobos 383
Group of Coral Islands .. 384-5
Santa Cruz 386
Porto Grande 387
View of Jamestown .. 388

AUSTRALIA
Majestic Falls of New England .. 405
The Buffalo Mountains .. 406
View from Mount Lofty .. 407
Hauling Timber Harvest 408
Tarn below Mount Kosciusko .. 409
Murray River Country 410
Cattle on the Avon River 411
The Blue Mountains 412
Mount William 412
Avon Scenery .. 448
Ox-drawn Wool Teams .. 446
View of Canberra .. 447
The Murray below Kosciusko 448
Hauling Cedar Logs .. 449
Silver Ore Teams 450
The Oat Harvest .. 451
National Park 452

BAGDAD
On the Foreshore 509
New Street 510
Twin Domes at Kazimain 511
Blue domed Great Mosque 512
Narrow Winding Streets .. 513
Old Bridge of Boats .. 514
One-time British Residence 514
Tomb of Zobeida 515
River Scene .. 516

BARBARY STATES
Entrance to Oasis of Biskra 573
Great Mosque of Okba .. 574
Mosque of the Olive Tree .. 574
Minaret of Kairwan's Mosque 575
Sands of the Sahara .. 575
Caravan by El Kantara 576
Oasis of Biskra from the Air 577
Algiers from the Sea 578
Gorge of the Rummel 579
Constantine from the Air .. 580
Constantine .. 581
Menaa in the Aures 582
Wild Scenery of the Atlas 583
Forests of the Middle Atlas 584
Walls of Marrakesh 585
Carpenters' Fountain, Fez 586
On the Roofs of Rabat .. 587
Rif Mountains of Morocco 588

BARCELONA
Arco de Triunfo .. 621
Goats in the Street .. 622
Bronze Fountain .. 622
Guardia Civil .. 623
City Police .. 623
Casa Dalmases 624
Convent of Santa Clara 625
The Paseo Colon 626
Caged Birds in the Rambla 626
Weighing Cotton 627
Rambla de las Flores 627
Plaza de Cataluna 628

BELGIUM
Belfry of Ghent 669
Bruges, Quai du Rosaire 670
Canal Scene at Bruges 671
Montagne de Bueren, Liege 672
Chateau de Walzin 673
Lion Monument, Waterloo 674
Namur, Citadel and Bridge 675
Grand' Place Mons 676
Beguinage, Courtrai .. 676

Photographs in the Text

ABYSSINIA AND ERITREA
Marketing Grain in Addis Abbaba 3
Affluent of the Hawash 4
Central Market of Addis Abbaba 5
Main Gate of Addis Abbaba 6
Public Buildings in Addis Abbaba 7
Industry in Native Hands 8
Outside the Imperial Palace 9
Addis Abbaba's Main Street 9
Leisurely Travelling .. 10
Donkey Caravan .. 10
Abyssinian Ponies 11
Abyssinian Cattle 11
Hill Town of Harrar .. 12
On the Road to Diré-Dawa 14
In Harrar 15

AFGHANISTAN
Khyber Pass 19
Result of a Political Treaty 20
Capital of Afghanistan .. 29
Entrance to Khyber Pass 30
Wild Mountains of Afghanistan 31

ALASKA
Hurricane Gulch 41
Trophies of a Walrus Hunt 42
On a Fox-breeding Ranch 43
Caribou-reindeer Herd .. 44
Arrival of a Reindeer Train 45
Eskimo Boats 46
Mail Team at Nome .. 46
Salmon Cannery 47
Moonlight on the Yukon 48
Passengers Landing at Nome 48
Alaska's Capital 49
Flower-fringed Highway 49
Island Survivals of Submerged Mountains .. 50
Town of Seward 50
Mount Wrangell 51
Snow-clad Mount St Elias 51
Mount McKinley .. 52
Dead Horse Gulch 53
Carven Tree Trunks 54
Family Tree of Indian Origin 55
Method of Gold-mining .. 56
Dredger at Work 56
Primitive Gold-mining .. 57

ALBANIA
Scutari, on the Bovana 58
Scutari's Walls and Towers 61
Primitive Sanitation .. 62
Hillside Buildings 63
City of Winding Streets .. 63
Summer Morning at a Café 64
Citadel of Scutari 65
Street Life in Durazzo .. 66
Palace and Quay of Durazzo 67
Road Through Kavava 68
High Street at Valona .. 69
Valona Port 69
In a Market Square .. 70
Watch party Among Crags 71
Country House Built for Defence 72
Bridge Across the Osum .. 73
Pottery Kiln near Berat .. 73

ALSACE-LORRAINE
Cobbled Streets of Metz .. 74
Notre Dame of Metz .. 74
Relic of Prussian Rule .. 85
Old House of Strasbourg 86
A Colmar Canal 87
Town Hall of Mulhouse 88
Roofs and Spires of Metz 89
From a Pinnacle of the Vosges 90
Kaysersberg 91
Roche du Diable .. 92
Foresters of the Vosges .. 93
Vintage Time near Reichenweier .. 93
Welcome if Uninvited Guests 94

AMSTERDAM
Houses Fringing the Prinsengracht 103
Sunlit Waterway .. 104
City of Ninety Islands .. 105
Hub of Commercial Activity 106
South Part of the Old Town 107
In the Rembrandtplein .. 108
Ancient and Modern in Amsterdam 109
Ancient Drawbridge .. 111
Hooge Sluis .. 112
New Amstel Bridge .. 112
Old Mansion of Patrician Families 113

ANATOLIA
Squalor and Decay .. 127
Mosque and Mart 129
Boulder-strewn Wagon-way 130
Scamander River 131

Photographs in the Text (contd.)

Fortress Rock of Afium Kara Hissar 132
Panorama of the Taurus Plateau 133
Amid the Ruins of Angora 134

ANDALUSIA
A Vista of Seville 136
Gem of Moorish Work .. 139
Sleeping chambers of the Kings .. 150
Façade of the Alcazar Palace 151
Cistern of Alabaster .. 152
Portal to the Court of Lions 153
Gallery outside Court of Justice 154
Towers of the Alhambra 155
In the Palace of Generalife 156
Cathedrals of Cadiz .. 157
Moorish Castle by Martos 158
Glimpse of the Sierra Nevada 159
Bridge of Sixteen Arches .. 160
Rock bound Ronda 162
Weathered Boltby in Ronda 163
Arcos de la Frontera 164
Almeria from the Alcazaba 165
Scraping Cork Bark 166
Making Baskets of Esparto Grass 167
Gibraltar, from the Spanish Shore 168
Cathedral of Malaga .. 168

ANGOLA
Grave of an Angola Chief .. 170
Suspension Bridge of Vines 173
Crags of Pungo Andongo .. 174
Overlooking Loanda 176
How Ground nuts are Stored .. 177
Foliage of Locusts .. 178
Fierce Type of Angola Fauna 179
Colour changing Chameleon 180

ANTARCTICA
Family Life 191
Skua Gull and Eggs .. 193
Sea Leopard 193
Weddell Seal and Calf 194
Floating Isle of Antarctica 196
Seal Emerging from the Ice 197
Barrier of Solid Ice 197
Weirdly Weathered Iceberg 200
Riders of the Barne Glacier 201
Arrangements of Modern Days 205

ANTWERP
Bird's Eye View 215
Entrance to the Central Station 216
Iron canopied Stone Well 217
Carving of an Antwerp Pulpit 218
Antwerp's Great Cathedral 219
From Prison to Museum 220
Royal Museum of Fine Arts 220

ARABIA
Pilgrimage to Arafat 222
Within the Walls of Mecca 225
Procession of the King of Hejaz .. 226
Pilgrimage to Arafat .. 227
Circling the Kaaba .. 228
Overlooking Medina 229
Arab Fruit sellers at Yembo 230
Bedouin Camel Corps 231
Tomb pierced Cliffs of Petra 232
Rock hewn Temple of Petra 233
Entrance to Petra 235
Roman Tombs Cut in Sandstone .. 234
Gorge of the Wadi Musa .. 235
Houses of Es Salt 236
An View of Lohana 237
Road from Maan to the Wadi Musa .. 238
Camp in Arabia Petraea .. 239
Relics of Roman Culture .. 240
Caravan Centre of Aneyza 241
Overlooking Jeddah .. 242
View of Aden 254
Aden's Rock Cisterns .. 255
Town of Muscat .. 256
Draw Well in an Oasis .. 257

ARCTIC LANDS
Walruses in Bering Straits 261
Spring on the Arctic Ocean 262
Eskimo's Snow House .. 263
Coal bearing Mountain of Spitsbergen 264
Forestalling Winter .. 266
Norwegian Whalers .. 279
Cairn in Spitsbergen .. 280
Spitsbergen Fjord .. 282

ARGENTINA
Municipal Buildings of La Plata 288
Panorama of Bahia Blanca 290
Imposing Station at La Plata 291
Eastern End of Rosario .. 292
Mountain Wall of Salta 294
Elevators for Grain Storage 295
Plaza San Martin of Cordoba 296
Plaza San Martin in Mendoza 298
Calle San Martin Mendoza 299
Rack Railway in the Andes 300
Puente del Inca 301
Pastoral Scenes on the Pampa .. 302
Estancias Old and New 303
Granite Rock for Stone 304
Gathered Grain 305
Suncured Bolt in Storage 307

ARMENIA
Military Road from Erivan to Kars .. 311
Summit of Great Ararat 312
Monastery of Echmiadzin 313
Echmiadzin's Hoary Walls 314
Gorge of the River Aras 315
The Aras in the Highlands 315
Roads and Minarets of Erzerum .. 316-7
Bitlis and its Castle .. 316
Broken Bulwarks of Ani 317
An Armenian Church .. 318

ASSAM
Hillside Village 327
Main Street of a Naga Market .. 328
Valley Among Naga Hills 329
View of Nerhema .. 330
Forest Leviathans 332
View of the Upper Lohit 333
Savage Village Raider 334
Portal Posts of Bachelors' Barracks .. 335

ATHENS
Temple of Olympian Zeus 330
Athena Nike's Shrine 340
Monument to Lysicrates .. 340
Mount Lycabettus 350
Athenian Acropolis .. 351
South eastern End of City 352
Athens in its Mountain Setting .. 353
Temple of Zeus Olympius 354
The Theseum 355
Colonnade of the Parthenon 356
Relic of Moslem Rule 357
Temple of Erechtheus .. 358
The Propylaea .. 358
Approach to the Acropolis 359
Constitution Square .. 360
Piraeus Port of Athens .. 361
Greek National Bank .. 362
New Metropolitan Cathedral 362
The Kapnikarea Church .. 363
The Small Metropolis .. 363
From the Stadium .. 364
Ancient Monument Refurbished 364
National Library 365
General Post Office .. 365
Academy of Science .. 366

ATLANTIC ISLANDS
Street in Thorshavn .. 369
Township of Tristan da Cunha 370
Seamen of a Lonely Outpost 371
Panorama of Las Palmas .. 372-3
View of Praia 372
Cave Village of Grand Canary 373
Scenery in Grand Canary 374
Corner of Las Palmas City 375
Fertile Orotava Vale .. 376
Carpets of Natural Flowers 377
Principal Street in Santa Cruz 378
Cathedral of Las Palmas 379
Campanile of Teneriffe's Capital 380
Picturesque Madeira Home 389
Madeira Wine on the Road 390
Species of the Ficus Family 390
Customary Carriage and Pair 391
Fields on Mountain Side 391
Street in Funchal .. 392
Treading the Grain in Madeira 393
Madeira's Central Range .. 394
"Carro" on a Cobbled Road 395
Method of Descent .. 395
Ponta Delgada 396
Angra Bay .. 396
Summit of Pico Island .. 397
Hot Sulphur Springs at Furnas 397
On the Road to St. Michaels' 398
Bird Life on Ascension Island 398
Cocoa Cultivation in St. Thomas 399
Christchurch Cathedral .. 399
Outside Stanley Harbour 400
Home of an Imperial Exile 401
St Helena's Frowning Portal 401
Erstwhile Resting-place of Napoleon .. 402
View of St George .. 402
Coral Cutting in Bermudas 403
View of Hamilton .. 403

AUSTRALIA
Cutting out Cattle 415
Coal mining Town of N S W. 416
Farmlands in North Coast District 417
Camels used as Pack Animals 418
Railway over Blue Mountains 419
Banks of the Hawkesbury 420
Goulburn Irrigation System 421
Drying Grapes .. 422
Settler's Victoria Home 423
Homesteads in the Valley 423
Coral Rampart on the East Coasts 424
Warrior Island Reef .. 425
Sapphire Puddlers .. 426
Fields of South Queensland 427
View of Brisbane .. 428
One of Brisbane's Civic Adornments 429
Victoria Bridge Brisbane 430
Source of Murray River .. 431
Queensland Sugar Mill .. 432
Town of Kalgoorlie .. 433
Looking across Perth .. 434
Governor's Residence .. 435
Perth in Carnival Spirit .. 436
Harbour of Albany .. 437
Pearling Fleet Returning 438
Rundle Street, Adelaide .. 439
North Terrace, Adelaide .. 439
Irrigation Rewarded .. 440
Wheat as high as a Man .. 441
Tillage by Modern Methods 442
Horseless Harvester .. 443
How Early Miners found Gold 444
Mount Boppy 453
Smoke-stacks of Broken Hill 454
Sifting Gold and Copper .. 454
Rural Peace 455
Carting Grain 456
Trio of Emus 457
Kangaroos at Melbourne .. 457
Duck-bill and Koala .. 458
Specimens of Australia's Fauna 459
Reptilian Freak 460

Photographs in the Text (contd.)

AUSTRIA

In the Salzkammergut .. 463
By the Waters of the Traunsee 464
Fashionable Ischl .. 465
Town of Gmunden .. 466
View of Linz 467
Rathaus of Graz 478
Graz on the Mur 479
Looking North from the Schlossberg 480
Fortified Schlossberg of Graz 481
Ancient Ducal Chair .. 482
Grandeur of Grossglockner 483
Grossglockner and the Glockner House .. 483
Street in Ischl 484
View of Steyr 484
Town Gate of Hainburg .. 485
Panorama of Klagenfurt .. 486
Ferry in the Burgenland .. 487
Old and New Towns of Salzburg 488
Homes of a Master-musician 489
Older Part of Salzburg .. 490
Valley of the Salzach . 491
Semmering Road and Railway 492
Famous Mountain Railway 493
Mountain, Hill and Vale .. 494
View of Bad Gastein .. 495

BAGDAD

Old and New River Craft .. 499
Unpaved Byway 500
One of Bagdad's Bridges .. 501
Minarets of Bagdad .. 502
Modern Quarter from the Air 503
Native Craft on the Tigris 504
Modernised Bagdad .. 505
Looking up the Tigris .. 506
Entrance to the Fortress . 507
Shrine of Abdul Kadir .. 507
Portal of Old Bagdad .. 508

BALEARIC ISLANDS

Majorca from Palma Bay 519
Village Life in Majorca .. 520
Entrance to a Cottage Home 521
Majorca's Minister .. 522
The Lonja of Palma .. 523
Irrigating the Fields .. 524
Wheel-worked Well .. 524
On the Outskirts of Palma 525
Obsolete Windmills of Palma 525
Drying Fishing Nets in Palma 526
Fishing Boats in Palma .. 527
Fisherman's Hour of Ease 527
Minorca's Capital .. 528
Port Mahon 528
Woman Water-seller of Palma 529
Island and Harbour of Iviza 530
Landscape of Formentera 531
Rocky Islet of Cabrera .. 532

BARBARY STATES

Cathedral of Tunis .. 535
Subterranean Homes .. 536
Miniature Mahomedan Shrines 537
Treasures of Troglodyte Chief 537
Country of the Troglodytes 538
Main Street of Metameur .. 539
Ancient Carthage 540-1
Roman Theatre of Carthage 540
Amphitheatre of El Djem 541
In a Tunis Bazaar .. 542
Carpenters' Bazaar .. 543
White Houses of Tunis .. 544
General View of Tunis .. 545
Market of Tunis 546
Panorama of Algiers .. 547
At the Port de Commerce 558
From the Kasbah to the Sea 559
Architecture of Algiers .. 560
New Mosque at Algiers .. 561
Palace of the Governor-General 561
Patio of Saracenic Design 562
The Rue d'Isly 563
Old Street of Algiers .. 563
Minaret of the New Mosque 564
In the Rue de la Marine 564
End of the Rue Marengo 565
Over the Roofs of Biskra 566
Main Artery of Timgad .. 567
Gorge of El Kantara .. 568
Gorge of the Chiffa .. 569
Constantine's Crags .. 570
In the Place de Nemours 570
Steaming Cascade .. 571
Palm Gardens of M'chounech 571
An Oasis Idyll 572
At the Dockside of Oran 589
Sidi Okba 590
Tombeau de la Chrétienne 591
Massinissa's Tomb .. 591
Arches of Roman Aqueduct 592
Outside a Desert Village 593
Tangier Enthroned above the Crags 594
Panorama of Tangier .. 595
Distant View of Tangier 596
Arab Market Scene .. 597
Morocco City 598
In the Djema el Fna .. 599
Overlooking Marrakesh .. 600
Portal of Marrakesh .. 601
Moorish Shepherd and his Flock 602
One of the Sacred Cities 603
Old Art on a Modern House 604
Merchants of Fez 605
Fez el-Bali .. 606
Walls of Ancient Fez .. 607
Panorama of Fez 608
Mulai Idris from the Air 609
Nomad Camp in the Woods 610
Asru in the Foothills 611
Plaza de Espana, Tetuan 612
Muezzin's Call to Prayer 613
News from the Country 613
Bargaining in the Souks . 614
Street Shops in Mequinez 615
Fortified Seaport . .. 615
Bustling Nomad Mart 616
Casa Blanca from the Air 617
Casa Blanca . . 618
Commercial City of Morocco 619

BARCELONA

Palace of the Fine Arts . 631
Dársena Nacional . .. 632
Streets and Squares of Barcelona 633
Looking Over the Docks .. 634
Façade of Cathedral .. 635
Calle del Hospital . .. 636
Rambla de Estudios .. 637
Wooded Slopes of Tibidabo 638
Fine Street of Barcelona .. 639
Seat of Learning . 640
Residence of Commercial Magnate .. . 640
Barcelona's Chief Theatre 641
Tribute to Columbus . 642
Catalan Architecture .. 643
In Commemoration of a Hero 644

BELGIUM

Ostend's Wide Sands .. 654
Air View of Ostend Port .. 656
Town Hall of Bruges .. 657
Cathedral Tower of Bruges 658
Church of S. Saviour .. 659
Belfry of Bruges 660
Ghent's Minster 661
Friday Market, Ghent .. 662
Relics of the Middle Ages .. 662
Storied Relic of Ghent .. 663
Old-World Town of Bouillon 664
Bend of the Semois .. 665
Malines' Greatest Glory .. 666
Gothic Cloth Hall, Malines 667
Roche á Bayard 668
Belfry of Old Courtrai .. 677
Dinant by the Meuse .. 678
Panorama of River Meuse 679
Hôtel de Ville at Oudenarde 680
Glimpse of Anseremme .. 681
Town of Malmédy .. 682
Pont de Fragnée 683
S. Martin's Church .. 683
Farm of La Belle Alliance 684
Hougoumont Farm .. 685
Chapel at Hougoumont .. 685
Ruined Cloth Hall of Ypres 686
Great Bell Tower of Mons 687
Cathedral of Mons .. 688
Grand' Place, Tournai .. 688
Pont des Trous 689
Stately Minster of Tournai 689
Girl-worker in Coal-mines 690
Scene on the Lys 691
Soaking Flax in the Lys .. 691
Metal Works at Couillet .. 692

BELGRADE

State Mortgage Bank .. 695
Portion of King Peter's Street 695
Old-regime Architecture .. 696
Belgrade's Turkish Town 697
View from Zemun 698
General View of Belgrade .. 699
Stretch of the Save River .. 700
Old-world Fortress .. 701
Centre of the State Religion 702
Well in Kalemegdan .. 702

BENGAL, BIHAR AND ORISSA

Temples of Nasirabad .. 705
Elephant in the Jungle .. 706
A Temple in Orissa .. 706
Buddh Gava 707
Temple at Puri 708
Relic of Warren Hastings .. 710
Village in the Jungle .. 711
At a Yearly Hindu Fair . 712
Irrigation in Bengal . 714
Bengali Village . .. 715
View from Darjeeling .. 716
Market of Darjeeling . 717
Darjeeling and "the Snows" 719
The Mall, Darjeeling . 720
At Work in the Brick-fields 722
Coal mines in Raniganj District 723

List of Maps

Key Map: The World .. x
N., C. and W. Europe .. xi
S. Europe and Mediterranean xii
Africa xiii
Asia xiv
America . . . xv
Arctic xvi
E. Indies, Australasia and S. Seas xvii

Abyssinia and Eritrea .. 2
Afghanistan 18
Africa 35
Alaska 40
Albania 60
Alsace-Lorraine 76
America, North 96
Amsterdam 102
Anatolia 126
Andalusia 138
Angola 172
Antarctica 190
Antwerp 214
Arabia 224
Arctic Lands 260
Argentina 289
Armenia 310
Asia 320
Assam 326
Athens 338
Atlantic Islands 368
Australia 414
Austria 462
Bagdad 498
Balearic Islands 518
Barbary States 534
Barcelona 630
Belgium 655
Belgrade 694
Bengal, Bihar and Orissa .. 704

The Editor explains the plan and purpose of this work



OUT of the world-wide favour extended to "Peoples of All Nations" and the natural association of ideas the present work has been born. Correspondents in all parts of the world—not merely Britons abroad, but many men and women of alien race and religion—have written to me in appreciation of the literary and pictorial merits of the popular publication to which COUNTRIES OF THE WORLD is now offered as a companion, and from their suggestions and my own inclination of mind this new and original work has taken shape.

Just as its predecessor was removed as far as possible from the condition of a technical treatise on anthropology, ethnography, or history, while combining all three and adding an unrivalled and alluring pageant of the races of mankind in their habit as they live, so is COUNTRIES OF THE WORLD scrupulously unlike any "geography book" one has ever seen, and yet it is geographic in the best and every sense of the word. Stark geography is a cold and cheerless theme; but geography plus human interest can be made to fascinate while it informs.

NO branch of public education has been slower to "popularise" itself than geography, yet none has finer opportunities for being made humanly interesting. We come into touch with it as soon as we have asked anyone to tell us the road to somewhere. Every day of our lives—if they are full and useful lives—we have need of geographical knowledge, and yet until very recent years no science was so neglected of

our teachers. To know the names of the continents and oceans, the principal countries and their capital cities, the longest rivers and the highest mountains, and to be able to distinguish the various natural forms, such as cape, peninsula, and island, was too long esteemed an ample "grounding." But that is all changed now, and the scientific has not only condescended to be interesting, it has even gone so far as to be amusing.

The Newer Geography

A YOUTH trained under the latest geographical system is said to have been asked to state where and what was Constantinople. He did not know, but he blithely said to his interrogator: "If you will tell me where it is, I will tell you why it's there." An untrue story, no doubt; yet an admirable criticism of some of the newer methods in making geography a living thing and something more than the memorising of meaningless names.

One ought to know where Constantinople is, but equally important to know are the reasons why that particular part of the earth's surface has been for nearly two thousand years the inevitable site of one of the most important cities. The newer geography seeks to make this plain to the student. Teachers are striving to make geography interesting and succeeding splendidly. To aid them and to further a branch of knowledge so vital to all comes COUNTRIES OF THE WORLD.

ONE of the happiest comments passed upon "Peoples of All Nations" was the following by Sir Thomas Holdich, an illustrious veteran of geography:

"Now that the 'Peoples of All Nations' is so near its conclusion may I congratulate you on its success? In my opinion it is a permanently useful educational work, dealing with the characteristics and dress of nationalities at an epoch in time marked by the Great European War. It will become more and more valuable for reference as time moves on. I have been charmed with much of the descriptive writing. . . . If I may make a suggestion it is that your new geographical work, COUNTRIES OF THE WORLD, should also mark an epoch and deal not only with the geography of communications, but with the relation between the lands and their people—i.e. their economic possibilities—which, at the present time, is the great question of the hour."

Sir Thomas Holdich's ideal of COUNTRIES OF THE WORLD is essentially the same as its editor's. Just as with camera and pen we have surveyed the inhabitants of the world as they exist to-day and registered the results of our survey not merely for the edification of the reader of the present, but for the instruction of the student and the historian of the future, so shall we in the work to which these pages are introductory present a complete photo-geographic survey of the physical aspects of the earth itself and the great cities and monuments that man has built upon it as these may still be seen by the traveller.

Some Points of Difference

COUNTRIES OF THE WORLD differs radically and in so many ways from the familiar gazetteers and geographies of an earlier day and, indeed, from most geographical works of to-day, that I cannot attempt here to illustrate in any detail these points of difference. A few only I shall specify.

The arrangement of the work is *not* geographical. We might have imagined a journey round the world, proceeding, say, from England through Europe and Asia to North America, and southward to Cape Horn, then to Oceania and Australia, returning home by Africa. But the pictorial effect of that would have been less varied than that of the alphabetical arrangement which has been adopted, and it would have been less easy of reference when one wished, later on, to re-read the description of this country or that city.

The areas into which we have plotted out the earth's surface are mainly natural geographical units or groups — not national nor political—but occasionally

a unit has been chosen for some consideration other than the purely geographic. Thus, we have taken Bohemia out of Czechoslovakia not solely because it is a country that does possess certain natural boundaries, but because it bears an old familiar name.

GEOGRAPHY has had little to do with the naming of the Balkan States as they exist to-day, and the large area sometimes called Yugo-Slavia or, officially, the Kingdom of the Serbs, Croats, and Slovenes—a name that lacks every element of permanence—appears in our pages as (a) Serbia and (b) Bosnia and Herzegovina, both of these being distinct geographical entities, and bearing familiar, non-political names.

Then, while we find in North Africa geographical areas of a definite character, such as the Barbary States—a group of three political units—Sahara, Sudan, Guinea Lands, etc., in South America, where the continent is divided into north and south sections by its "relief," and into east and west zones by its climate, the political units form a more convenient subdivision.

Key Maps of our Contents

OUR series of key maps shows in a graphic way the method of division that has been followed. A glance at India (p. xiv) will illustrate the thoroughness of that method, while the list of chapters in pp. viii-ix will enable the reader to find his way about our pages with a minimum of difficulty.

In addition to the descriptions of the different countries, there are brief geographical studies of each of the continents and of India, and a series of chapters on the chief cities. The selection of these cities has been made on quite arbitrary lines. It would not have been practicable, on the one hand, merely to fix a population standard, or satisfactory, on the other, to have confined the list to capital cities. Nobody would suggest, for instance, that Ottawa is as worthy of a separate chapter as Toronto or Montreal. Individual character, historic association, and commercial importance have chiefly determined the selection; but especially the first and second considerations. And, of course, no city of any importance is entirely omitted. Florence, for example, is dealt with in the chapter on Tuscany, Bogotá in that on Colombia, while the great industrial cities of England and the United States are included in the general descriptions of these countries. Chiefly, the separate treatment of certain cities heightens the "human interest" of our work and all that adds to variety is to be welcomed.

A Brilliant Band of Contributors

IN its contributors, also, COUNTRIES OF THE WORLD differs from the conventional geographical work. They are, with hardly an exception, explorers, travellers and observers, many of them world-famous as authors, who write of lands where they have sojourned, and about cities they have visited. In this way our work may claim a measure of authority—apart from that vividness of description which comes from writing of "things seen"—to which none of the usual geographies or gazetteers can pretend.

While no editorial restraint has been put upon the contributors, so that all have been free to express themselves in their various characteristic ways, an elaborately prepared "ground plan" for each chapter of the work has been supplied to each writer with the object of securing a certain mean of treatment throughout the whole.

EACH contribution begins with a brief generalisation, the object of which is to show why the area described may be regarded as a geographical unit, and, at the same time, to define as clearly as possible its position, size, shape, and boundaries. The writer then proceeds with the description of the general aspect of the country, covered by such uninspiring words as "relief, soil, and

climate." He next deals with the subject of vegetation, natural and artificial, the one comprising those old friends of our schooldays, "flora and fauna," and the other a description of man's fight with nature, or, in tamer words, agriculture and stock-breeding.

Geology next claims attention, followed by some reference to the primary occupations, such as fishing and forestry, and the secondary occupations which are represented by the multitudinous branches of modern trade. An important matter next in order is the question of communications, internal and external transport; then trade generally, followed by some description of the cities, towns, and villages of the country, the survey concluding with some reference to the characteristics of the inhabitants, chiefly from the point of view of geographical influence upon them.

How "Human Interest" is Secured

IT will readily be seen, from this brief description of the "skeleton" of our work, how lifeless a body might have been produced by the old methods of geographical writing; but by enlisting the services of a brilliant band of travel authors, all of notable individuality, and inviting them to fill in the editorial outline in whatever manner is best fitted their personal tastes, it has been possible to preserve all the merits of a scientific geographical work, while adding the attractive quality of "human interest" and variety of treatment.

ON the pictorial side, COUNTRIES OF THE WORLD would be unique were it not that "Peoples of All Nations" had already set the standard which is here maintained and, so far as quantity is concerned, improved upon; for we cannot hope to excel in point of quality the coloured, photogravure, or text illustrations of that work. But in wealth of colour plates not even its forerunner can compare with COUNTRIES OF THE WORLD, and I would point out that these plates, which are coloured with minute care from the most accurate data obtainable, never become artists' impressions, but remain, as they are intended to be, *photographic documents*, the colours being applied with such skill that the realistic quality of the photograph is not impaired.

Original Photographic Documents

ANOTHER point to be observed in connexion with our illustrations is the fact that the majority of these are here printed *for the first time*. While it has been possible to secure about one million words of entirely original writing by some hundred and thirty distinguished authors, to gather upwards of 5,000 unpublished photographs of scenes throughout the world would have been a more formidable undertaking. Yet a large proportion of our illustrations—if not, indeed, the majority—has been obtained from travellers who are amateurs of the camera, and from professional photographers who have placed their latest unpublished films at our disposal; so that beyond their intrinsic beauty and interest, and in addition to the effective manner of their reproduction, our pictures as a whole possess the further merit of being hitherto unpublished.

IT is expected that the appeal of COUNTRIES OF THE WORLD will be mainly to a wide and non-specialised audience. No matter what one's vocation may be, a knowledge of geography is essential to every man or woman with the slightest pretension to culture. Our work, therefore, is so planned that it should attract the general reading public in the first instance, but from the fact that its foundations are laid in accordance with the latest ideas find ng favour among the most enterprising teachers of geography, I am not without the hope that even those who specialise in geographical study will here find a work, unique in character, which may prove of real help in the furtherance of one of the most important branches of popular education.

J. A. H.

SOME REPRESENTATIVE CONTRIBUTORS

THESE seventy portraits of distinguished travel-writers are not offered as the most noteworthy, but as representative of the whole brilliant staff of 130, whose contributions make COUNTRIES OF THE WORLD the most authoritative, as it is the most attractive, geographical work ever offered to the world-wide audience that reads the English language



F. BRITTEN AUSTIN
Novelist, traveller and playwright. Contributes a fascinating descriptive study of Venice



HENRY BAERLEIN
Author of The Shade of the Balkans, A Difficult Frontier, etc. Deals with Albania, Czechoslovakia



Col. GRANVILLE BAKER
Author, The Danube with Pen and Pencil, etc. Describes Bohemia, Prague, Silesia, South Germany



Hon. MAURICE BARING
Essayist and special correspondent; a foremost authority on things Russian. Contributes Russia



T. ALEXANDER BARNS
Explorer, naturalist. Author, Wonderland of the Congo. Describes Congo, French and Belgian



J. O. P. BLAND
Authority on Chinese and Japanese subjects. "Times" correspondent. Describes Korea, Peking



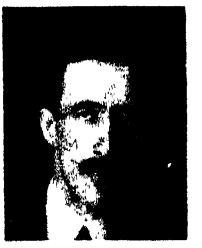
BOYD CABLE
Traveller, novelist and descriptive writer. Supplies pen-pictures of Melbourne, New Zealand, Tasmania



EMILE CAMMAERTS
Belgian poet. Author, Belgium from Roman Invasion to Present Day. Writes on Antwerp



EDMUND CANDLER
Official Eye-Witness Mesopotamia, 1915-18. Describes Kashmir and Himalaya, Mesopotamia, Tibet



DOUGLAS CARRUTHERS
Naturalist and explorer in Mongolia, Turkestan and Central Asia. Contributes Mongolia



Sir BASIL CLARKE
Journalist and war correspondent in numerous campaigns. Writes description of Cologne



ARTHUR CORBETT-SMITH
Authority on Chinese questions. Author, China and Her People, etc. Contributes China, Shanghai



HENRY D. DAVRAY
Literary editor "Les Nouvelles" and special correspondent to Paris journals. Writes on France



W. H. DAWSON
Sociologist, educationist and author. Describes Danzig, Hamburg, North Germany



Rev. PERCY DEARMER
Professor of Ecclesiastical Art. Author, Highways and Byways in Normandy. Describes Normandy



FRANK DILNOT
Author and traveller. Author, The New America. Contributes description of the United States

ROY ELSTON
Author of Constantinople, Gallipoli, Asia Minor. Writes on Constantinople and Turkey in Europe

FLORENCE FARMBOROUGH
Traveller, linguist. Authority on modern Europe. Describes Bukarest, Dobruja, Poland, Warsaw



ROSITA FORBES
Explorer. Author of The Secret of the Sahara-Kufara. Contributes description of Arabia



Sir J. FOSTER FRASER
Traveller and special correspondent. Author, America at Work, etc. Describes Chicago

Sir BAMPFYLDE FULLER

Late member Indian Viceregal Council. Author, Empire of India, etc Contributes survey of Assam

W. L. GEORGE

Novelist and author of Hail, Columbia! Writes a fascinating chapter on the city of Boston

Sir PHILIP GIBBS

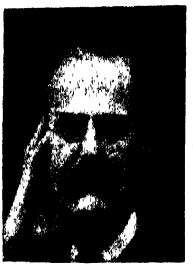
Novelist, editor and war correspondent Author, The Hope of Europe. Writes on Moscow

Mrs. WILLIAM GORDON

Traveller and author, A Woman in the Balkans, Rumania Yesterday and To-day. Describes Rumania

STEPHEN GRAHAM

Author, travel-writer and special correspondent. Contributes chapters on Mexico, Mexico City











ARTHUR GRAY

Master of Jesus College, Cambridge. Author, Cambridge and its Story, etc. Writes on Cambridge

FRANCIS GRIBBLE

Novelist and traveller Authority on Switzerland Describes Geneva and Switzerland

CECIL HEADLAM

Traveller and author of Venetia and Northern Italy, etc Describes South Italy and Tuscany

C. LEWIS HIND

Editor, critic and travel Author, Things seen in America, etc. Writes on Philadelphia

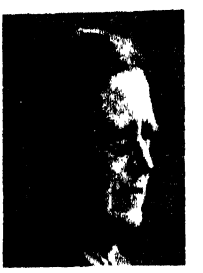
E. A. BRAYLEY HODGETTS

Economist and historian Authority on Russia and Germany Describes Berlin, Petrograd









Sir THOMAS HOLDICH

Authority on Indian questions. Author, Indian Borderland, etc Describes India, Punjab, Rajputana

GORDON HOME

Artist and editor. Author, Along the Riviera of France and Italy Writes on Malta, Riviera Tripoli

Very Rev. Dean INGE

Eminent essayist and sociologist Dean of St Paul's and authority on London Describes London

JEROME K. JEROME

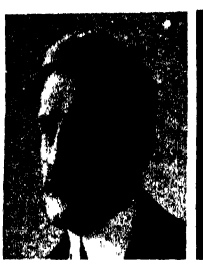
Novelist, critic, dramatist and traveller Contributes an illuminating description of Dresden

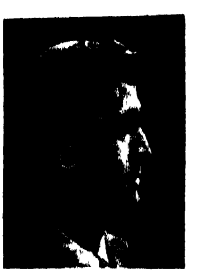
WALTER JERROLD

Journalist, critic and traveller Author, The Danube, etc. Describes Buda-Pest, Hungary









HENRY LEACH

Journalist and traveller. Contributes Andalusia, Barbary States, Barcelona, Portugal, Spain

EVANS LEWIN

Librarian, R.C.I Author, German Rule in Africa Describes Africa, Guinea Lands, Natal, etc

EDWARD E. LONG

Authority on Indian subjects. Describes Bengal, etc., Central India, Delhi, Madras, Southern India

Col. ARTHUR LYNCH

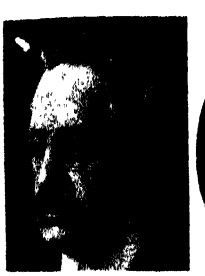
Author of many critical and technical works in English and French. Contributes study of Paris

ROBERT LYND

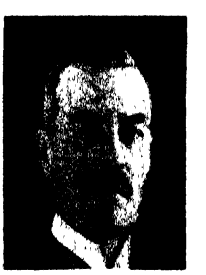
Critic and editor. Author, Irish and English, Ireland a Nation, etc. Writes account of Ireland











Sir GEORGE MACARTNEY

Late British Consul-General, Kashgar. Member Pamir Commission Describes Turkistan

F. A. MACKENZIE

Journalist with intimate experience of Russia. Author, Russia Before Dawn, etc. Writes Siberia

Sir HALFORD MACKINDER

Former President Geographical Section, British Assoc. Author. Contributes chapter on England

G. E. MITTON (Lady Scott)

Author, The Lost Cities of Ceylon and other books of travel. Writes description of Ceylon

C. A. W. MONCKTON

Author of Some Experiences of a New Guinea Resident. Contributes chapter on New Guinea



Dr. J. MORGAN-DE-GROOT

Novelist and foremost authority on Dutch subjects. Contributes descriptive study of Amsterdam



NEIL MUNRO

Author and journalist. Editor, Glasgow Evening News. Writes description of the city of Glasgow



H. W. NEVINSON

Traveller and war correspondent. Author, The Dawn in Russia. Writes account of Caucasia



Sir PERCIVAL PHILLIPS

War correspondent, Balkan and Great Wars. Contributes accounts of Bagdad and Belgrade



MARMADUKE PICKTHALL

Eastern traveller and author. Writes on Bombay and Gujarat and Bombay City



CRAWFURD PRICE

Authority and writer on South-Eastern Europe. Contributes accounts of Austria and Vienna



Sir WILLIAM RAMSAY

Foremost authority on history of Asia Minor. Author of many standard works. Writes on Anatolia



CHARLES F. REY

Author, Unconquered Abyssinia. Organizer of British trade. Writes on Abyssinia and Eritrea



Major OWEN RUTTER

Many years resident in Far East. Author, British North Borneo. Contributes Borneo and Formosa



Prof. CHARLES SAROLEA

Professor of French Literature, Edinburgh University. Writes a vivid description of Belgium



Sir GEORGE SCOTT

Late member of Anglo-Siamese Boundary Commission. Author of many works. Writes on Siam



J. W. ROBERTSON-SCOTT

Agricultural Commissioner Netherlands and Denmark. Author. Writes on Denmark and Japan



HAROLD SPENDER

Novelist, journalist and University Extension Lecturer. Contributes Greece and Sofia



Col. J. B. STATHAM

African explorer. Author of Through Angola. Contributes a picturesque description of Angola



VILHJALMUR STEFANSSON

Has conducted extensive Arctic explorations. Author. Writes on Alaska and Arctic Lands



Sir PERCY SYKES

Foremost authority on Persia. Author, Ten Thousand Miles in Persia. Contributes Persia



Sir W. BEACH THOMAS

Traveller and war correspondent. Author, To-day in Greater Britain. Deals with Australia, Sydney



Sir BASIL THOMSON

Author, Discovery of the Solomon Islands. Writes on Fiji Islands, Samoa, South Sea Islands



KATHARINE TYNAN

Poet and novelist. Author of many notable works in prose and verse. Writes of her native city, Dublin



HUGH WALPOLE

Celebrated novelist and travel-writer. Contributes a brilliant study of the city of New York



F. KINGDON WARD

Author and explorer. Author of In Farthest Burma, Mystery Rivers of Tibet. Writes on Burma



JOSEPH WELLS

Warden of Wadham College, Oxford. Author, Oxford and its Colleges, etc. Describes Oxford



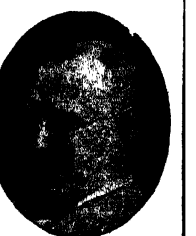
VALENTINE WILLIAMS

Prominent journalist and special correspondent in many lands. Contributes account of Cairo



BECKLES WILLSON

Author, Newfoundland, the Tenth Island, etc. Writes Montreal, Newfoundland, Quebec



Sir BERTRAM WINDLE

Historian and Professor of Anthropology. Contributes picturesque description of Toronto

CONTINENTS COUNTRIES & CITIES

in the order of their treatment in Countries of the World

IN the subjoined list the names in capital letters are those of the consecutive chapters of our work, the arrangement of which is alphabetical. It is not, of course, a complete list of the places described, for which the reader must consult the General Index at the end. A perusal of these two pages, however, will help to make clear our editorial plan. Wherever a country is dealt with under a heading that might be thought unusual—example, "Ashanti *v.* Guinea Lands"—reference is given. Great cities, such as Liverpool and Pittsburg, which are not the subject of separate chapters, do not appear here, as they are described under England, United States, etc. But if there might be doubt as to the main article—example, "Cadiz *v.* Andalusia" (where "Spain" might be expected)—direction is given. None of the states of the U.S.A. is the subject of an individual chapter

Aaland Is. *v.* Finland, etc.
ABYSSINIA & ERITREA
Accra *v.* Guinea Lands
Aden *v.* Arabia
Aegean Is. *v.* Greece
AFGHANISTAN
AFRICA
Ahmadabad *v.* Bombay, etc.
ALASKA
ALBANIA
Alberta *v.* Canada
Alexandria *v.* Egypt
Algeria *v.* Barbary States
Allahabad *v.* India, Central
ALSACE-LORRAINE
AMERICA, NORTH
America, South, *v.* South America
AMSTERDAM
ANATOLIA
ANDALUSIA
Andaman Is. *v.* Indian Oc.
Andorra *v.* Spain
Anglo-Egyptian Sudan *v.* Sudan
ANGOLA
Annam *v.* Indo-China
ANTARCTICA
ANTWERP
ARABIA
ARCTIC LANDS
Ardennes *v.* Belgium
ARGENTINA
ARMENIA
Ashanti *v.* Guinea Lands
ASIA
Asia Minor *v.* Anatolia
ASSAM
ATHENS
ATLANTIC ISLANDS
AUSTRALIA
AUSTRIA
Azerbaijan *v.* Caucasia

Baden *v.* Germany, South
BAGDAD
Bahamas *v.* West Indies
BALEARIC ISLANDS
Balkan Peninsula *v.* Europe, Bulgaria, Greece, Serbia
Baluchistan *v.* Rajputana
Bangalore *v.* India, S'thern
Barbados *v.* West Indies
BARBARY STATES (Morocco, Algeria, Tunisia)
BARCELONA
Baroda *v.* Bombay, etc.
Basutoland *v.* South Africa
Batavia *v.* Malay Archip'go
Bavaria *v.* Germany, South
Bechuanaland *v.* S. Africa
Belgian Congo *v.* Congo
BELGIUM
BELGRADE
BENGAL, BIHAR, and ORISSA
BERLIN
Bermudas *v.* Atlantic Is.
Bessarabia *v.* Rumania
Bhutan *v.* Kashmir, etc.
Bogota *v.* Colombia
BOHEMIA
Bokhara *v.* Turkistan
BOLIVIA
BOMBAY & GUJARAT
BOMBAY, City
BORNEO
BOSNIA and HERZEGOVINA
BOSTON, U.S.A.
Bratislava *v.* Czechoslovakia
BRAZIL
Bremen *v.* Germany, North
Breslau *v.* Silesia
Brest *v.* Brittany
British Columbia *v.* Canada
British Guiana *v.* Guianas
British Honduras *v.* Central America
BRITTANY
Brunswick *v.* Germany, N.
BRUSSELS
BUDAPEST
BUENOS AIRES
BUKAREST
Bukovina *v.* Rumania
Bulawayo *v.* South Africa
BULGARIA
BURMA

Cadiz *v.* Andalusia
Caen *v.* Normandy
CAIRO
Calabria *v.* Italy, South
CALCUTTA
Cambodia *v.* Indo-China
CAMBRIDGE
Cameroon *v.* Guinea Lands
CANADA
Canary Is. *v.* Atlantic Is.
CANTON
Cape Breton I. *v.* Canada
CAPE OF GOOD HOPE
C. Verde Is. *v.* Atlantic Is.
Carinthia *v.* Austria
Carnatic *v.* India, Southern
Carniola *v.* Serbia
Caroline Is. *v.* Pacific Is., N.
Catalonia *v.* Spain
CAUCASIA
Cawnpore *v.* India, Central
Cayman Is. *v.* West Indies
Celebes *v.* Malay Archip'go
CENTRAL AMERICA
Central Provinces *v.* India, Central
Cetigne *v.* Serbia
CEYLON
Channel Is. *v.* England
Chatham Is. *v.* New Zealand
CHICAGO
CHILE
CHINA
Chitral *v.* Kashmir, etc.
Chosen *v.* Korea
CHRISTIANIA
Christmas I. *v* Indian Oc.
Christmas I. *v.* Pacific Is., N.
Cilicia *v.* Anatolia
Cochin *v.* India, Southern
Cochin China *v.* Indo China
COLOGNE
COLOMBIA
Colon *v.* Central America
CONGO, French & Belgian
CONSTANTINOPLE
COPENHAGEN
Corfu *v.* Mediterranean Sea
CORSICA
Costa Rica *v.* Cen. America
CRETE
Crimea *v.* Russia
Croatia *v.* Serbia
CUBA
Cutch *v.* Bombay & Gujarat
CYPRUS
Cyrenaica *v.* Tripoli
CZECHOSLOVAKIA

Dahomey *v.* Guinea Lands
Dalmatia *v.* Serbia
DAMASCUS
DANZIG
DELHI
DENMARK
DOBRUJA
DRESDEN
DUBLIN
Dutch East Indies *v.* Malay Archipelago
Dutch Guiana *v.* Guianas

EAST AFRICA (Kenya, Mozambique, Tanganyika Territory, Uganda)
ECUADOR
EDINBURGH
EGYPT
ENGLAND
Equatorial West Africa *v.* Guinea Lands
Esthonia *v.* Finland, etc.
EUROPE
Falkland Is. *v.* Atlantic Is.
Fanning Is. *v.* Pacific Is., N.
Faroe Is. *v.* Atlantic Is.
Federated Malay States *v.* Malaya
Fez *v.* Barbary States
FIJI ISLANDS
FINLAND & OTHER BALTIC LANDS
Fiume *v.* Italy, North
Flanders *v.* France, Belgium
Florence *v.* Tuscany
FORMOSA
FRANCE
Friendly Is. *v.* South Sea Is.

Galapagos Is. *v.* Ecuador
Galicia *v.* Poland
Gallipoli *v.* Constantinople
Gambia *v.* Guinea Lands
GENEVA
Genoa *v.* Riviera; Italy, N.
Georgia *v.* Caucasia
GERMANY, NORTH
GERMANY, SOUTH
Gibraltar *v.* Spain
Gilbert Is. *v.* South Sea Is.
GLASGOW
Goa *v.* Bombay & Gujarat
Gold Coast *v.* Guinea Lands
GREECE
GREENLAND
Griqualand West *v.* Cape of Good Hope
Guadeloupe *v.* West Indies
Guam *v.* Pacific Is., North
Guatemala *v.* Cen. America
GUIANAS
GUINEA LANDS
Gwalior *v.* India, Central

Haiti *v.* West Indies
HAMBURG
Hanover *v.* Germany, North
Hawaii *v.* Pacific Is., North
Hejaz *v.* Arabia
Herzegovina *v.* Bosnia
HOLLAND
Honduras *v.* Cen. America
Hong Kong *v.* China
Honolulu *v.* Pacific Is., N.
HUNGARY
Hyderabad *v.* India, Central

ICELAND
INDIA. See also Assam, Bengal, Bombay, Kashmir, Punjab, Rajputana
INDIA, CENTRAL
INDIAN OCEAN & ITS ISLANDS
INDIA, SOUTHERN
INDO-CHINA
Ionian Is. *v.* Mediterranean Sea

IRELAND
ITALY, NORTH
ITALY, SOUTH
Ivory Coast *v.* Guinea Lands
JAMAICA
JAPAN
Java *v.* Malay Archipelago
JERUSALEM
Johannesburg *v.* Transvaal
Johore *v.* Malaya
Juan Fernandez Is. *v.* Chile
Jutland *v.* Denmark
Kamchatka *v.* Asia
Kandahar *v.* Afghanistan
Karachi *v.* Rajputana, etc.
Karroo *v.* South Africa
KASHMIR & OTHER HIMALAYAN LANDS
Keeling Is. *v.* Indian Ocean
Kenya *v.* East Africa
Khartum *v.* Sudan
Khiva *v.* Turkistan
KOREA
Kowelt *v.* Arabia
Kurdistan *v.* Mesopotamia

Labrador *v.* Canada
Labuan *v.* Borneo
Laccadive Is. *v.* Indian Oc.
Ladrones Is. *v.* Pacific Is., N.
Lagos *v.* Nigeria
Lahore *v.* Punjab, etc.
Lapland *v.* Sweden
Latvia *v.* Finland, etc.
Leeward Is. *v.* West Indies
Liberia *v.* Guinea Lands
Libya *v.* Tripoli
Liechtenstein *v.* Austria
LIMA
LISBON
Lithuania *v.* Finland, etc.
Lombardy *v.* Italy
LONDON
Lourenço Marques *v.* East Africa
Loyalty Is. *v.* South Sea Is.
LUXEMBURG

Macedonia *v.* Serbia
MADAGASCAR
Madeira *v.* Atlantic Islands
MADRAS, City
MADRID
Malabar Coast *v.* India, S.
Malacca *v.* Malaya
MALAYA
MALAY ARCHIPELAGO
Maldive Is. *v.* Indian Ocean
MALTA
MANCHURIA
Manitoba *v.* Canada
Marquesas *v.* South Sea Is.
Marshall Is. *v.* Pacific Is., N.
Mashonaland *v.* South Africa
Matabeleland *v.* S. Africa
Mauritius *v.* Indian Ocean
Mauritania *v.* Sahara
Mecca *v.* Arabia
MEDITERRANEAN SEA
Melanesia *v.* South Sea Is.
MELBOURNE
MESOPOTAMIA
MEXICO
Micronesia *v.* Pacific Is., N.
MILAN
Moldavia *v.* Rumania
Moluccas *v.* Malay Arch.
Mombasa *v.* East Africa
Monaco *v.* Riviera
MONGOLIA
Montenegro *v.* Serbia
MONTEVIDEO
MONTREAL
Moravia *v.* Czechoslovakia
Morocco *v.* Barbary States
MOSCOW
Mozambique *v.* East Africa
Munich *v.* Germany, South
Murman Coast *v.* Russia
Mysore *v.* India, Southern

Nagpur *v.* India, Central
NAPLES
NATAL
Nepal *v.* Kashmir, etc.
NEWFOUNDLAND
NEW GUINEA
New Hebrides Is. *v.* South Sea Islands
NEW ORLEANS
New South Wales *v.* Australia
NEW YORK
NEW ZEALAND
Nicaragua *v.* Cen. America
Nicobar Is. *v.* Indian Ocean
NIGERIA
Norfolk I. *v.* South Sea Is.
NORMANDY
North-West Frontier Province *v.* Punjab, etc.
NORWAY
Novaia Zemlia *v.* Arctic Lands
Nyasaland *v.* East Africa

Oceania *v.* South Sea Is.
Oman *v.* Arabia
Ontario *v.* Canada
Orange Free State *v.* South Africa
Ottawa *v.* Canada
Oudh *v.* India, Central
OXFORD

PACIFIC ISLANDS OF THE NORTH
Pacific Islands of the South *v.* South Sea Is., Fiji, New Guinea, etc.
Pahang *v.* Malaya
PALESTINE
PANAMA
Papua *v.* New Guinea
PARAGUAY
PARIS
PATAGONIA & TIERRA DEL FUEGO
PEKING
Pemba *v.* Zanzibar
Perak *v.* Malaya
PERSIA
Perth *v.* Australia
PERU
PETROGRAD
PHILADELPHIA
PHILIPPINE ISLANDS
Piedmont *v.* Italy, North
POLAND
Polynesia *v.* South Sea Is.
Pondicherri *v.* India, S.
Poona *v.* Bombay, etc.
Porto Rico *v.* West Indies
Port Said *v.* Egypt
PORTUGAL
PRAGUE
Pretoria *v.* Transvaal
Prince Edward Is. *v.* Canada
PROVENCE
Prussia *v.* Germany, North
PUNJAB & N.W. FRONTIER PROVINCE

QUEBEC, City
Queensland *v.* Australia

Ragusa *v.* Serbia
RAJPUTANA, SIND, & BALUCHISTAN
Rhodesia *v.* South Africa
Rif *v.* Barbary States
RIO DE JANEIRO
RIVIERA
ROME
Ross Dependency *v.* Antarctica
Ruhr *v.* Germany, North
RUMANIA
RUSSIA
Ruthenia *v.* Czechoslovakia

SAHARA
Saigon *v.* Indo-China
St. Helena *v.* Atlantic Is.
St. Lucia *v.* West Indies
St. Vincent *v.* West Indies
Sakhalien *v.* Japan
Salvador *v.* Central America
Samarkand *v.* Turkistan
SAMOA
Sandwich Is. *v.* Pacific Is., N.
SAN FRANCISCO
SANTIAGO
Santo Domingo *v.* W. Indies
SAO PAULO
Sarawak *v.* Borneo
SARDINIA
Saskatchewan *v.* Canada
Saxony *v.* Germany, North
Schleswig *v.* Germany, N.
Scilly Is. *v.* England
SCOTLAND
Selangor *v.* Malaya
Senegal *v.* Guinea Lands
SERBIA
Seychelles *v.* Indian Ocean
SHANGHAI
Shantung *v.* China
SIAM
SIBERIA
SICILY
Sierra Leone *v.* Guinea Lands
Sikkim *v.* Kashmir, etc.
SILESIA
Sind *v.* Rajputana, etc.
SINGAPORE
Sin-Kiang *v.* Turkistan
Slave Coast *v.* Guinea Lands
Slavonia *v.* Serbia
Slesvig *v.* Denmark
Smyrna *v.* Anatolia
Society Is. *v.* South Sea Is.
SOFIA
SOMALILAND
SOUTH AFRICA. See also Cape of Good Hope, Natal, Transvaal
SOUTH AMERICA
South Australia *v.* Australia
SOUTH SEA ISLANDS
South-West Africa Protectorate *v.* South Africa
SPAIN
Spitsbergen *v.* Arctic Lands
STOCKHOLM
Straits Settlements *v.* Malaya
SUDAN
Suez *v.* Egypt
Sumatra *v.* Malay Arch.
Sunda Is. *v.* Malay Arch.
Surinam *v.* Guianas
Swaziland *v.* South Africa
SWEDEN
SWITZERLAND
SYDNEY
SYRIA

Tahiti *v.* South Sea Is.
Tanganyika Territory *v.* East Africa
TASMANIA
Thuringia *v.* Germany, N.
TIBET
TOKYO
Tonga Is. *v.* South Sea Is.
Tong-king *v.* Indo-China
TORONTO
TRANSVAAL
Transylvania *v.* Rumania
Travancore *v.* India, S.
Trentino *v.* Italy, North
Trichinopoly *v.* India, S.
Trinidad *v.* West Indies
TRIPOLI
Tristan da Cunha *v.* Atlantic Islands
Tunis *v.* Barbary States
Turkey *v.* Constantinople, Anatolia
TURKISTAN
TUSCANY
TYROL

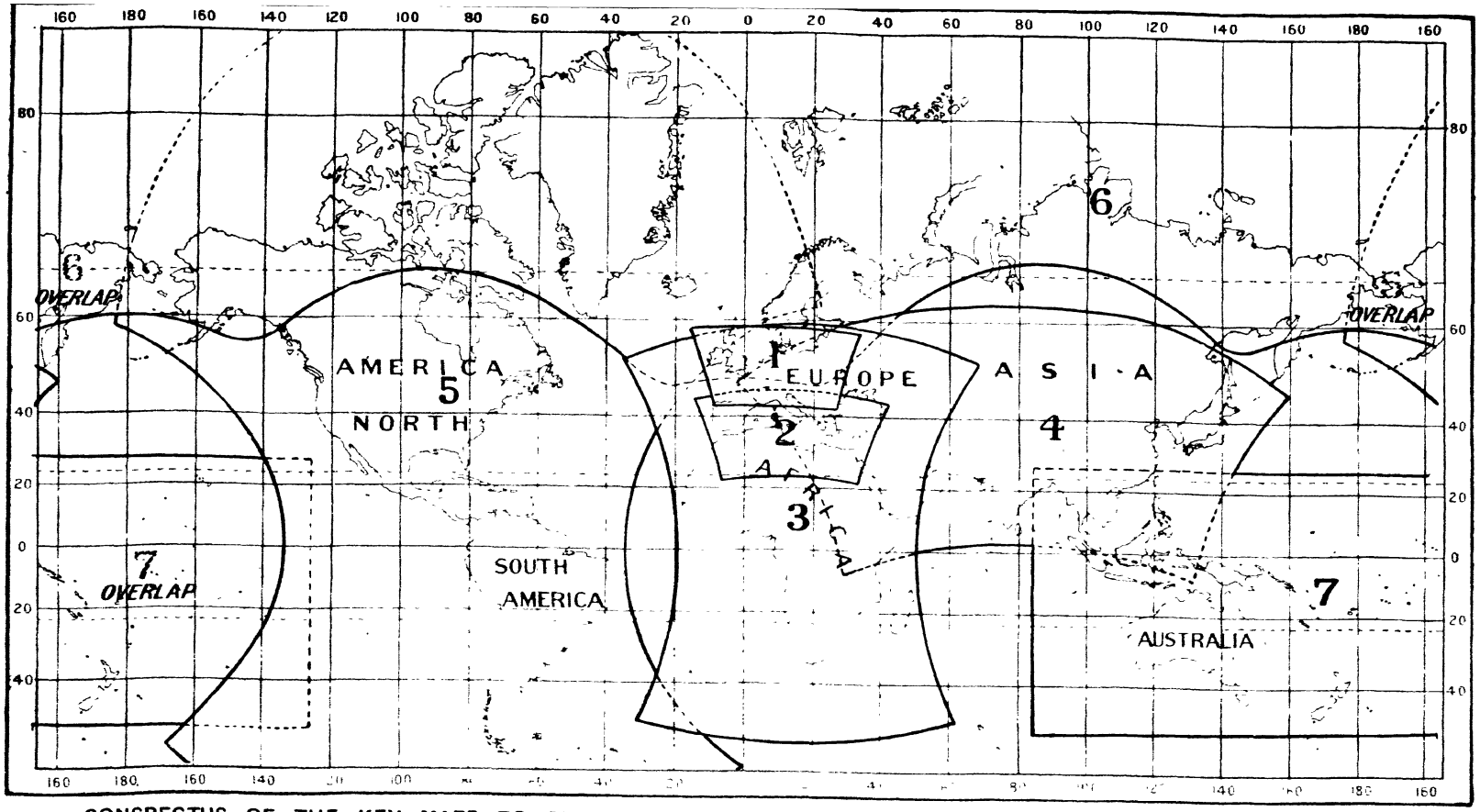
Uganda *v.* East Africa
Ukraine *v.* Russia
Ulster *v.* Ireland
Umbria *v.* Italy, South
United Provinces *v.* India, Central
UNITED STATES
URUGUAY

VENEZUELA
VENICE
Victoria *v.* Australia
VIENNA
Virgin Is. *v.* West Indies

WALES
Wallachia *v.* Rumania
WARSAW
WASHINGTON
Western Australia *v.* Australia
WEST INDIES
Westphalia *v.* Germany, N.
Windward Is. *v.* West Indies
WINNIPEG
Württemberg *v.* Germany, S.

Yemen *v.* Arabia
Yukon *v.* Canada
Yunnan *v.* China

ZANZIBAR & PEMBA
Zululand *v.* Natal



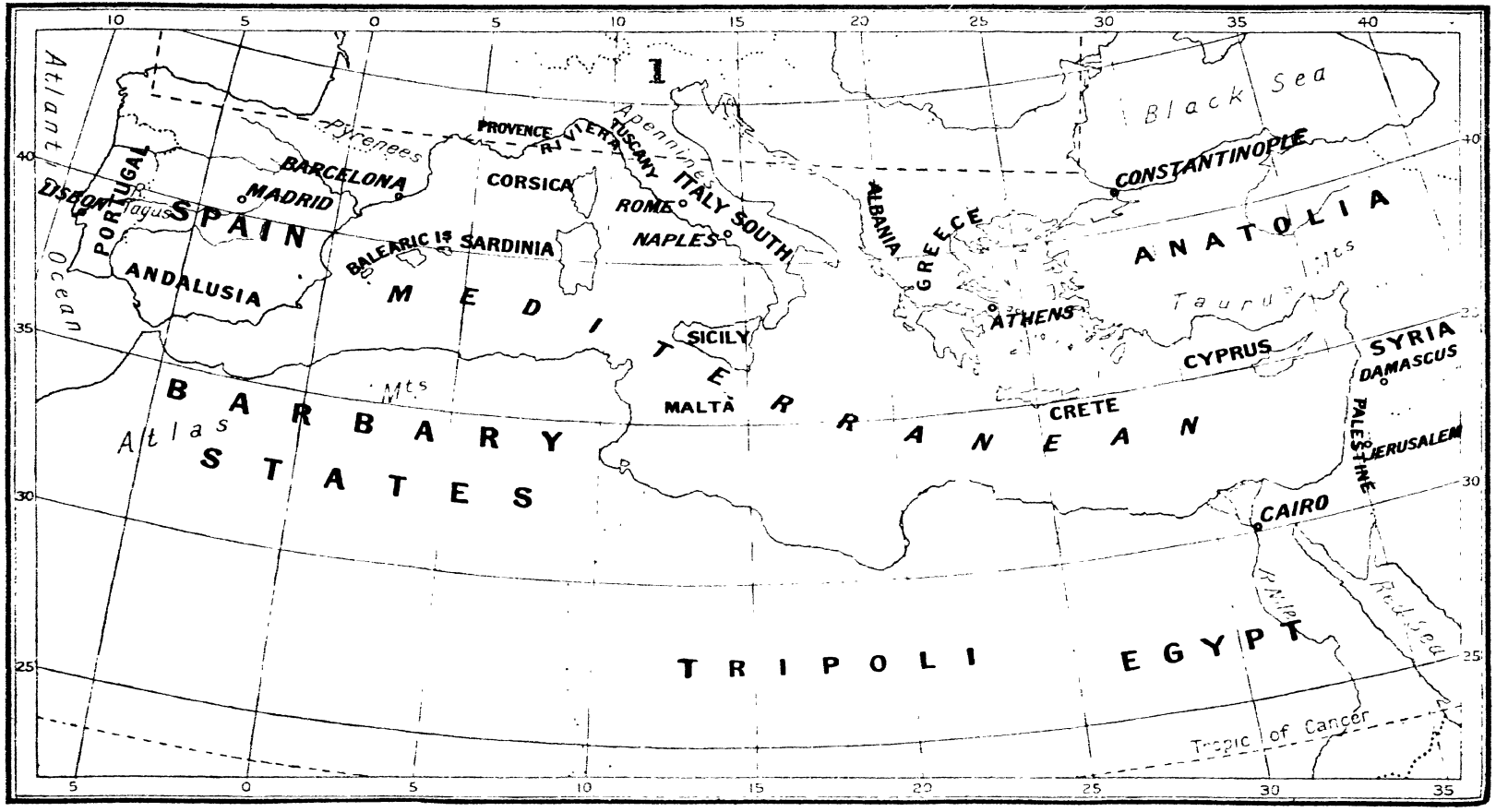
CONSPECTUS OF THE KEY MAPS TO OUR ALPHABETICALLY ARRANGED CHAPTERS DESCRIBING THE WORLD

In this outline of the world the areas covered by each of the seven key maps that follow are shown in the numbered spaces. Overlapping areas are indicated by dotted lines. Chapters dealing with Australasia and the East Indies are named in map No. 7. Greenland and Alaska appear in No. 6, but the bulk of the American chapters are specified by their titles in No. 5. For Italian subjects, reference is necessary to both No. 1 and No. 2



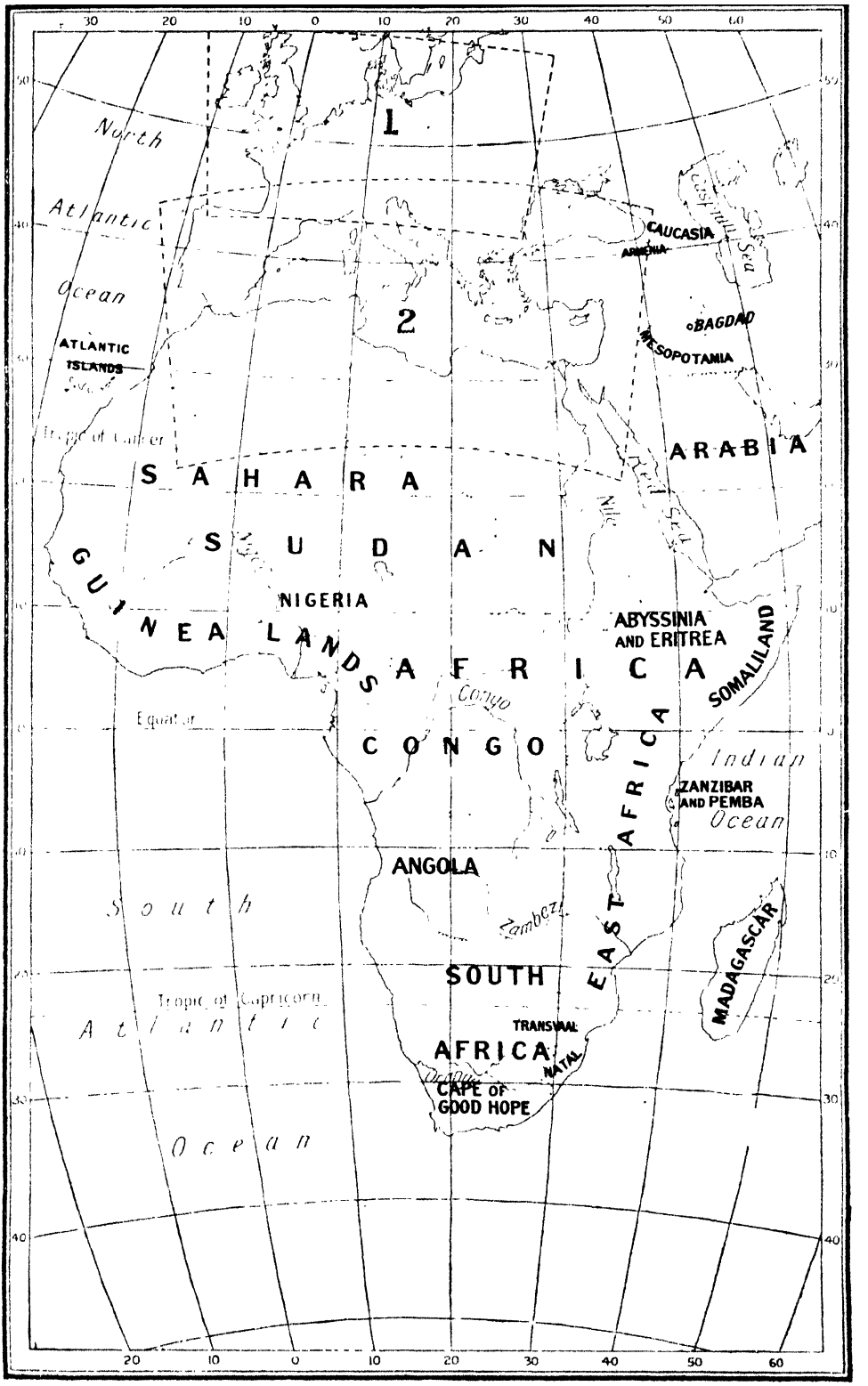
No. 1. KEY MAP TO THE COUNTRIES & CITIES OF NORTH, CENTRAL & WESTERN EUROPE SEPARATELY DESCRIBED

In all these key maps the names of countries and districts to which separate chapters are devoted are printed in Roman capitals; names of cities so treated are in Italic capitals. For Russia refer to No. 4, and for Spain and South Italy to No. 2. The map shows that ten chapters complete the description of the British Isles. Oxford and Cambridge are separately described, but descriptions of Manchester and other industrial cities will be found in the chapter on England



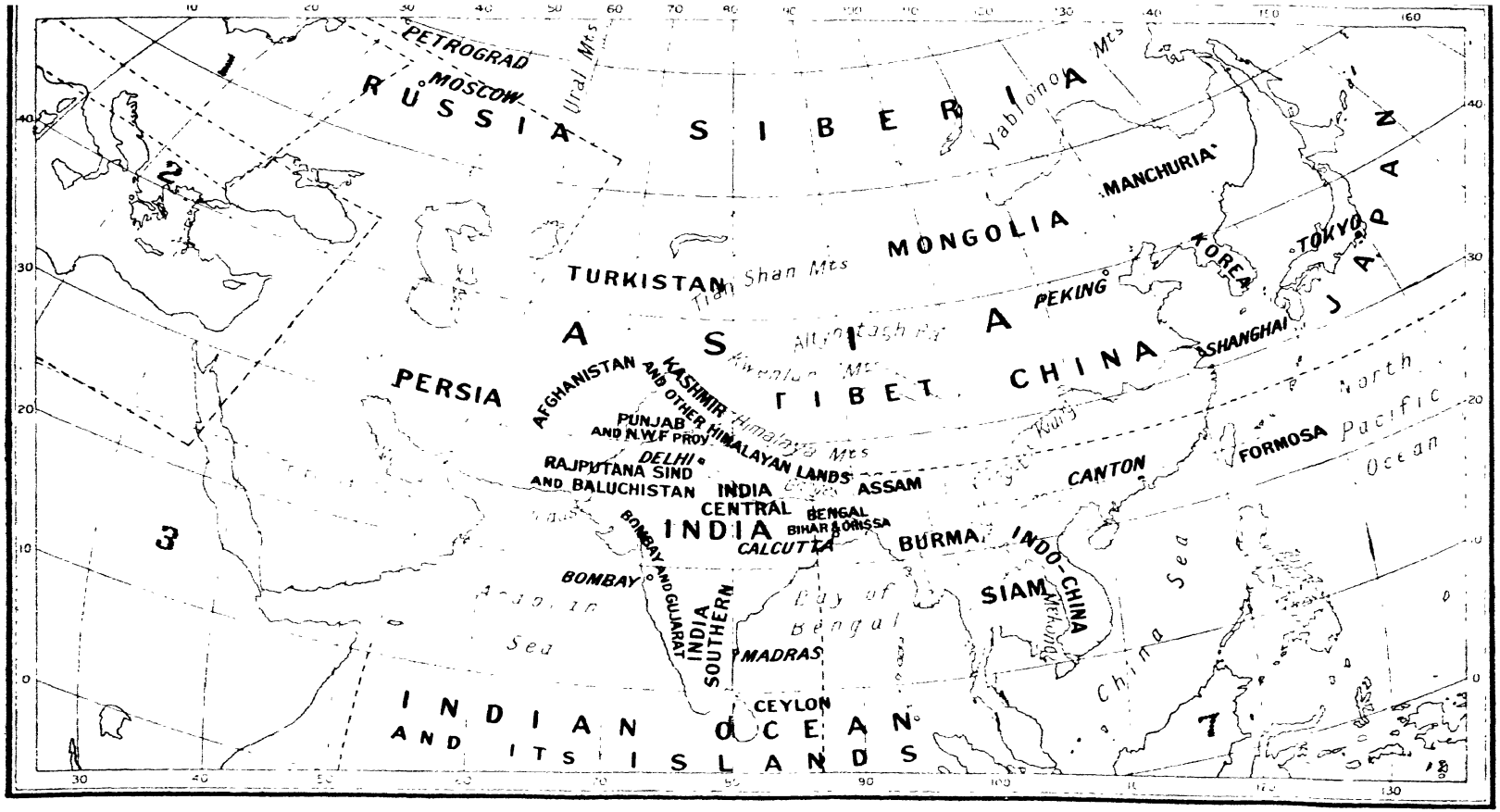
No. 2. KEY MAP TO THE COUNTRIES & CITIES OF SOUTHERN EUROPE AND THE MEDITERRANEAN AREA

For North Italy and the Danubian lands see No. 1. Morocco, Algeria, Tunisia, and their cities are included in the chapter on the Barbary States. Andalusia is the only district of Spain separately described. While the larger islands of the Mediterranean are individually treated, the smaller are included in the general study of the Mediterranean Sea. Genoa and Florence are described in the Riviera and Tuscany chapters respectively. For Gibraltar see Spain, for Smyrna see Anatolia



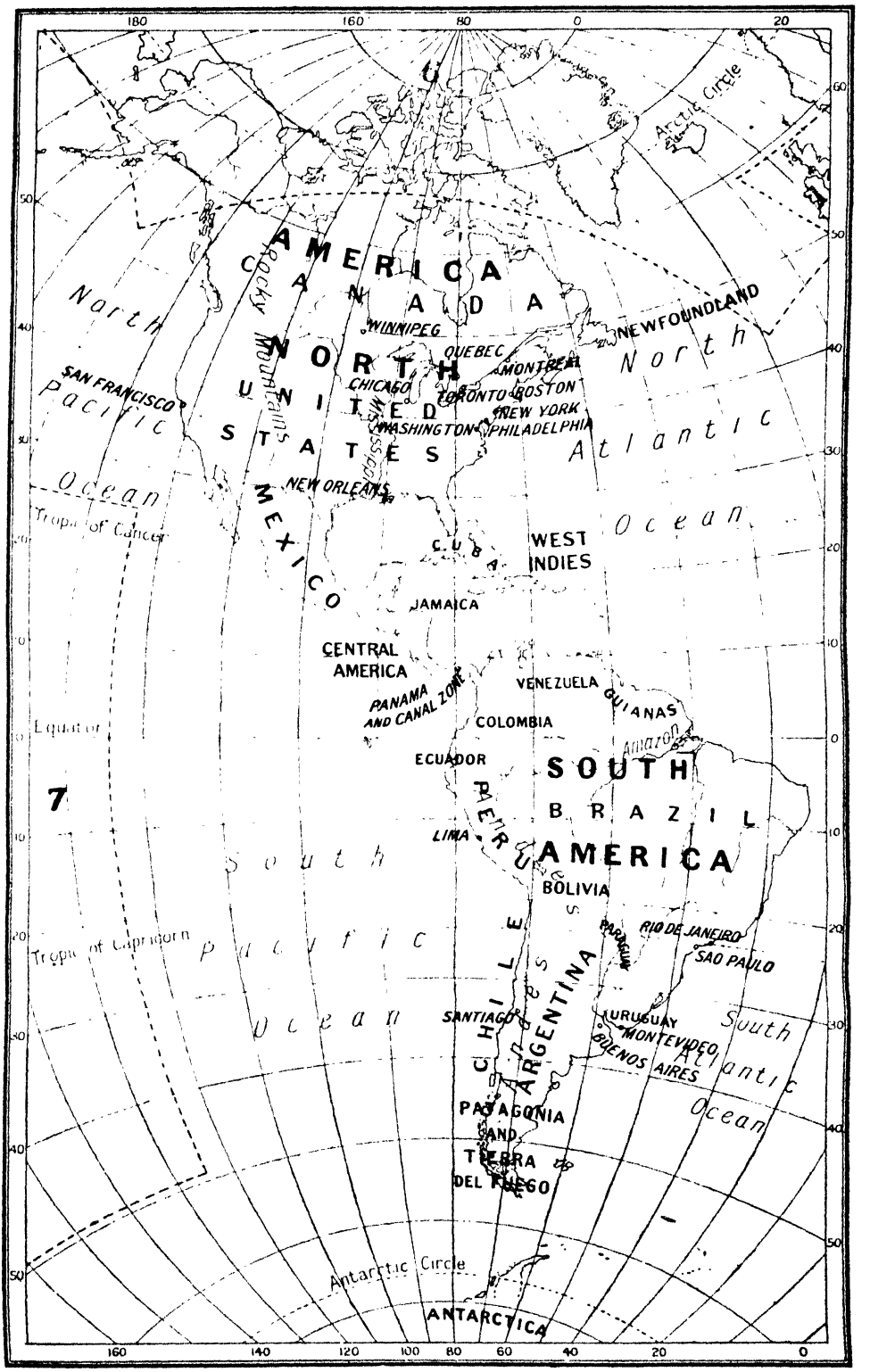
No. 3. KEY MAP TO THE DESCRIPTIVE CHAPTERS ON AFRICA

British possessions are described under South Africa, Cape of Good Hope, Transvaal, Natal, East Africa, Zanzibar and Pemba, Somaliland, Sudan, Nigeria, and Guinea Lands. For North Africa, the Levant and Asia Minor see No. 2, and for the Canary Islands see Atlantic Islands. No African city south of the Tropic of Cancer is described separately



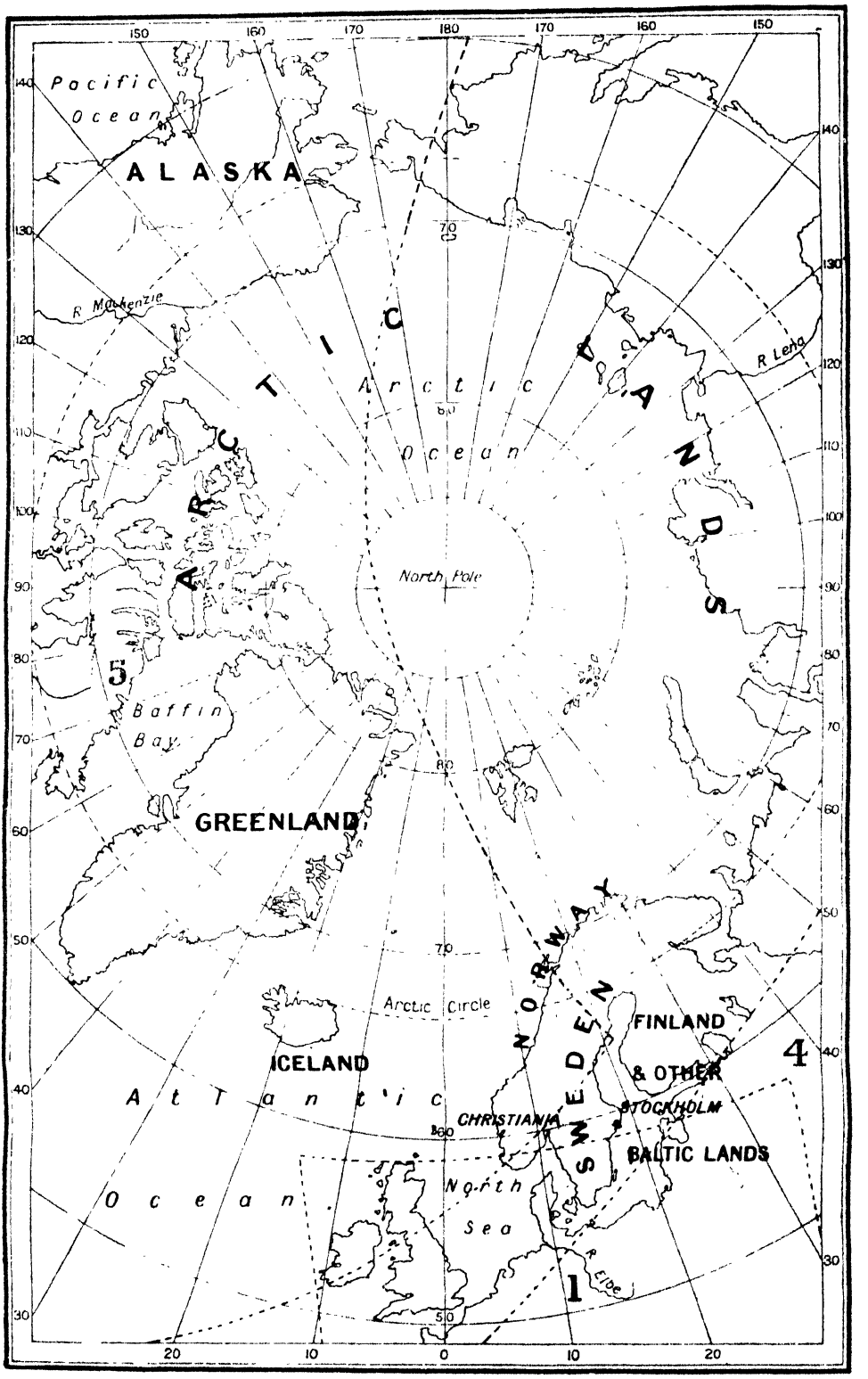
No. 4. KEY MAP TO CHAPTER TITLES RELATING TO ASIA AND PART OF EASTERN EUROPE

For the Malay Peninsula and the East Indies see No. 7, for Arabia see No. 3. The map indicates that in addition to the chapter on India, the Indian Empire is described under nine named districts and four cities Mauritius and other smaller islands are treated under the title Indian Ocean and Its Islands. Korea and Formosa, described separately, are referred to in the chapter on Japan, which contains descriptions of Yokohama and Nagasaki, but not of Tokyo



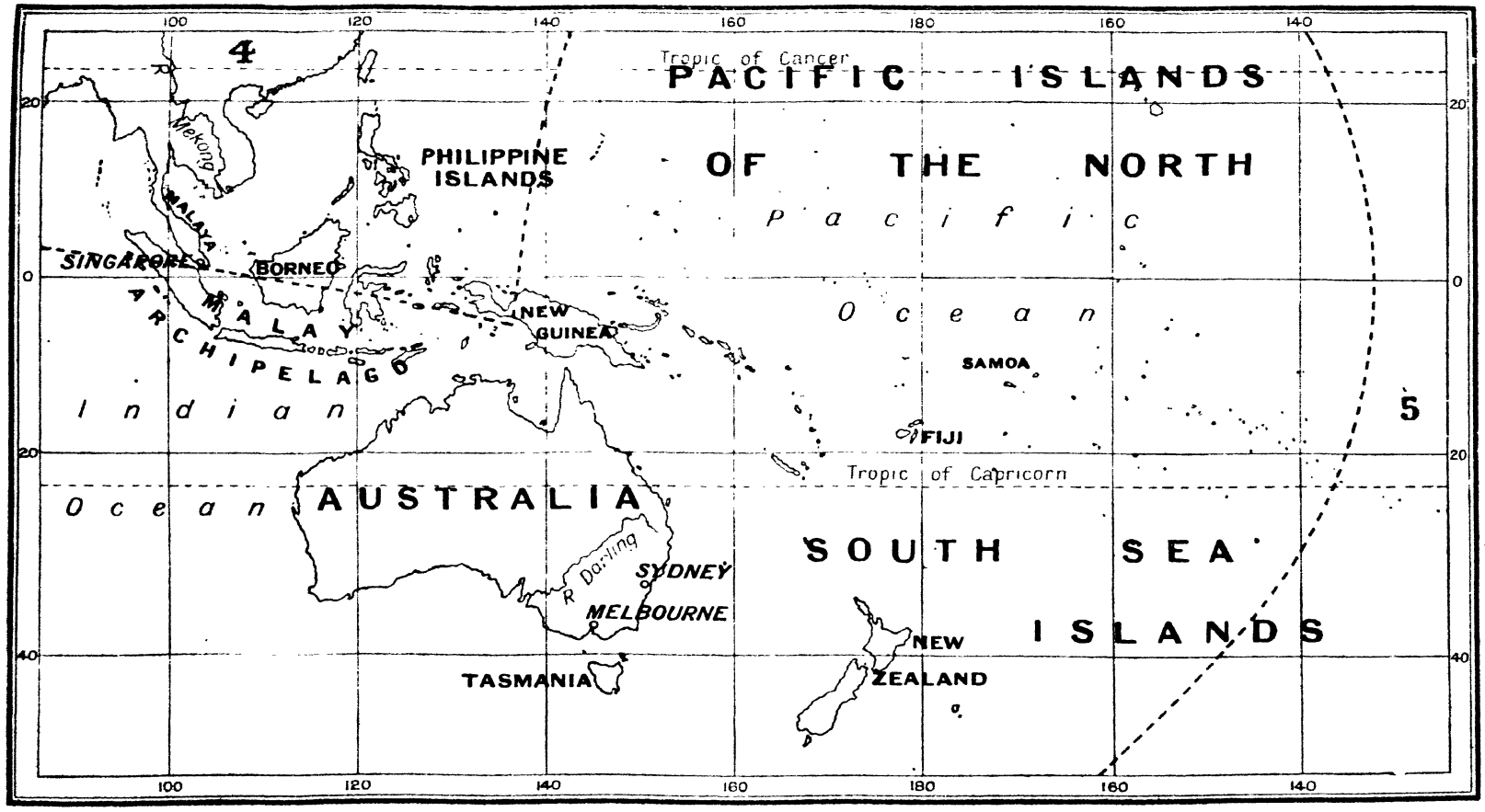
No. 5. KEY MAP TO THE CHAPTERS ON THE AMERICAS

For the Arctic coastlands see No. 6. Most of the political units, e.g. Canada, are separately described, but not so the three Guianas and the small republics of Central America The continental articles are respectively America, North, and South America



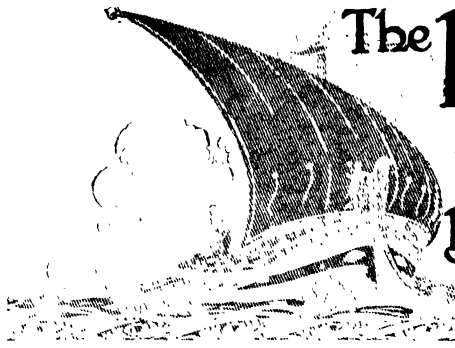
No. 6. KEY MAP TO CHAPTERS ON THE ARCTIC BASIN SHORELAND

For Russia and Northern Asia see No. 4, for Western Europe see No. 1, and for North America see No. 5. Spitsbergen, Baffin Land and the Arctic Ocean are dealt with under Arctic Lands. The countries along the East side of the Baltic Sea, Latvia, etc., together with Finland, are included in the chapter Finland and Other Baltic Lands



No. 7. KEY MAP TO THE CHAPTERS ON THE EAST INDIES, AUSTRALASIA AND THE SOUTH SEAS

For continental South-east Asia see No. 4. The chapters Malaya and Singapore cover the Straits Settlements, and the Federated and the Unfederated Malay States, and the title Australia embraces the states and the principal cities of the continent of Australia, except Sydney and Melbourne. Java, Sumatra, Batavia and the Spice Islands, are described in the chapter Malay Archipelago; Brunei, Sarawak, etc., under Borneo, and Hawaii under Pacific Islands of the North



The ROMANCE OF TRAVEL

By Joseph Conrad

IT is safe to say that for the majority of mankind the superiority of geography over geometry lies in the appeal of its figures. It may be an effect of the incorrigible frivolity inherent in human nature, but most of us will agree that a map is more fascinating to look at than a figure in a treatise on conic sections—at any rate for the simple minds which are all the equipment of the majority of the dwellers on this earth.

No doubt a trigonometrical survey may be a romantic undertaking, striding over deserts and leaping over valleys never before trodden by the foot of civilized man; but its accurate operations can never have for us the fascination of the first hazardous steps of a venturesome, often lonely, explorer jotting down by the light of his camp fire the thoughts, the impressions and the toil of his day.

Geography Born of Action

FOR a long time yet a few suggestive words grappling with things seen will have the advantage over a long array of precise, no doubt interesting, and even profitable figures. The earth is a stage, and though it may be an advantage, even to the right comprehension of the play to know its exact configuration, it is the drama of human endeavour that will be the thing, with a ruling passion expressed by outward action marching perhaps blindly to success or failure, which themselves are often undistinguishable from each other at first.

Of all the sciences, geography finds its origin in action, and what is more, in adventurous action of the kind that appeals to sedentary people who like to dream of arduous adventure in the manner of prisoners dreaming behind bars of all the hardships and hazards of liberty dear to the heart of man.

Through Error to Truth

DESCRIPTIVE geography, like any other kind of science, has been built on the experience of certain phenomena and on experiments prompted by that unappeasable curiosity of men which their intelligence has elevated into a quite respectable passion for acquiring knowledge. Like other sciences it has fought its way to truth through a long series of errors. It has suffered from the love of the marvellous, from our credulity, from rash and unwarrantable assumptions, from the play of unbridled fancy.

Geography had its phase of circumstantially extravagant speculation which had nothing to do with the pursuit of truth, but has given us a curious glimpse of the medieval mind playing in its ponderous childish way with the problems of our earth's shape, its size, its character, its products, its inhabitants. Cartography was almost as pictorial then as some modern newspapers. It crowded its maps with pictures of strange pageants, strange trees, strange beasts, drawn with amazing precision in the midst of theoretically conceived continents. It

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delineated imaginary kingdoms of Monomotapa and of Prester John, the regions infested by lions or haunted by unicorns, inhabited by men with reversed feet, or eyes in the middle of their breasts.

All this might have been amusing if the mediæval gravity in the absurd had not been in itself a wearisome thing. But what of that! Has not the key science of modern chemistry passed through its dishonest phase of Alchemy (a portentous development of the confidence-trick), and our knowledge of the starry sky been arrived at through the superstitious idealism of Astrology looking for men's fate in the depths of the infinite? Mere megalomania on a colossal scale. Yet, solemn fooling for solemn fooling of the scientific order, I prefer the kind that does not lay itself out to thrive on the fears and the cupidities of men.

Lure of the Unknown Places

FROM that point of view geography is the most blameless of sciences. Its fabulous phase never aimed at cheating simple mortals (who are a multitude) out of their peace of mind or their money. At the most it has enticed some of them away from their homes; to death may be, now and then to a little disputed glory, not seldom to contumely, never to high fortune. The greatest of them all who has presented modern geography with a new world to work upon, was at one time loaded with chains and thrown into prison. Columbus remains a pathetic figure, not a sufferer in the cause of geography, but a victim of the imperfections of jealous human hearts, accepting his fate with resignation. Among explorers he appears lofty in his troubles and like a man of a kingly nature. His contribution to the knowledge of the earth was certainly royal. And if the discovery of America was the occasion of the greatest outburst of reckless cruelty and greed known to history we may say this at least for it, that the gold of Mexico and Peru, unlike the gold of alchemists, was really there, palpable, yet, as ever, the most elusive of the Fata Morgana that lure men away from their homes, as a moment of reflection will convince anyone. For nothing is more certain than that there will never be enough gold to go round, as the Conquistadores found out by experience.



Arbutnot

Joseph Conrad

Luckless Searchers for El Dorado

I SUPPOSE it is not very charitable of me, but I must say that to this day I feel a malicious pleasure at the many disappointments of those pertinacious searchers for El Dorado who climbed mountains, pushed through forests, swam rivers, floundered in bogs, without giving a single thought to the science of geography. Not for them the serene joys of scientific research, but infinite toil, in hunger, thirst, sickness, battle; with broken heads, unseemly squabbles, and empty pockets in the end. I cannot help thinking it served them right. It is an ugly tale, which has not

much to do with the service of geography. The geographical knowledge of our day is of the kind that would have been beyond the conception of the hardy followers of Cortés and Pizarro; and of that most estimable of Conquerors who was called Cabeza de Vaca, who was high-minded and dealt humanely with the heathen nations whose territories he traversed in search of one more El Dorado. It is said they loved him greatly, but now the very memory of those nations is gone from the earth, while their territories, which they could not take with them, are being traversed many times every twenty-four hours by the trains of the Southern Pacific railroad.

Balboa's Moment of Elation

THE discovery of the New World marks the end of the fabulous geography, and it must be owned that the history of the Conquest contains at least one great moment—I mean a geographically great moment—when Vasco Nuñez de Balboa, while crossing the Isthmus of Panama, set his eyes for the first time upon the ocean, the immensity of which he did not suspect, and which in his elation he named the Pacific. It is anything but that; but the privileged Conquistador cannot be blamed for surrendering to his first impression.

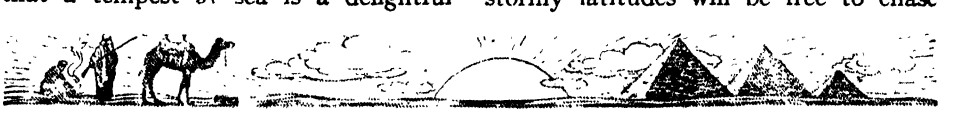
The Gulf of Panama, which is what he really saw with that first glance, is one of the calmest spots on the waters of the globe. Too calm. The old navigators dreaded it as a dangerous region where one might be caught and lie becalmed for weeks with one's crew dying slowly of thirst under a cloudless sky. The worst of fates, this, to feel yourself die in a long and helpless agony. How much preferable a region of storms where man and ship can at least put up a fight and remain defiant almost to the last.

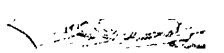
I must not be understood to mean that a tempest at sea is a delightful experience, but I would rather face the fiercest tempest than a gulf pacific even to deadliness, a prison-house for incautious caravels and a place of torture for their crews. But Balboa was charmed with its serene aspect. He did not know where he was. He probably thought himself within a stone's throw, as it were, of the Indies and Cathay. Or did he perhaps, like a man touched with grace, have a moment of exalted vision, the awed feeling that what he was looking at was an abyss of waters comparable in its extent to the view of the unfathomable firmament, and sown all over with groups of islands resembling the constellations of the sky?

But whatever spiritual glimpse of the truth he might have had, Balboa could not possibly know that this great moment of his life had added suddenly thousands of miles to the circumference of the globe, had opened an immense theatre for the human drama of adventure and exploration, a field for the missionary labours of, mainly, Protestant churches, and spread an enormous canvas on which armchair geographers could paint the most fanciful variants of their pet theory of a great southern continent.

Fathers of Militant Geography

I WILL not quarrel with the post-Columbian cartographers for their wild, but upon the whole, interesting inventions. The provocation to let oneself go was considerable. Geography militant, which had succeeded the geography fabulous, did not seem able to accept the idea that there was much more water than land on this globe. Nothing could satisfy their sense of the fitness of things but an enormous extent of solid earth which they placed in that region of the south where, as a matter of fact, the great white-crested seas of stormy latitudes will be free to chase







each other all round the globe to the end of time. I suppose their landsmen's temperament stood in the way of their recognition that the world of geography, so far as the apportioning of space goes, seems to have been planned mostly for the convenience of fishes.

What is surprising to me is that the seamen of the time should have really believed that the large continents to the north of the Equator demanded, as a matter of good art or else of sound science, to be balanced by corresponding masses of land in the southern hemisphere. They were simple souls. The chorus of armchair people all singing the same tune made them blind to the many plain signs of a great open sea. Every bit of coast-line discovered, every mountain-top glimpsed in the distance, had to be dragged loyally into the scheme of the Terra Australis Incognita.

Even Tasman, the best seaman of them all before James Cook, the most accomplished of seventeenth century explorers and navigators that went forth to settle the geography of the Pacific—even Tasman, after coming unexpectedly upon the North Island of New Zealand, and lingering long enough there to chart roughly a bit of the coast and lose a boat's crew in a sudden affray with the Maoris, seemed to take it for granted that this was the western limit of an enormous continent extending away towards the point of South America.

Navigation by Guess-work

MIGHTY is the power of a theory, especially if based on such a common-sense notion as the balance of continents. And it must be remembered that it is difficult for us now to realize not only the navigational dangers of unknown seas, but the awful geographical incertitudes of the first explorers in that new world of waters.

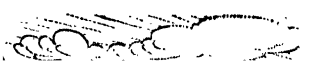
Tasman's journal, which was published not so very long ago, gives us some idea of their perplexing difficulties. The early navigators had no means of ascertaining their exact position on the globe. They could calculate their latitude, but the problem of longitude was a matter which bewildered their minds and often falsified their judgement It had to be a matter of pure guess-work. Tasman and his officers, when they met on board the Heemskirk, anchored in Murderers' Bay, to consider their further course in the light of their instructions, did not know where any of the problematic places named in their instructions were, neither did they know where they themselves were.

Great Sailor of Uncharted Seas

TASMAN might have sailed north or east, but in the end he decided to sail between the two, and, circling about, returned to Batavia, where he was received coldly by his employers, the honourable governor-general, and the council in Batavia. Their final judgement was that Abel Tasman was a skilful navigator but that he had shown himself " remiss " in his investigations, and that he had been guilty of leaving certain problems unsolved.

We are told that Tasman did not expect this armchair criticism ; and indeed, even now, it seems surprising to an unprejudiced mind. It was the voyage during which, among other things, Tasman discovered the island by which his name lives on the charts, took first contact with New Zealand (which was not seen again till 130 years afterwards), sailed over many thousands of miles of uncharted seas, bringing back with him a journal which was of much value afterwards for his exploring successors.

It may be he was hurt by the verdict of the honourable council, but he does not seem to have been cast down by it, for





it appears that shortly afterwards he asked for a rise of salary—and, what is still more significant, he got it. He was obviously a valuable servant, but I am sorry to say that his character as a man was not of the kind to cause governors and councils to treat him with particular consideration. Except in professional achievement he is not comparable to Captain Cook, a humble son of the soil like himself, but a modest man of genius, the familiar associate of the most learned in the land, medallist of the Royal Society, and a captain in the Royal Navy.

Tasman's Qualities and Defects

BUT there was a taint of an unscrupulous adventurer in Tasman. It is certain that at various times his patron, the Governor Anthony van Diemen, and the honourable council in Batavia, had employed him in some shady transactions of their own, connected with the Japan trade. There is also no doubt that once he had, on h's own responsibility, kidnapped an influential Chinaman who stood in the way of some business negotiation Tasman was conducting with the Sultan of Achin.

The Chinaman may have been a worthless person, but one wonders what happened to him in the end; and, in any case, the proceeding is open to criticism. Then in his old age he got into some disreputable scrape which caused the congregation with which he worshipped to ask him to resign his membership. Even the honourable council was startled, and dismissed him from his employment, though characteristically enough not actually from their service. This action of the council fixes the character of the man better than any scandalous story. He was valuable, but compromising.

All those regrettable details came to my knowledge quite recently in a very amusing and interesting book, but I must confess that my early admiration for Tasman as one of the early fathers of militant geography has not been affected very much by it. Remiss or not, he had in the course of his voyages mapped 8,000 miles of an island which by common consent is called now a continent, a geologically very old continent indeed, but which is now the home of a very young Commonwealth with all the possibilities of material and intellectual splendour still hidden in its future.

I like to think that in that portion of the Elysian Fields set apart for great navigators, James Cook would not refuse to acknowledge the civilities of Abel Tasman, a fellow seaman who had first reported the existence of New Zealand in the perplexed bewildered way of those times, 130 years before Captain Cook on his second voyage laid for ever the ghost of the Terra Australis Incognita and added New Zealand to the scientific domain of the geography triumphant of our day.

Captain Cook's Scientific Work

NO shade of remissness nor doubtful motive rests upon the achievements of Captain Cook, who came out of a labourer's cottage to take his place at the head of the masters of maritime exploration who worked at the great geographical problem of the Pacific. Endeavour was the name of the ship which carried him on his first voyage, and it was also the watchword of his professional life. Resolution was the name of the ship he commanded himself on his second expedition, and it was the determining quality of his soul. I will not say that it was the greatest, because he had all the other manly qualities of a great man.

The voyages of the early explorers were prompted by an acquisitive spirit, the idea of lucre in some form, the desire of trade or the desire of loot, disguised in more or less fine words.





But Cook's three voyages are free from any taint of that sort. His aims needed no disguise. They were scientific. His deeds speak for themselves with the masterly simplicity of a hard-won success. In that respect he seems to belong to the single-minded explorers of the nineteenth century, the late fathers of militant geography whose only object was the search for truth. Geography is a science of facts, and they devoted themselves to the discovery of facts in the configuration and features of the main continents.

It was the century of landsmen investigators. In saying this I do not forget the Polar explorers, whose aims were certainly as pure as the air of those high latitudes where not a few of them laid down their lives for the advancement of geography. Seamen, men of science, it is difficult to speak of them without admirative emotion. The dominating figure among the seamen explorers of the first half of the nineteenth century is that of another good man, Sir John Franklin, whose fame rests not only on the extent of his discoveries, but on professional prestige and high personal character. This great navigator, who never returned home, served geography even in his death. The persistent efforts extending over ten years to ascertain his fate advancedgreatly our knowledge of the Polar regions.

Tragedy of Sir John Franklin

AS gradually revealed to the world this fate appeared the more tragic in this, that for the first two years the way of the Erebus and Terror expedition seemed to be the way to the desired and important success, while in truth it was all the time the way of death, the end of the darkest drama perhaps played behind the curtain of Arctic mystery.

The last words unveiling the mystery of the Erebus and Terror expedition were brought home and disclosed to the world by Sir Leopold McClintock, in his book, "The Voyage of the Fox in the Arctic Seas." It is a little book, but it records with manly simplicity the tragic ending of a great tale. It so happened that I was born in the year of its publication. Therefore, I may be excused for not getting hold of it till ten years afterwards. I can only account for it falling into my hands by the fact that the fate of Sir John Franklin was a matter of European interest, and that Sir Leopold McClintock's book was translated, I believe, into every language of the white races.

Romance of Polar Exploration

MY copy was probably in French. But I have read the work many times since. I have now on my shelves a copy of a popular edition got up exactly as I remember my first one. It contains the touching facsimile of the printed form filled in with a summary record of the two ships' work, the name of "Sir John Franklin commanding the expedition" written in ink, and the pathetic underlined entry "All well." It was found by Sir Leopold McClintock under a cairn and it is dated just a year before the two ships had to be abandoned in their deadly ice-trap, and their crews' long and desperate struggle for life began.

There could hardly have been imagined a better book for letting in the breath of the stern romance of Polar exploration into the existence of a boy whose knowledge of the poles of the earth had been till then of an abstract formal kind as mere imaginary ends of the imaginary axis upon which the earth turns. The great spirit of the realities of the story sent me off on the romantic explorations of my inner self; to the discovery of the taste for poring over maps, and revealed to me the existence of a latent devotion to geography which interfered with my devotion (such as it was) to my other schoolwork.



Unfortunately, the marks awarded for that subject were almost as few as the hours apportioned to it in the school curriculum by persons of no romantic sense for the real, ignorant of the great possibilities of active life; with no desire for struggle, no notion of the wide spaces of the world—mere bored professors, in fact, who were not only middle-aged but looked to me as if they had never been young. And their geography was very much like themselves, a bloodless thing with a dry skin covering a repulsive armature of uninteresting bones.

Inspiration in Map-gazing

I WOULD be ashamed of my warmth in digging up a hatchet which has been buried now for nearly fifty years if those fellows had not tried so often to take my scalp at the yearly examinations. There are things that one does not forget. And besides, the geography which I had discovered for myself was the geography of open spaces and wide horizons built up on men's devoted work in the open air, the geography still militant but already conscious of its approaching end with the death of the last great explorer. The antagonism was radical.

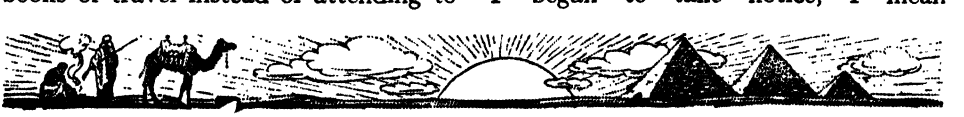
Thus it happened that I got no marks at all for my first and only paper on Arctic geography, which I wrote at the age of thirteen. I still think that for my tender years it was an erudite performance. I certainly did know something of Arctic geography, but what I was after really, I suppose, was the history of Arctic exploration. My knowledge had considerable gaps, but I managed to compress my enthusiasm into just two pages, which in itself was a sort of merit. Yet I got no marks. For one thing it was not a set subject. I believe the only comment made about it to my private tutor was that I seemed to have been wasting my time in reading books of travel instead of attending to my studies. I tell you, those fellows were always trying to take my scalp. On another occasion I just saved it by proficiency in map-drawing. It must have been good, I suppose; but all I remember about it is that it was done in a loving spirit.

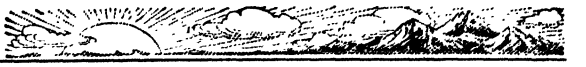
I have no doubt that star-gazing is a fine occupation, for it leads you within the borders of the unattainable. But map-gazing, to which I became addicted so early, brings the problems of the great spaces of the earth into stimulating and directing contact with sane curiosity and gives an honest precision to one's imaginative faculty. And the honest maps of the nineteenth century nourished in me a passionate interest in the truth of geographical facts and a desire for precise knowledge which was extended later to other subjects.

Unveiling Africa's Mystery

FOR a change had come over the spirit of cartographers. From the middle of the eighteenth century on the business of map-making had been growing into an honest occupation, registering the hard-won knowledge, but also in a scientific spirit recording the geographical ignorance of its time. And it was Africa, the continent out of which the Romans used to say some new thing was always coming, that got cleared of the dull imaginary wonders of the dark ages which were replaced by exciting spaces of white paper. Regions unknown! My imagination could depict to itself there worthy, adventurous and devoted men, nibbling at the edges, attacking from north and south and east and west, conquering a bit of truth here and a bit of truth there, and sometimes swallowed up by the mystery their hearts were so persistently set on unveiling.

Among them Mungo Park, of western Sudan, and Bruce, of Abyssinia, were, I believe, the first friends I made when I began to take notice, I mean





geographical notice, of the continents of the world into which I was born. The fame of these two had already been for a long time European, and their figures had become historical by then. But their story was a very novel thing to me, for the very latest geographical news that could have been whispered to me in my cradle was that of the expedition of Burton and Speke, the news of the existence of Tanganyika and of Victoria Nyanza.

I stand here confessed as a contemporary of the Great Lakes. Yes, I could have heard of their discovery in my cradle, and it was only right that, grown to a boy's estate, I should have in the later sixties done my first bit of map-drawing and paid my first homage to the prestige of their first explorers. It consisted in entering laboriously in pencil the outline of Tanganyika on my beloved old atlas, which, having been published in 1852, knew nothing, of course, of the Great Lakes. The heart of its Africa was white and big.

In the Foot-prints of Discovery

SURELY it could have been nothing but a romantic impulse which prompted the idea of bringing it up to date with all the accuracy of which I was capable. Thus I could imagine myself stepping in the very foot-prints of geographical discovery. And it was not all wasted time. As a bit of prophetic practice it was not bad for me. Many years afterwards, as second officer in the Merchant Service, it was my duty to correct and bring up to date the charts of more than one ship, according to the Admiralty notices. I did this work conscientiously and with a sense of responsibility; but it was not in the nature of things that I should ever recapture the excitement of that entry of Tanganyika on the blank of my old atlas.

It must not be supposed that I gave up my interest in the Polar regions. My heart and my warm participation swung from the frigid to the torrid zone, fascinated by the problems of each, no doubt, but more yet by the men who, like masters of a great art, worked each according to his temperament to complete the picture of the earth. Almost each day of my schoolboy life had its hour given up to their company. And to this day I think that it was a very good company.

Vivid Visions of Dead Heroes

NOT the least interesting part in the study of geographical discovery lies in the insight it gives one into the characters of that special kind of men who devoted the best part of their lives to the exploration of land and sea. In the world of mentality and imagination which I was entering it was they and not the characters of famous fiction who were my first friends. Of some of them I had soon formed for myself an image indissolubly connected with certain parts of the world. For instance, western Sudan, of which I could draw the rivers and principal features from memory even now, means for me an episode in Mungo Park's life.

It means for me the vision of a young, emaciated, fair-haired man, clad simply in a tattered shirt and worn-out breeches, gasping painfully for breath and lying on the ground in the shade of an enormous African tree (species unknown), while from a neighbouring village of grass huts a charitable black-skinned woman is approaching him with a calabash full of pure cold water, a simple draught which, according to himself, seems to have effected a miraculous cure. The central Sudan, on the other hand, is represented to me by a very different picture, that of a self-confident and keen-eyed person in a long cloak and wearing a turban on his head, riding slowly towards a gate in the mud walls of an African city,



from which an excited population is streaming out to behold the wonder—Dr. Barth, the protégé of Lord Palmerston, and subsidised by the British Foreign Office, approaching Kano, which no European eye had seen till then, but where forty years later my friend Sir Hugh Clifford, the Governor of Nigeria, travelled in state in order to open a college.

I must confess that I read that bit of news and inspected the many pictures in the illustrated papers without any particular elation. Education is a great thing, but Dr. Barth gets in the way. Neither will the monuments left by all sorts of empire builders suppress for me the memory of David Livingstone. The words Central Africa bring before my eyes an old man with a rugged, kind face and a clipped, grey moustache, pacing wearily at the head of a few black followers along the reed-fringed lakes towards the dark native hut on the Congo head waters in which he died, clinging in his very last hour to his heart's unappeased desire for the sources of the Nile.

Boyhood's Dream Realized

THAT passion had changed him in his last days from a great explorer into a restless wanderer refusing to go home any more. From his exalted place among the blessed of militant geography and with his memory enshrined in Westminster Abbey he can well afford to smile without bitterness at the fatal delusion of his exploring days, a notable European figure and the most venerated perhaps of all the objects of my early geographical enthusiasm.

Once only did that enthusiasm expose me to the derision of my schoolboy chums. One day, putting my finger on a spot in the very middle of the then white heart of Africa, I declared that some day I would go there. My chums' chaffing was perfectly justifiable. I myself was ashamed of having been betrayed into mere vapouring. Nothing was further from my wildest hopes. Yet it is a fact that, about eighteen years afterwards, a wretched little stern-wheel steamboat I commanded lay moored to the bank of an African river.

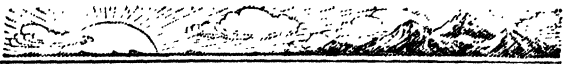
Night in the Wilderness

EVERYTHING was dark under the stars. Every other white man on board was asleep. I was glad to be alone on deck smoking the pipe of peace after an anxious day. The subdued thundering mutter of the Stanley Falls hung in the heavy night air of the last navigable reach of the Upper Congo, while no more than ten miles away, in Reshid's camp just above the Falls, the yet unbroken power of the Congo Arabs slumbered uneasily. Their day was over. Away in the middle of the stream, on a little island nestling all black in the foam of the broken water, a solitary little light glimmered feebly and I said to myself with awe, "This is the very spot of my boyish boast."

A great melancholy descended on me. Yes, this was the very spot. But there was no shadowy friend to stand by my side in the night of the enormous wilderness, no great haunting memory, but only the unholy recollection of a prosaic newspaper "stunt" and the distasteful knowledge of the vilest scramble for loot that ever disfigured the history of human conscience and geographical exploration. What an end to the idealised realities of a boy's daydreams! I wondered what I was doing there, for indeed it was only an unforeseen episode, hard to believe in now, in my seaman's life. Still, the fact remains that I have smoked a pipe of peace at midnight in the very heart of the African continent, and felt very lonely there.

But never so at sea. There I never felt lonely, because there I never lacked company. The company of





great navigators, the first grown-up friends of my early boyhood. The unchangeable sea preserves for one the sense of its past, the memory of things accomplished by wisdom and daring among its restless waves. It was those things that commanded my profoundest loyalty, and perhaps it is by the professional favour of the great navigators ever present to my memory that, neither explorer nor scientific navigator, I have been permitted to sail through the very heart of the old Pacific mystery, a region which even in my time remained very imperfectly charted and still remote from the knowledge of men.

An Unheard of Proposition

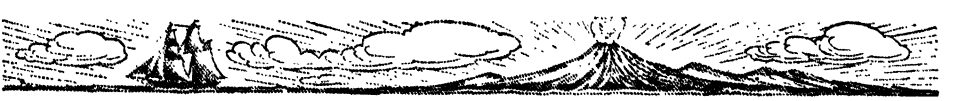
IT was in 1888, when in command of a ship loading in Sydney a mixed cargo for Mauritius, that, one day, all of a sudden, all the deep-lying historic sense of the exploring adventures in the Pacific surged up to the surface of my being. Almost without reflection I sat down and wrote a letter to my owners suggesting that, instead of the usual southern route, I should take the ship to Mauritius by way of Torres Strait. I ought to have received a severe rap on the knuckles, if only for wasting their time in submitting such an unheard of proposition.

I must say I awaited the reply with some trepidation. It came in due course, but instead of beginning with the chiding words, "We fail to understand, etc., etc.," it simply called my attention in the first paragraph to the fact that "there would be an additional insurance premium to pay for that route," and so on, and so on. And it ended like this: "Upon the whole, however, we have no objection to your taking the ship through Torres Strait if you are certain that the season is not too far advanced to endanger the success of your passage by the calms which, as you know, prevail at times in the Arafura Sea."

I read, and in my heart I felt compunctious. The season was somewhat advanced. I had not been scrupulously honest in my argumentation. Perhaps it was because I never expected it to be effective. And here it was all left to my responsibility. My letter must have struck a lucky day in Messrs. H. Simpson & Sons' offices—a romantic day. I won't pretend that I regret my lapse from strict honesty, for what would the memory of my sea-life have been for me if it had not included a passage through Torres Strait, in its fullest extent, from the mouth of the great Fly River right on along the track of the early navigators.

Navigating Torres Strait

THE season being advanced, I insisted on leaving Sydney during a heavy south-east gale. Both the pilot and the tug-master were scandalised by my obstinacy, and they hastened to leave me to my own devices while still inside Sydney Heads. The fierce south-easter caught me up on its wings, and no later than the ninth day I was outside the entrance of Torres Strait, named after the undaunted and reticent Spaniard who, in the seventeenth century, first sailed that way without knowing where he was, without suspecting he had New Guinea on one side of him and the whole solid Australian continent on the other—he thought he was passing through an archipelago—the Strait whose existence for a century and a half had been doubted, argued about, squabbled over by geographers, and even denied by the disreputable but skilful navigator, Abel Tasman, who thought it was a large bay, and whose true contours were first laid down on the map by James Cook, the navigator without fear and without reproach, the greatest in achievement and character of the later



seamen fathers of militant geography. If the dead haunt the scenes of their earthly exploits, then I must have been attended benevolently by those three shades—the inflexible Spaniard of such lofty spirit that in his report he disdains to say a single word about the appalling hardships and dangers of his passage; the pig-headed Hollander who, having made up his mind that there was no passage there, missed the truth by only fifty miles or so; and the great Englishman, a son of the soil, a great commander and a great professional seaman, who solved that question among many others and left no unsolved problems of the Pacific behind him. Great shades! All friends of my youth!

Sunset over the Arafura Sea

IT was not without a certain emotion that, commanding very likely the first and certainly the last, merchant ship that carried a cargo that way—from Sydney to Mauritius—I put her head at daybreak for Bligh's Entrance, and packed on her every bit of canvas she could carry. Windswept, sunlit empty waters were all around me, half-veiled by a brilliant haze. The first thing that caught my eye upon the play of green white-capped waves, was a black speck marking conveniently the end of a low sandbank. It looked like the wreck of some small vessel.

I altered the course slightly in order to pass close, with the hope of being able to read the letters on her stern. They were already faded. Her name was Honolulu. The name of the port I could not make out. The story of her life is known by now to God alone, and the winds must have drifted long ago around her remains a quiet grave of the very sand on which she had died. Thirty-six hours afterwards, of which about nine were spent at anchor, approaching the other end of the Strait, I sighted a gaunt, grey wreck of a big American ship lying high and dry on the southernmost of the Warrior Reefs. She had been there for years. I had heard of her. She was legendary. She loomed up, a sinister and enormous memento mori raised by the refraction of this serene afternoon above the far-away line of the horizon drawn under the sinking sun.

And thus I passed out of Torres Strait before the dusk settled on its waters. Just as a clear sun sank ahead of my ship I took a bearing of a little island for a fresh departure, an insignificant crumb of dark earth, lonely, like an advanced sentinel of that mass of broken land and water, to watch the approaches from the side of the Arafura Sea. But to me it was a hallowed spot, for I knew that the Endeavour had been hove to off it in the year 1762 for her captain, whose name was James Cook, to go ashore for half an hour. What he could possibly want to do I cannot imagine. Perhaps only to be alone with his thoughts for a moment. The dangers and the triumphs of exploration and discovery were over for that voyage. All that remained to do was to go home, and perhaps his great and equable soul, tempered in the incessant perils of a long exploration, wanted to commune with itself at the end of its task. It may be that on this dry crumb of the earth's crust which I was setting by compass he had tasted a moment of perfect peace. I could depict to myself the famous seaman navigator, a lonely figure in a three-cornered hat and square-skirted laced coat, pacing to and fro slowly on the rocky shore, while in the ship's boat, lying off on her oars, the coxswain kept his eyes open for the slightest sign of the captain's hand.

Hallowed Face of the Waters

THUS the sea has been for me a hallowed ground, thanks to those books of travel and discovery which have peopled it with unforgettable shades of the masters in the calling which, in a humble way, was to be mine, too; men great in their endeavour and in hard-won successes of militant geography; men who went forth each according to his lights and with varied motives, laudable or sinful, but each bearing in his breast a spark of the sacred fire.

ABYSSINIA & ERITREA

Highlands & Lowlands of Ethiopia

by Charles F. Rey

Author of "Unconquered Abyssinia as It is To-Day"

LYING between the tropic of Cancer and the Equator, situated centrally, opposite Aden, is a high plateau blessed with a delightful climate, dotted with huge peaks and scored by deep chasms, a fringe of low-lying desert around, and within it a miscellany of varied races.

Such is the old empire of Ethiopia with its recent conquests, politically divided to-day into Abyssinia and Eritrea, together covering nearly 400,000 square miles, that is to say an area approximately four and a half times that of Great Britain.

Three Thousand Miles of Land Frontier

Modern Abyssinia is entirely cut off from the sea by European possessions. Eritrea on the north and east, French, British and Italian Somaliland on the east, divide her from the Red Sea and the Indian Ocean; Kenya, Uganda and Anglo-Egyptian Sudan complete the encirclement of her 3,000 miles of land frontier, nearly two-thirds of which marches with British territory. Her boundary zones are for the most part low-lying, semi-desert lowlands, except to the north, where the Eritrean highlands form the extremity of the Abyssinian plateau. From these highlands, Eritrea extends in a long narrow strip of low-lying territory for about 500 miles between the Red Sea and Abyssinia.

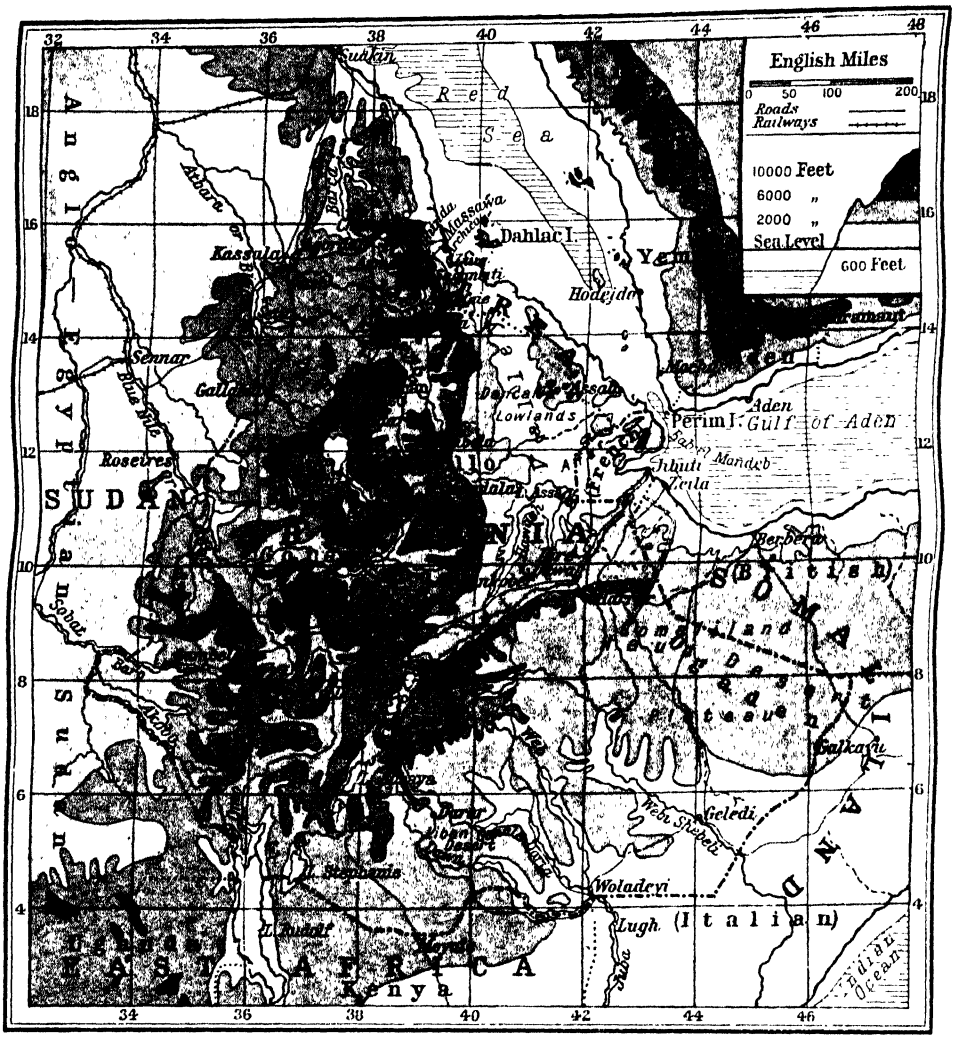
Physically, Abyssinia and Eritrea fall into three broad divisions. To the north-east is the great Dancalia lowland, the desert of the Adals or the Afar country, sometimes sinking below sea-level, in the form of a triangle the points of which are Massawa, Ankober and Berbera. This country is the entrance to the African section of the Great Rift Valley, which, extending from northern Palestine to southern Africa, runs right across Abyssinia between the two other physical divisions of the country, viz. the Somaliland and the Abyssinian plateaux.

The Somaliland plateau, of an average height of 2,500 to 4,000 feet, stretches from Berbera westward to the chain of lakes running from the south of Addis Abbaba to Lake Rudolf, and falls away to the south into the Libyan and Haud deserts, broken here and there by river valleys. The main Abyssinian plateau, of an average height of 6,000 to 7,000 feet, with peaks running up to 15,500 feet, embraces the rest of the country, dropping into the Sudan to the west and north-west.

River that Dies in the Sands

These plateaux are cut into valleys 3,000 and 4,000 feet deep by great rivers, which bring down immense quantities of rich soil in their course. The Abbai, or Blue Nile, runs in a great circle south from Lake Tsana round Gojam north to Khartum; the Takkazye runs into the Atbara, or Black Nile, to the north; and the Hawash runs eastwards from the centre of the country only to die in the sands before it can reach the Red Sea. Other rivers are the Omo, the Webi Shebeli, the Ganale Doria and the Web (forming the Juba), and the Baro.

On the whole, comparatively little is known of the geology of the country; the massif consists of igneous rocks, obviously of volcanic origin, and between the trap rocks forming the upper series, and the base of metamorphics, a series



PHYSICAL MAP OF MODERN ABYSSINIA AND ERITREA

of limestones and sandstones intervenes. The upper stratum of soil is very rich doubtless owing to the prevalence of trap rocks; wherever basaltic rocks prevail the soil is especially fertile, somewhat argillaceous, black or brown in colour. Near the coast is considerable alluvial deposit; the plain around Zula consists of alluvium, and farther north is a plain of sand and gravel.

In addition to the fertility of their soil, the Abyssinians enjoy on their plateaux a climate that is eminently healthy and stimulating for both white man and native. The temperature throughout the year is akin to that of a temperate English summer day, and the cold nights ensure rest-giving sleep.

Although terrific storms occur in the rainy season, which lasts only from mid-June to the end of September, and the rain falls in cascades, between the storms the clouds disperse and brilliant sunshine dries the atmosphere. During the rest of the year an unclouded sky and fresh breezes are the rule, with the exception of some weeks in March and April (the period of the so-called "little rains"), when a few showers freshen up the vegetation and the soil. The average annual rainfall is about one and a quarter metres (50 in.) at Addis

Abbaba, and less elsewhere. In the lowlands the climate is hot and unhealthy, but the rainfall is less; the rainy season in the Dancalia lowland occurring during October to March.

Vegetation is luxuriant and of infinite variety. Forests, prairie land, rolling steppes, grassland and park-like country alternate, and in the course of a single day's journey the traveller may meet with tropical, semi-tropical, and European growth.

The fauna include almost every species usually found in Africa as well as some not met with elsewhere, such as the nyala, a beautiful member of the kudu family, giant tortoises, and curious varieties of the wild pig and of the baboon. Birds of innumerable kinds, many clothed in the most exquisite plumage, abound; but many varieties of the larger animals are becoming more and more scarce since the introduction of rifles, for game laws practically do not exist in this part of Africa.

There is a particularly good, though small, breed of pony, quite sui generis; the mules, donkeys and poultry of the country are also small, though numerous, as are the sheep, goats and cattle, the latter consisting mainly of the zebu, well-known for its hump, its drooping ears and its heavy dewlap.

The smallness of the animals is supposed to be due to the high altitudes in which they live, for unlike Switzerland, where the mountains are snow-covered barren peaks and the valleys rich and fertile, in Abyssinia the farmer lives and works and has his being in the high plateaux; and while he is materially assisted here by the conditions of soil and climate, he is seriously handicapped by lack of water during the dry season. Irrigation existed in the country over a couple of



Brown Brothers

COMMERCIAL LIFE IN ADDIS ABBABA: MARKETING GRAIN

All roads converge upon the immense market place, which teems with life and movement from the early morning hours. Grain sellers are numerous, for the natives have little trouble in producing crops in the rich soil of the table-land, despite the fact that their agricultural implements are exceedingly primitive. The principal grains include barley, maize and teff—a kind of millet



E. E. Burgess

SCARRED AND TWISTED CHANNEL OF AN AFFLUENT OF THE HAWASH RIVER

One of the most striking geographical features of Abyssinia is the remarkable fluctuation in the volume of water discharged at different times by the streams and rivers. This is caused by the sudden and violent rains that take effect not only locally but, through the agency of the Atbara and White Nile rivers that rise in the Abyssinian mountains, in Egypt also. The stream seen in the photograph rises near Addis Abbaba, and forms one of the head waters of the Hawash river, which loses itself mysteriously in the sands near Lake Assa

E. E. Burgess

SALESMANSHIP FOR LOCAL INDUSTRY: THE CENTRAL MARKET OF ADDIS ABBABA

Set in the centre of the town, the market place of the Abyssinian capital is thronged every day by thousands. People begin to arrive soon after dawn, many of the traders being Armenians and Hindus. This market is the exchange centre for all local products, which include leather, dung-cake for firing, baskets, pottery and metal ware. A large business is also done in sheep and cattle. Booths like those in the middle of the photograph or merely of heaped stones are erected on all sides. A good idea may be gained from this illustration of the extensive woodlands in the vicinity of the capital

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E. E. Burgess

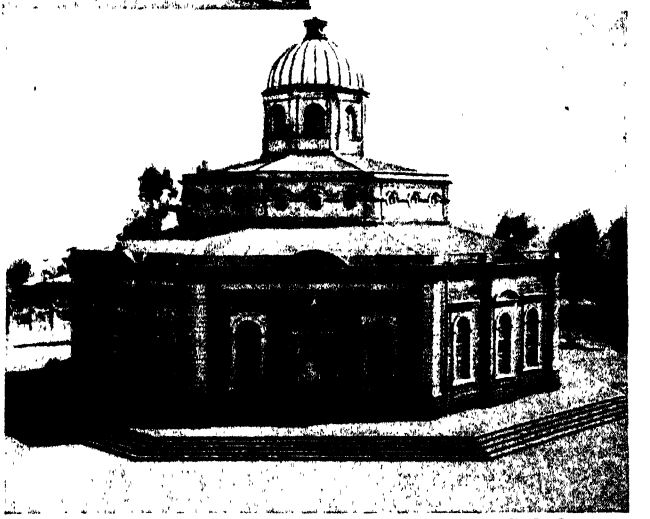
MAIN GATE OF ADDIS ABBABA, ABYSSINIA'S HILL-GIRT CAPITAL

Addis Abbaba lies, amid forests of eucalyptus, about the foot of the Entoto Hills, which form part of the mountain system of Shoa, the south-central district of Abyssinia. The town itself consists of a number of villages grouped about the imperial palace, and is rather a collection of suburbs than a conglomerate city. The photograph shows the main gate and crowded road that leads from it up to the gate of the palace, an insignificant collection of buildings surrounded by walls. While the Europeans for the most part ride Abyssinian ponies, the natives usually prefer donkeys

thousand years ago, but to-day it is hardly practised except in the north.

Agriculture and cattle raising are carried on in a manner primitive to a degree. Many more acres could be put under cultivation, and much more could be produced per acre, if modern methods were introduced, and especially if the system of taxation and the feudal system in vogue were reformed. The ground is still broken up by wooden ploughs or by rows of men levering it up with long wooden poles; the crops are cut (close to the ear) by hand sickles or knives, and the corn is then trodden out by oxen and afterwards thrown up into the air by hand, when the wind blows away the chaff and leaves the grain, in exactly the same way as as was the rule 2,000 to 3,000 years ago.





E. E. Burgess

PUBLIC BUILDINGS IN ADDIS ABBABA

Below is the Coptic Church of S. George, a round structure with the sanctuary in the centre; above, the Bank of Abyssinia

The produce mainly raised includes coffee, teff (the staple cereal for bread making), barley, chick-peas, oilseeds of various kinds, durra, maize, wheat, pepper and a little cotton; much land is also under grass.

With the exception of coffee, only sufficient crops are sown to provide for home consumption, and there is little or no exportation of the many forms of cereal and other agricultural produce which this land, so favoured of nature, could provide in such profusion.

The world's demand for the very excellent coffee berry produced in Abyssinia has for many years resulted in a profitable export trade, which shows every sign of prospective increase. Originally grown in the western province of Kassa (Kafa), whence it derives its name, the plant is said to have been transplanted to Yemen, where assiduous cultivation produced the variety known as Mocha. Now the best Abyssinian coffee is the Harrar (or Harar) long berry, grown mainly in the province of that name; this is exported largely to Europe and America via the Red Sea. The coffee known as "Abyssinian wild" is grown in most of the rest of the country, but especially in the Goré district, whence it is shipped down the Sobat river to the Nile and on to Khartum, in which market it reigns supreme.

Cotton has been grown in Abyssinia for many years, and is as good as the best Egyptian; with proper cultivation and irrigation it might be made into a valuable national asset. As it is, the quantity produced is insufficient even for home needs, although the government



C F Rey

BUSY INDUSTRY IN NATIVE HANDS

Basket weaving is at once one of the most important and attractive among native industries in Abyssinia. The work is done with long pins and the straw, beautifully woven and often of very fine texture, is of a variety of colours

have recently abolished the tax on it to stimulate production. The cotton is ginned and spun by hand, very fine tissues being woven from it.

Little else of any importance in the way of industry is carried on beyond a little rough pottery and some quite good basket work of finely plaited straw. Nor has any effort been made to develop the latent possibilities of the enormous herds of cattle with which the country is stocked. These have been estimated at from ten to fifteen million head; but apart from exporting the hides, the people merely use them for their favourite diet of raw meat.

The "middleman" of commerce is the "nagadi" or travelling merchant, a good specimen of the industrious and capable Abyssinian; guiding his caravans of pack-animals across country for weeks and even months on end, he forms practically the only link between producer and consumer, the few agencies of foreign firms being mainly engaged in collecting hides and coffee for export.

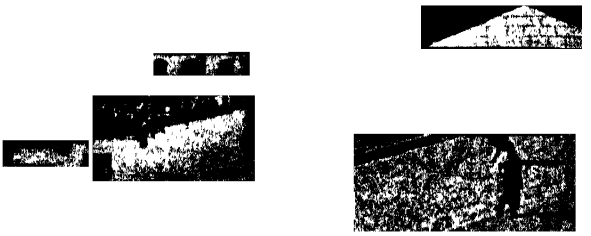
The produce of Eritrea is of the same general nature as that of Abyssinia, though less abundant; but such as it is it receives stimulation and assistance from the government, notably in the case of cotton growing. The prospects of either agriculture or cattle raising, are, however, by no means so full of possibilities, and apart from the benefit of better government, the only advantage Eritrea enjoys over its neighbour is the possession of a littoral which enables fishing to be carried on extensively in the Red Sea. Among the main reasons for the maintenance by Abyssinians of their original forms of occupation are undoubtedly the paucity of communications and the defective character of those that exist. There is only one railway, that from Jibuti in French Somaliland to Addis Abbaba. Running as it does, however, through unproductive country for a large part of its length, and having no feeders or branch lines to tap the surrounding richer districts, it serves mainly as a link with the outside world. It also suffers from the heavy rains and from the thieving propensities of some of the half-tamed tribes through whose territory it passes; these folk have an incurable affection for the iron sleepers and copper telegraph wire as raw material for making spear-heads and



E. E. Burgess

OUTSIDE THE WALLS OF THE ETHIOPIAN IMPERIAL PALACE

Constructed on the crest of a hill in the centre of Addis Abbaba is the Gebbi, or Palace, a series of unimposing buildings including the ruler's residence and the government offices. Around this eminence lie irregularly scattered villages, where dwell the dependent chiefs, feudal vassals of the sovereign, one of whom is here seen riding through the street surrounded by his rabble of retainers



E. E. Burgess

EUCALYPTUS TREES BORDERING ADDIS ABBABA'S MAIN STREET

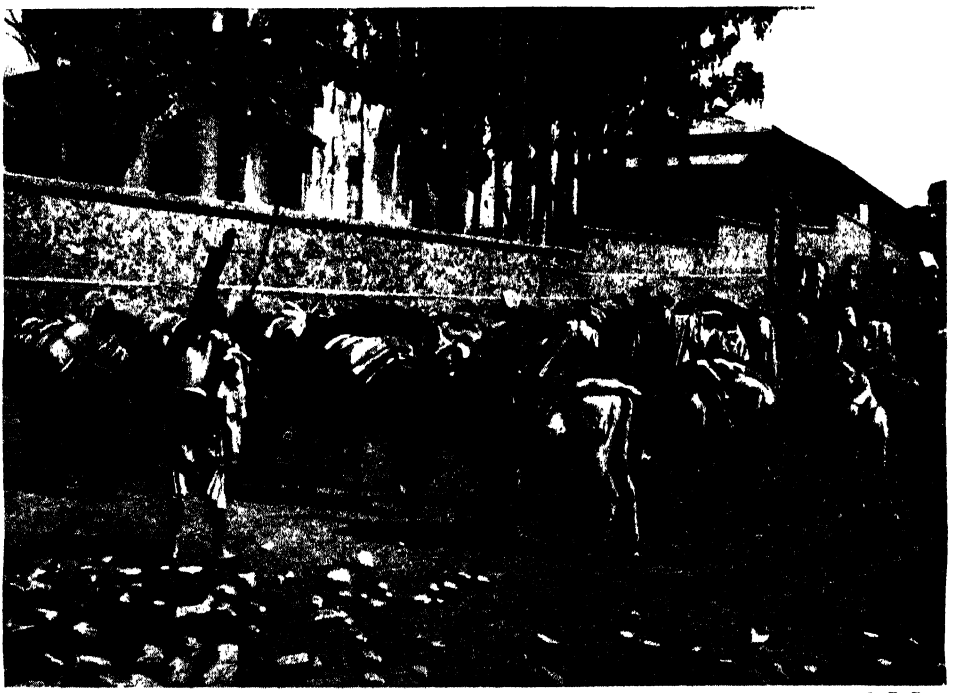
Several large towns are scattered over the rugged surface of Abyssinia, boasting varied historical associations as well as much-frequented local markets. Some have borne the proud title of royal capital, for the seat of government has varied according to the whim of the reigning potentate. Addis Abbaba, or New Flower, was chosen by Menelek II. in 1892 as the imperial residence



C. F. Rey

LEISURELY TRAVELLING: CAMELS BEING LOADED WITH LUGGAGE

Apart from the railway, which has a distinctly limited service, transport in Abyssinia is entirely dependent on pack animals of which camels are best suited for certain parts of the country. The scarcity of roads and their broken surfaces when they can be found, the uncertainty of fords and the lack of navigable rivers all add to the difficulties of transit



C. F. Rey

NATIVE MERCHANDISE CONVEYED BY DONKEY CARAVAN

Besides camels, mules and donkeys are favourite pack animals in the country, though ponies are sometimes used and, near the capital, bullock wagons may be encountered. The caravan routes straggle over hills and along valleys. Such bridges as exist are blocked by the natives in the dry season that they may last the longer, caravans having to use the fords



C. F Rey

ABYSSINIAN PONIES, A BREED PECULIAR TO THE COUNTRY

Apparently a distinct breed, the Abyssinian horse is in size about equal to a polo pony and in some ways resembles the Arab. The natives who, as a rule, prefer mules, ride their ponies unshod, though the going is often of the worst. The small horses are natural jumpers, good-looking and well built, their prevailing colour being grey



C. F. Rey

ABYSSINIAN CATTLE, AN UNEXPLOITED SOURCE OF WEALTH

Vast herds of cattle roam the plains of Abyssinia, but few, if any, are exported. The native mind holds the possession of livestock more valuable than an accumulation of money, and every animal leaving the country is merely considered as having been lost for either food or breeding. As a rule, these animals are small and have the hump common to most African cattle



E. B. Burgess

STREET AMONG HOUSES OF MUD AND STONE IN THE HILL TOWN OF HARRAR

Harrar, with a population of about fifty thousand, is built on the side of a hill. An ancient city, it is the centre and market town of the province of the same name. A track leads to Diré-Dawa, whence the railway runs to the French port of Jibuti, on the Gulf of Aden, one hundred and eighty miles away. A stone wall encompasses it, protected by twenty-four towers and entered by five gates. Coffee is grown in the neighbourhood and exported in considerable quantities

ornaments of all kinds. Apart from a few roads existing or under construction in and around Addis Ababa, tracks form the only means of communication, and these picturesque arteries wind their way tortuously around mountains, across valleys, and through rivers which have generally to be forded. There are few bridges, and most of these are of primitive construction. The rivers are non-navigable, being torrents after the rains and mere streams at other times.

There is a telegraph service from the capital to Jibuti which is fairly efficient ; and an Italian line runs from Addis to Kassala via Asmara and thence to Europe—it is, however, liable to frequent interruptions. There is also a line from Addis to Goré in the west, but this is generally out of order.

Problems of Transport and Travel

Altogether some 2,000 miles of telegraph wire are available, and a fairly extensive long-distance telephone service, which, strange to say, gives pretty good results. No wireless system is in operation, though there is a station at Gambela, in the district leased to the British Government by treaty.

With the exception of the railway already referred to, all transport is by caravans of pack animals—mules, donkeys and ponies predominating in the highlands, and camels in the low-lying districts. These caravans follow certain well-indicated routes, but their frequency is much reduced in the rainy season, when transport and travel become extremely difficult, and in some districts indeed impossible.

Caravan routes form the sole channel of communication between Abyssinia and Eritrea, but Eritrea boasts of a railway from the port of Massawa to Asmara, and on to Cheren (Keren), about 140 miles in all. Extensions of this line are contemplated to Agordat and to the River Setit in the south-west corner of the province bordering on the Sudan and Abyssinia. There are also some 500 miles of carriage roads on some of which motor services have been established, so that on the whole Eritrea, in proportion to its size, is better served in this respect than Abyssinia. The same remark applies to its telegraph service, for it has about 1,200 miles of wire and a wireless station as well.

Commerce and Communications

Eritrea possesses in Massawa probably the best harbour on the Red Sea, and when the various railway extensions referred to have been completed, Massawa should become the most accessible port, not only for Eritrea, but also for the northern districts of Abyssinia and for portions of the Sudan ; indeed, it is likely to become a serious competitor to Port Sudan.

Although in ancient times the Abyssinians were a great trading nation, exchanging their produce with that of Egypt, Arabia, Persia and even India, yet, owing to lack of communications, absence of coastline and the ceaseless state of warfare in which the country has existed, the total annual volume of Abyssinia's external trade cannot be estimated at much above £2,500,000 to £3,000,000 to-day.

Addis Abbaba's Daily Market

No data are available as to the value of the internal trade ; but every town and large village has its market place, to which picturesque strings of heavily laden pack animals may be seen streaming on the appointed days. Most notable of these is Addis Abbaba, where every day is market day, and where the teeming thousands, with their hundreds of beasts of burden, that fill the great red-earthed centre of the town, make up a wonderful picture, exhibiting every variety of native produce on the piles of stones that serve as stalls.

Trade with the outside world consists mainly of hides, skins, coffee from Harrar and the east for Europe and America, coffee from the west bound for the Sudan, wax, ivory, and a few smaller items. Imports, which come mainly



E. E. Burgess

ON THE ROAD TO DIRÉ-DAWA: A LAST VIEW OF HARRAR

Harrar province, though mountainous, is known as "the Garden of Abyssinia." A glance over this prospect of the clustered roofs of its capital shows the prevailing mud and stonework which is relieved by the white walls of churches, public buildings, and the houses of the prosperous, which, built of dressed stone, are often covered with a kind of plaster called chuka

from India, Japan, the U.S.A. and England, consist for the most part of cotton yarns and piece goods, which ought to amount to a very respectable figure if developed, as the universal form of clothing of the Abyssinians consists of cotton trousers, shirt and "chamma," a piece of material from six to twelve yards in length, worn somewhat as the old Roman toga. Other forms of imported foreign produce are building materials (especially corrugated iron roofing), enamel ware, glass, china, silkstuffs, and a variety of oddments. Trading is largely in the hands of Arabs, Indians, Greeks and Armenians, although a few European houses are represented.

So far as Eritrea is concerned, its European trade is mostly with Italy—the customs arrangements are devised for this purpose—and there is no means of measuring the value of the traffic to and from Abyssinia.

The principal town in Abyssinia is Addis Abbaba, the capital, which houses some 60,000 persons in normal times, although during the national feasts the great chiefs bring in many thousands of soldiers and retainers, and camp them in and around the city. Two rivers run through the town, which is built on undulating ground at the foot of the Entoto hills, and, taken all in all, is picturesque and even fascinating, with its quaint conglomeration of white buildings standing up from among the thousands of native tukuls in a sea of foliage. For, thanks to the Emperor Menelek's foresight in introducing the eucalyptus, which grows freely in Abyssinia, Addis is literally bowered in trees; woods surround the town, and, indeed, straggle all over it.

The better-class Abyssinians, European traders, and the Indian and Arab merchants live in stone-built tin-roofed houses, the ugliness of which is to some extent mitigated by the trees and gardens surrounding them. The only really good buildings, however, in or near the town, are the Foreign Legations,

in lovely grounds some four miles out, the Bank of Abyssinia, the regent's small palace, and the Church of S. George. The official palace, or Gebbi, is a collection of buildings of every sort and description from stone structures to tents, surrounded by three or four large courtyards.

Among other towns is Diré-Dawa, a thriving little place of some 30,000 inhabitants midway on the railway to the coast, rejoicing in roads and a water supply; it owes its prosperity to having been "rail-head" for some years and to being the collecting centre for the province of Harrar, in which function it has displaced the quaint old town of that name, for so long closed to Europeans and first visited by Burton.

Historically, Ankober, in Shoa, is interesting as having been the capital of the country during a number of years, though from this point of view pride of place must undoubtedly be given to Axum, far away in the north. Centuries of history and legend surround this ancient city, where all the kings of Abyssinia were crowned, and where monuments over 1,400 years old testify to the glories of the country's past.

In Gondar, north of Lake Tsana, stand some of the fine buildings erected by the Portuguese in the sixteenth and seventeenth centuries, while Lalibela is famous for the wonderful monolithic churches hewn out of the rock in the twelfth century, and so graphically described by Alvarez.

Monkorer or Debra Markos is the principal town in the fertile and well-governed province of Gojam; while Magdala in Wollo, Adoa in Tigré, Debra Tabor in Amhara and Gallabat (or Metemmeh) on the Sudan frontier all evoke memories of battles materially affecting Abyssinia's story.



E. E. Burgess

IN HARRAR, TRADE CENTRE OF SOUTH ABYSSINIA

Though Harrar is a busy city commercially, its streets are steep, narrow and uncleanly, while pavements are conspicuously absent and the road surfaces mostly boulders. Houses in this poorer quarter are of mud and undressed stone. Apart from the residences of the governor and foreign consuls few of them make any attempt at elaboration or solidity

In Eritrea the largest and most important towns are Massawa, hot and unhealthy, on the coast; and Asmara, the capital, well situated in the highlands about seventy miles inland. Archico, Zula and Assab on the coast; Ghinda, Saganeiti, Addi Caie, Cheren and Agordat, inland, are smaller places with populations of from 2,000 upwards.

No less remarkable or full of contrasts than their country are the Abyssinians, properly so-called, a Hamitic race adulterated by waves of Semitic invasion from Arabia and by intermarriage with the negro peoples whom they have conquered. Their mentality has undoubtedly been affected by the geographical situation of their country, a bracing fertile mountainous plateau, and also by their history, a story of continuous warfare, which, although ending in ultimate victory, has absorbed all their energies and left them ignorant of and unaffected by the world's progress. So, although they are quick and intelligent, virile and warlike, their pride gives them an exaggerated idea of their abilities, and they couple this with a complete absence of education and a deep suspicion of the foreigner and his ways.

The subject races are less advanced, less intelligent, and, otherwise, less attractive. The most numerous are the pastoral Galla—also Hamites—who outnumber the whole of the rest of the population put together, and live mainly in the south and south-west, though some branches are found on the eastern edge of the plateau.

The Shankalla are negro or negroid peoples; the Danakils and Somalis are nomadic folk of Hamitic origin, still somewhat turbulent and unsettled and altogether more primitive in their general characteristics than their Abyssinian overlords.

All these various peoples have, however, played their part in moulding the type of the dominant race or in shaping the story of this strange land, which, surrounded on all sides by the outposts of civilization, has yet retained many of its old-world conditions, and much of the mystery in which for centuries it has been enwrapped.

ABYSSINIA AND ERITREA: GEOGRAPHICAL SUMMARY

Natural Divisions. Abyssinian highlands, most northerly extension of the plateau of Africa; across the middle the Great Rift Valley, stretching from Palestine to South Africa, the Abyssinian section being known as the East Rift Valley; south-east, the Somaliland plateau.

Climate and Vegetation. Summer rain region on the edge of the desert; the rains on the Abyssinian highlands are due to the monsoon winds of the Indian Ocean, and provide the waters for the annual flood of the Nile. Average annual rainfall, 50 inches at Addis Abbaba. Parkland and scrub is typical of the lowlands, farmland of the high plateaux; considerable forests also exist in parts of the country. In general, healthy for Europeans, except in the lowlands.

Chief Rivers. The Blue Nile, Atbara (which rises near Lake Tsana) and Sobat, right bank tributaries of the Nile; flooded in summer, a mere trickle in winter (v. also Egypt). The whole country is rich in lakes, Lake Tsana giving birth to the Blue Nile and Lake Rudolf, which borders Abyssinia on the south, being over 200 miles long.

Chief Industries. Agriculture for local purposes; high-grade coffee, cotton and cattle being the chief products, all mainly for home consumption with the exception of coffee.

Natural Outlets. By the Nile rivers to the Sudan and Egypt; by the Great Rift Valley to the sea.

Railways. Addis Abbaba to Jibuti; Cheren to Massawa.

Communications. Telegraph services from Addis Abbaba to Jibuti, to Kassala and Europe, and to Gore; also a long-distance telephone service. In Eritrea, a telegraph system and a wireless station.

Roads. Mainly caravan routes, although in Eritrea there are also fair carriage roads.

Trade. Foreign trade chiefly in the hands of aliens, Arabs, Greeks, Armenians, etc. Hides and coffee, and smaller items such as ivory goods, are exchanged for building materials and cotton goods.

Outlook. Progress will depend upon the development of cotton-growing in sympathy with the extension of cotton-fields in the Sudan, and the growing use of tropical grasslands for cattle in the interests of the world's production of meat (v. Brazil).

AFGHANISTAN

An Arid Land of Mountain Grandeur

by Lieut.-Col. P. T. Etherton

Author of "Across the Roof of the World"

AFGHANISTAN is the most important Mahomedan state in the Middle East, and one of the leading political and economic factors in Asia. It has an area of 245,000 square miles, with a population of approximately five millions of diverse elements. The boundaries on the south are Baluchistan, on the west Persia, on the north Turkistan, and on the east the North-West Frontier Province of India. Various boundary commissions have from time to time settled the Afghan border line, notably the Perso-Baluch Commission which determined its western limits in 1904-5.

Within the existing borders are six political divisions: Kabul, Herat, Kandahar, Farah, Badakhshan and Afghan Turkistan, the latter forming part of the Pamirs, more familiarly known as the "Roof of the World," a region that attracted much attention some years ago by reason of Russian activities there and fancied designs on India.

Land Reclaimed by Irrigation

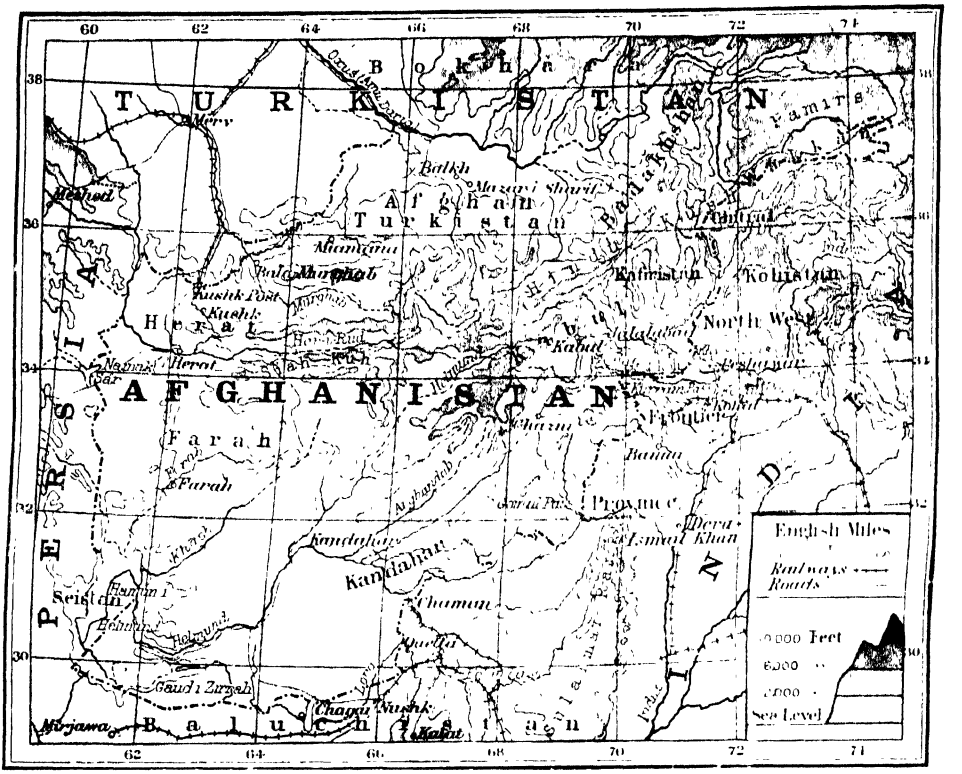
The capital and controlling centre is at Kabul, and although in the past frequent revolts have shaken the country, it has been brought more or less under the control of Ameer Amanullah, who succeeded to the throne in 1919 and holds progressive ideas.

Speaking generally Afghanistan is a land of mountains and deserts, with large tracts of cultivated areas along the valleys and in the vicinity of rivers, while irrigation has done much to reclaim land and convert it into thriving oases, for the Afghans, as irrigation engineers, are surpassed only by the Chinese. The soil is productive, especially in the Helmund and Seistan districts to the west and south-west, but in the north-east there is an entirely different geographical formation in the Pamirs. The latter are within the boundaries of Afghan Turkistan and of great importance from both a geographical and political aspect.

Peaks and Valleys of the Pamirs

These Pamirs are a vast tableland with a series of wide open valleys having gently sloping sides of an average elevation of 12,000 feet, many of the intervening peaks running up to 18,000 feet and over. They may also be compared to a succession of leads formed by the shale detritus which has accumulated through the ages, a mass of lofty, high-pitched ridges and gables, with narrow valleys, hollows or leads between, for the most part desolate and treeless, and frequently swept by high winds.

The climate of Afghanistan is noted for its extremes of temperature, the variation extending from 12° F. below zero in the winter to 120° F. in the shade during the hot weather. The variations are, however, less pronounced in the south, where the climate merges into that of India, but the monsoon, which sweeps over India from June to September, does not extend beyond the fringe of mountains forming the Indo-Afghan frontier. From the excessive rise and fall in the temperature originate the fevers and bowel complaints which are prevalent in the country. In common with most Central Asian peoples the Afghans during the summer sleep on the roofs of their



AFGHANISTAN: MAHOMEDAN STATE OF THE MIDDLE EAST

houses, and this gives rise to rheumatism and neuralgia in various forms, but beyond these complaints there are no diseases calling for particular mention. For nine months in the year there is almost continual sunshine, a prospect that is marred only by the frequent high winds and dust storms.

The vegetation is extensive and varied, the main ranges and spurs and offshoots therefrom producing conifers and rhododendrons to orchids and roses. The mountain flora includes pines, deodars, larch, walnut, hazel and yew trees, while the wild gooseberry, currant, hawthorn and rose are met with at altitudes of 5,000 to 9,000 feet above sea-level. Lower down, and up to 2,500 feet, are found the olive, acacia, verbena, mimosa and the commoner varieties of rose, while in the plains the camel thorn and leguminous thorns in general are extremely prolific.

In the land brought under cultivation artificial planting has effected much improvement, the mulberry, ash, poplar and willow having been introduced, while the grape flourishes to an extent that has rendered the vineyards of Afghanistan noteworthy in Asia. The gum resin is grown for export to India, where it finds a ready sale in the preparation of a condiment.

In respect of its fauna Afghanistan is fairly representative. The tiger is found in Afghan Turkistan, the common leopard generally throughout the country, and the cheetah or hunting leopard in the desert stretches. The cheetah, reputed to be the fleetest animal in the world, is used in India for the chase of the antelope, a form of sport indulged in by the native chieftains. The wolf, hyena, red and black bear, and wild boar occur in all but the higher regions, while along the Helmund river in the south-west we find the wild ass. The mountains to the east and north hold several specimens

of the goat family, notably the markhor, urial and ibex, and on the Afghan Pamirs the finest of all the wild sheep, Ovis Poli, whose horns form one of the most prized trophies in the sportsman's collection. These wild sheep, the largest of their class, whose long, curved horns often measure upwards of 60 inches in length, were first made known to the world by the Venetian traveller Marco Polo, who traversed the Pamirs six hundred years ago and from whom the sheep derive their generic name.

Afghanistan is comparatively rich in mineral resources, but no organized attempt has been made to develop the minerals essential to modern metallurgical and chemical industries. Development of these on a scientific basis can only be carried out with the aid of foreign capital and enterprise, the introduction of which is distasteful to the Afghans. Gold and silver are found in payable quantities; coal, iron, copper and lead deposits occur to the east and north of Kabul, and in the vicinity of Herat; antimony, sulphur, sal ammoniac, gypsum and nitre are in evidence, the latter being met with throughout the south-western part of the country, but as yet unexplo ted.

Trade and commerce are not in a flourishing condition, and there are no manufactures calling for special note. Silk is made on a limited scale in Herat and Kandahar, the latter place also producing the small silk prayer carpets so much in evidence in the mosques. Of exports to India wool is the staple item, and in a lesser degree silk, dried fruit, and asafetida, an oleo-gum resin obtained by incision from the root of ferula fœtida, that emits a strong and penetrating odour.

Before the Great War a limited trade was carried on with Russian and Chinese Central Asia, but has been



GRIM KHYBER PASS CONNECTING INDIA WITH AFGHANISTAN

This narrow, gloomy defile, running through the Khyber Mountains in eastern Afghanistan into Indian territory, is the only path by which heavy traffic and artillery can pass from the one country to the other, and has always been a most important strategic point and the scene of severe struggles. The road through it from Peshawar to Kabul was made by the British



VISIBLE RESULT OF A POLITICAL TREATY

Since Great Britain agreed to recognize the complete independence of Afghanistan, hundreds of similar notices have been erected along the Indo-Afghan frontier, for access to their territory is carefully restricted by the Afghan Government

confined since that time to a few articles such as pistachio nuts, foxskins and almonds, that meet a small demand.

The first essential in any country, and particularly so in one possessed of agricultural and mineral resources and somewhat varied in its terrestrial conditions such as Afghanistan, is adequate arterial communication. During the reign of the Ameer Ab-dur-Rahman, who died in 1901, good roads were constructed to link up the chief towns with the capital at Kabul, but strictly local communications are still confined to rough tracks and footpaths. Those through the mountains to Turkistan and the Pamirs in the north and north-east, and to Kashmir on the east, have the same general characteristics as all the mountain roads in the country—rocky, and presenting great difficulties in the summer when the water in the rivers is at high level.

The road from India through the Khyber Pass and via Jalalabad is in good condition, with motor traffic in vogue along it. The cooperation of the Indian authorities has enabled considerable progress to be achieved in the matter of road construction from the Indian side, the easiest route from a commercial point of view being the Gomul Pass leading to the valley of the Indus at Dera Ismail Khan, as there are no passes or other formidable obstacles to overcome.

As a race the Afghans are tall and athletic with a handsome type of feature. Their bearing is proud and arrogant, and by nature they are vain and treacherous. The population is a mixed one, and may be classified under the following heads: Duranis, Ghilzais, Hazaras, Tajiks, and the tribes along the Indian border. Of these the Duranis have been the leaders since 1747, and it is from them that the ruling element in Afghanistan to-day has sprung.

Next in importance come the Ghilzais, essentially a race of fighting men who lead an agricultural and pastoral life. From a numerical aspect the Hazaras are the important element in the population, and one that is of mixed descent. They occupy most of the west and north-west of the country, and although short in stature are of powerful physique and supply most of the manual labour in the cities and towns. The Tajiks are the settled and original population of Central Asia, and are met with in Afghan Turkistan. They are a pastoral people, very self-centred, and being of the Shiah sect of Mahomedans, have little in common with their neighbours.

The border tribes comprise those warring elements along the Indian frontier who are a constant source of trouble and annoyance to the Indian Government. The best known are the Afridi, inhabiting the mountainous country around Peshawar and the eastern outlet and offshoots of the Khyber Pass. They number approximately 100,000, and are of a warlike and predatory nature. The Shinwaris,



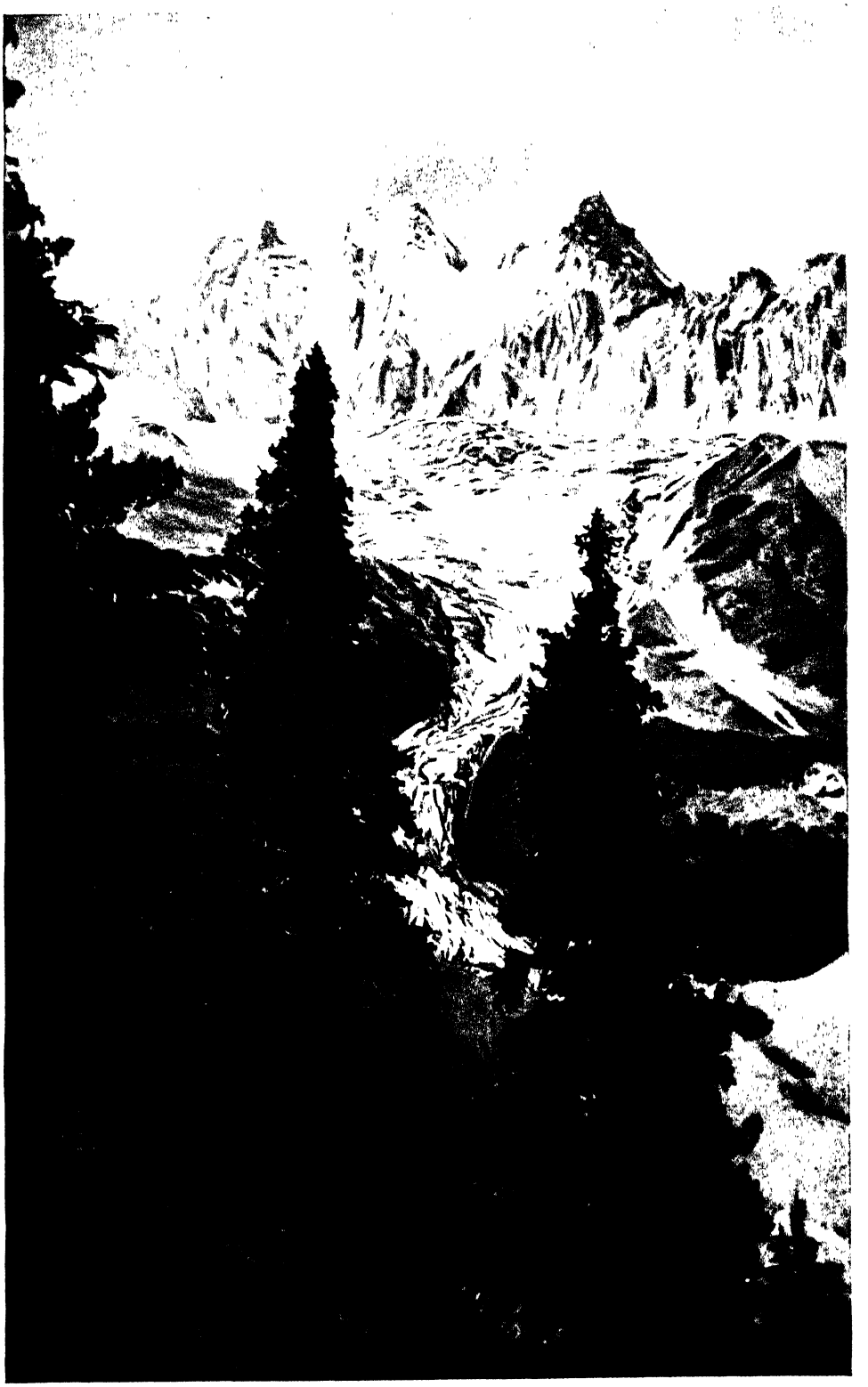
AFGHANISTAN. *Wood is scarce along the rocky borderland, and this woman's load is consequently of considerable value*



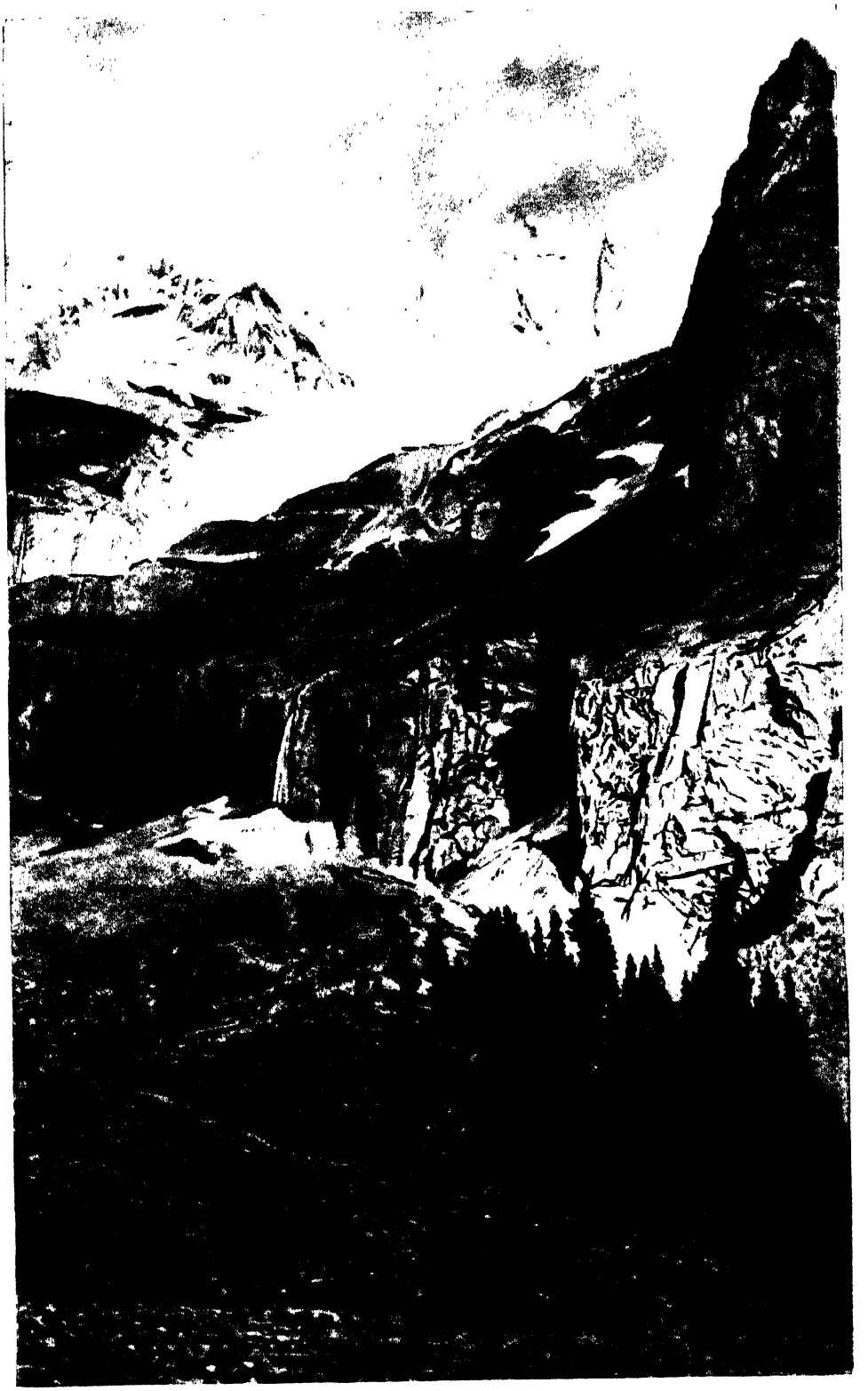
AFGHANISTAN. *Daring and robust are the men who have the inhospitable and perilous pass leading through the spurs of the Hindu Kush mountains from Afghan territory into the valleys of the Chitral state*



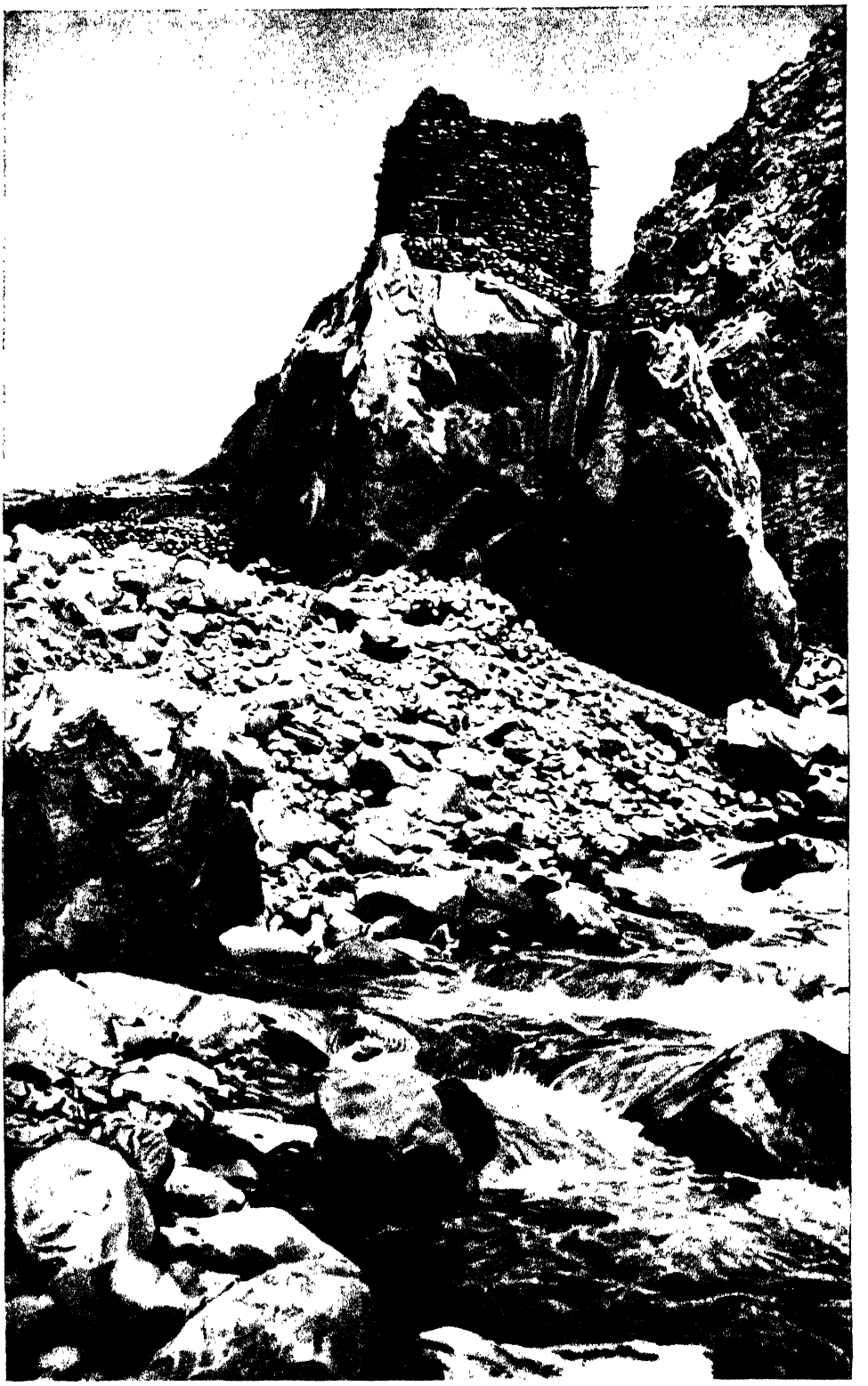
AFGHANISTAN. *The dark-green scrub among the rubble rock feeds the flocks of these borderland nomads who, depending on their livestock for livelihood, wander amid as wild and desolate a landscape as Asia affords*



AFGHANISTAN.—*Grandeur of a glacier on the Chitral border with pine-clad slopes that yield valuable timber for the plains*



AFGHANISTAN. *Note how the giant conifers, 120 feet high, at the foot of the precipice, are dwarfed by the declivity, a sheer 800 feet*



AFGHANISTAN. *In such rock throned fortresses as these the Afghans guard the few practicable entrances to their mountain-barred domain*



AFGHANISTAN. *Laden with salt and merchandise a native caravan picks its rocky way over the storm swept mountains into Chitral*



AFGHANISTAN. *Bleak and barren as are its mountains, the land in places yields a profusion of luscious fruits which provide food locally and form a prominent feature of Afghan trade in the markets of northern India*

Orakzais, and Yusufzais are border clans without any special attributes. The common language is Pushtu, although among the various clans it differs somewhat in tone and inflexion.

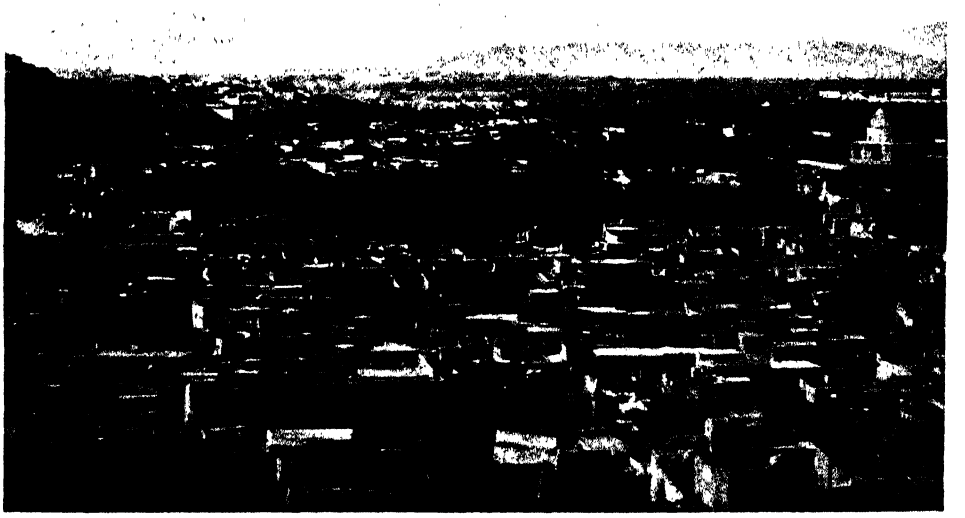
Cultivation of the land is the chief occupation of the people generally. The Afghan abhors shopkeeping and in the majority of cases he owns the land upon which he lives. This antipathy to trades and crafts accounts for the absence of manufactures, of which mention has already been made.

Irrigation has done a great deal towards the improvement of crops as well as reclaiming land, and in all except the mountain areas there are two harvests, one sown at the end of autumn and reaped in the following summer, the other sown in spring and gathered in during the autumn. The first consists of wheat, barley and lentils, the second being rice, millet, maize, tobacco, beet and turnips.

Although there is a general lack of education, much has been done in recent years, and especially since 1919, to provide the requisite means; but existing educational facilities extend merely to towns and large villages. The almost universal religion is Mahomedanism, the adherents being mainly of the Sunni sect. Paganism is the religion of the Kafirs, a small but interesting tribe living in the mountains east of Kabul. Despite their protestations of piety it cannot be said that the different sects show strict adherence to the Koran and to Sunni precepts. Nevertheless Afghanistan is the most powerful of the Moslem states, and is the foremost seat of the faith in Middle Asia.

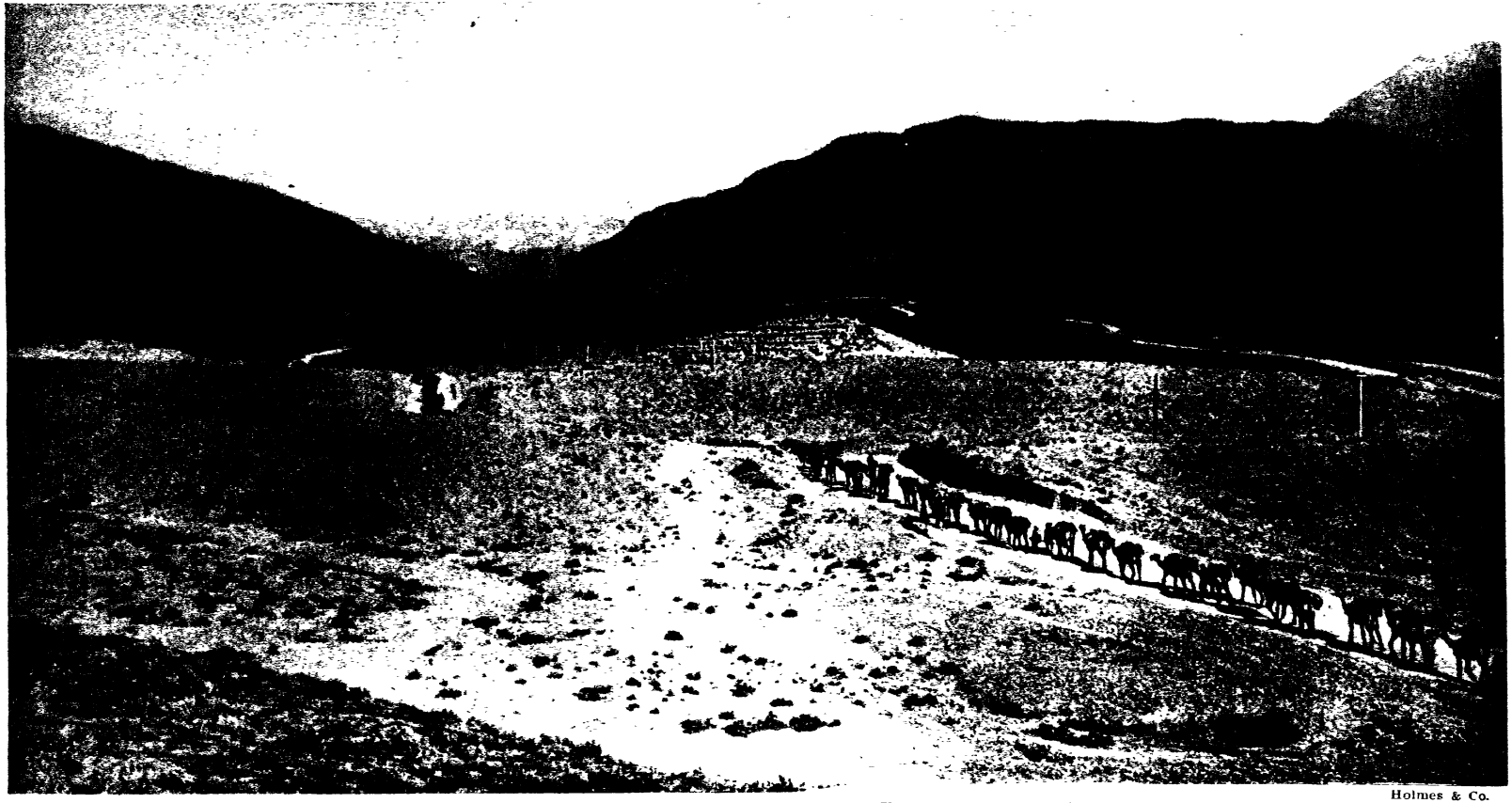
Each of the political divisions is under a governor nominated from Kabul, who is the administrator and has charge of the customs and the collection of revenue. These divisions are subdivided into districts with subordinate officials whose title, under the supervision of the governor and the controlling head in the person of the Ameer, represents several functions, fiscal, judicial, and all that pertains to an executive.

The Ameer Ab-dur-Rahman, who reigned from 1880-1901, laid the foundations of this system, while he created



HISTORICAL AND BEAUTIFULLY SITUATED CAPITAL OF AFGHANISTAN

Kabul is picturesquely placed on a high plateau, some 6,000 feet above sea-level at the foot of hills, and is surrounded by a fertile district. Within its walls the scene is less striking; the streets are narrow and tortuous, and the houses, built of bricks and wood, are mostly windowless. The city has numerous historical associations, and played an important rôle in the Afghan wars



Holmes & Co.

CAMEL TRAIN AT THE ENTRANCE TO THE KHYBER PASS, ONE OF THE WORLD'S GREATEST STRATEGICAL POSITIONS

The wild and desolate landscape on the eastern Afghan border is unbroken save for the jagged mountain chains which make transit into India so precarious and attended by innumerable dangers. The perils of the Khyber Pass are well known. The bed of a stream, passing between high cliffs, this formidable defile is 33 miles in length, and in certain parts only 15 feet wide; and its rugged sides are zealously guarded by untamed Afridi tribesmen, ever ready to attack the unprotected traveller. It was traversed by the British forces in both the Afghan wars during the nineteenth century



Holmes & Co

WILD MOUNTAINS WHICH CONTAIN ONE OF THE GATEWAYS OF AFGHANISTAN TO THE PLAINS OF INDIA

It has been said, not without truth, that the military strength of Afghanistan lies chiefly in the rugged and inhospitable nature of the country, and in the absence of good roads, and, indeed, the highways and gateways in the land of the Afghans are almost all bleak and barren gorges. Through them the slowly moving trade caravans make their way, laden with wool, hides, carpets and silks, which are numbered among the principal industries of the country and form the main

a strong central government with a military organization adequate to maintain his authority. The rule is to all intents an absolute monarchy, but the Ameer is assisted by a council, consisting of sirdars, or high officers of the army and the state, and hereditary nobles, the local chiefs and khans representing the people, with a proportion of mullahs, or priests, who have always played a leading part in the life of the country.

On the accession of Ameer Amanullah the various departments of the governmental machine were reorganized and some new ones created. They now comprise revenue, customs and excise, postal, military, civil, internal affairs, ways and communications, police, finance, trade, and public works. Owing to strong opposition and the inherent dislike of foreign encroachment and enterprise, railways have not been introduced, but the telephone now links up Kabul with various points, and motor transport along the road from India to Kabul may develop in the near future. The army formed by Ab-dur-Rahman was increased and now numbers about 100,000 men equipped with rifles and artillery which are to some extent the products of the country.

The laws are undergoing revision and the model taken is that of the Code Napoléon. Hitherto justice has been entirely administered in accordance with the tenets of Islamic law and the laws appertaining to the tribes, as well as that expounded by the Ameer, who is the sole court of appeal, but to whom all have access. Intimately connected with the life of the people is the tribal law system as administered by the mullahs.

The sources of revenue are difficult to define; some are in money, but the majority of the collection is in kind. The principal taxes are those levied on land, grazing rights, poll taxes, mining royalties, monopolies, fines and stamp duties on documents.

Prior to 1919 the foreign relations of Afghanistan were controlled by the British Government, but in August of that year a treaty was concluded under which the country was recognized as free and independent, both as regards internal and external affairs. Early in 1921 a mission was despatched from India to Kabul, and after ten months' negotiations an agreement was concluded by which each side agreed to respect the internal and external independence of the other, to recognize existing frontiers, and to reciprocate in the matter of legations at London and Kabul and consular representation at specified points in India and Afghanistan. These arrangements have since been consummated, and further agreements respecting trade, commerce and postal facilities are to be enacted within the near future.

AFGHANISTAN: GEOGRAPHICAL SUMMARY

Natural Divisions. Mountains across the middle, part of the great chain of Old World Mountains—Atlas, Alps, Caucasus, Himalayas. Plateau slopes to north and south of the mountains.

Climate and Vegetation. A hot, rainless desert area, with basins of internal drainage both north and south; the shade of even a telegraph-pole is sought during the glare of the noonday sun. Cf. the Sahara and Arabia. Traces of winter and summer rain regions north and south of the desert.

Water Supply and Rivers. The mountains give rise to the Helmund, Kabul, and Oxus and other streams. In limestone areas there are karst conditions and underground streams (v. Serbia). Irrigation as in Persia is practised by means of underground channels.

Chief Industries. Agriculture, confined to the fertile valleys. Summer harvest: wheat, barley. Autumn harvest: rice, millet, maize. Winter rain region crops: wheat and Mediterranean fruits (peaches, grapes, figs, mulberry) (v. Punjab). Summer rain region crops: rice, maize (v. Burma).

Minerals. In relation to masses of intrusive lava in the north, the mineral sequence copper, silver, lead, etc., is found (v. America, North). These minerals are not worked, small quantities of iron and gold are mined.

Natural Outlets. By the Khyber, Gomul and Kurram passes to India; by the Bolan pass to Baluchistan. By devious mountain routes to Turkistan.

Route Towns. Kabul, Kandahar and Herat.

AFRICA

Physical Features of the Great Continent

by Evans Lewin

Author of "A Geography of Africa," "The Germans and Africa," etc.

THE continent of Africa, although three times the size of Europe, has a coastline about 16,000 miles in length, 4,000 miles less than the European coasts, and there is an absence generally of good harbours. These factors have exerted a profound influence on its social and economic development, and have resulted in a slow evolution towards civilization.

The fact that the longer northern coasts are part of the Mediterranean region and that they are cut off from the rest of the continent by the Sahara led to the development of successive civilizations in the northern areas, one of which, the Egyptian, has been indigenous, while the others, such as the Phoenician and Carthaginian, Roman and Arab, originated and drew their inspiration from the Mediterranean rather than from Africa itself. South Africa remained remote from European civilization until the sea-way to India was discovered by the Portuguese.

Early Geologic Convulsions

The Equator divides the continent almost in half, the northern portion being more than double the size of the southern and extending from west to east some 4,000 miles between Capes Verde and Guardafui. The extreme length from north to south, between Cape Blanc and Cape Agulhas, is about 5,000 miles; but a line drawn between these two points has to the east of it fully two-thirds of the continent and, with the exception of the Moroccan and Algerian area, almost all the highlands and plateau country suitable for European settlement.

Throughout the three earliest of the five main divisions of geological time, tropical Africa has been part of a great continent which is believed to have extended from Brazil in the west to India and Australia in the east and south. Enormous changes during the fourth geological era led to successive submergences of vast areas; so that while at various epochs great tracts were beneath the sea, such as parts of the Sahara and large areas of East Africa, there was a re-emergence, producing a broad band of highland country extending southwards from the great bend of the Nile to Natal and the Cape of Good Hope.

The Two Rift Valleys

In this region profound geological changes were accompanied by great volcanic activity, during which the summit of this highland plateau sank and formed the long depression known as the Rift Valleys, the more westerly valley extending from the southern end of Lake Nyasa in a long avenue filled with lakes and waterways as far as the Nile, and the easterly, or Great Rift Valley, breaking off at the northern end of Lake Nyasa and extending as a depressed area, frequently bounded by steep parallel sides, northwards across the Tanganyika Territory and Kenya to Lake Rudolf and thence to the Red Sea.

This great rift can be traced northwards into Palestine, and across the Mediterranean and along the Adriatic to the Alps. Its length is equal to one sixth of the circumference of the earth. South and west of this great fault, but not in it, lie the gold-bearing areas of the Witwatersrand, the coal areas of the southern Transvaal and Natal, the copper regions of the northern Transvaal, the gold-bearing areas of Southern

Rhodesia, the great copper zone of Katanga in the south of the Belgian Congo, and the gold-fields of the north-eastern portions of the same country.

The Continent in Relief

If we could view Africa from an aeroplane we should see spread before us a vast country depressed in its northern half, where the Sahara is never at a great height above sea level and in some portions is actually below it, rising gradually towards a broad and extensive plateau on the east, crowned with mountain ranges. This plateau extends southwards from the massive and furrowed highlands of Abyssinia, across Kenya Territory and Tanganyika, into Rhodesia and the Transvaal; whence it continues southwards, dropping abruptly to the coasts of Natal. It ends in the south-west in the rampart of Table Mountain.

In the west the great plateau, with breaks, curves round the coasts into the South-West Africa Protectorate; extends into Angola, where it rises as a broad band of territory across which the railway from Lobito Bay to Katanga is being constructed; drops towards the mouth of the Congo; rises again beyond the Congo; extends across Cameroon; and terminates in the rampart of mountains, of no great height, which continue into Northern Nigeria before dropping to the Sahara.

Vast Basin of the Congo River

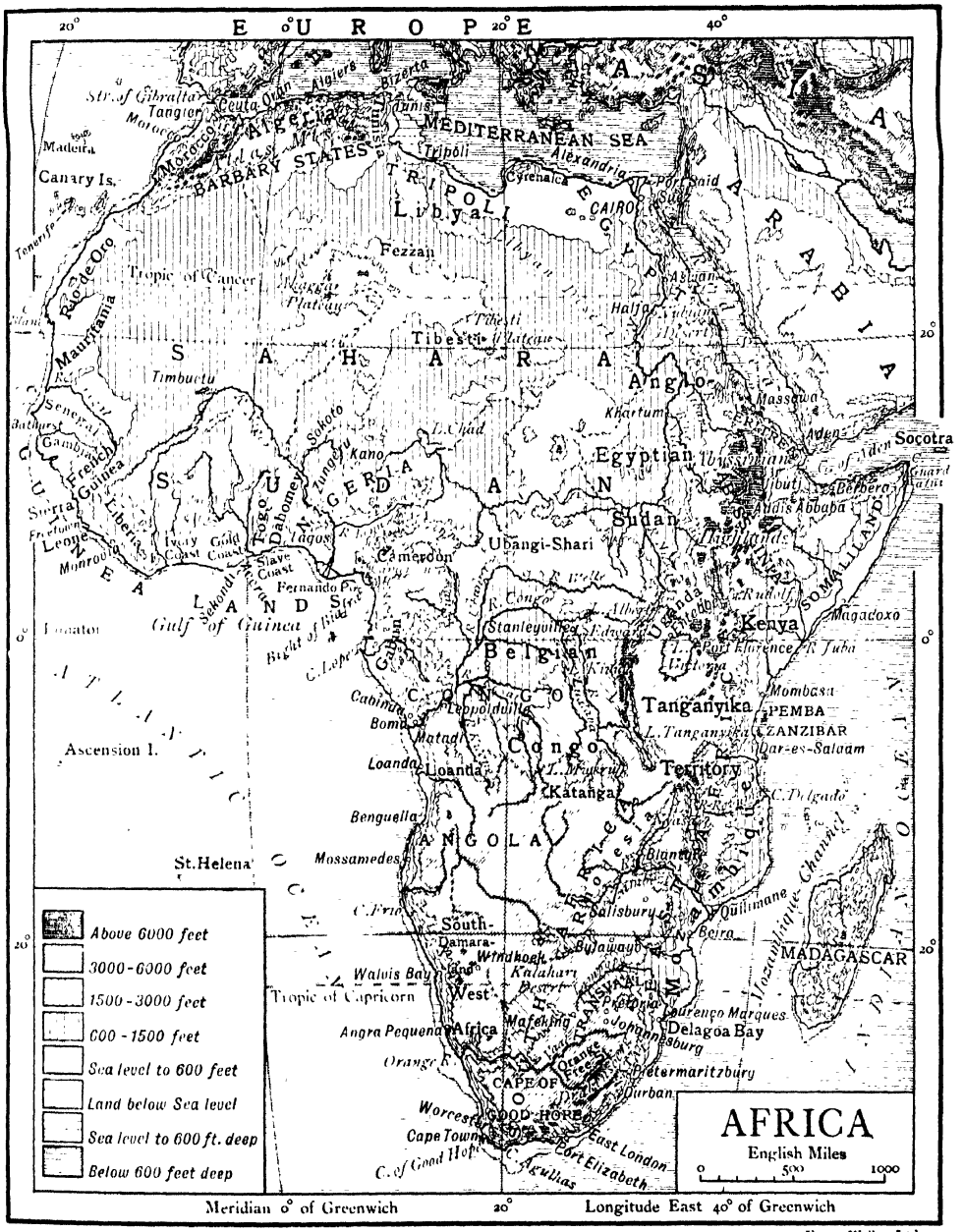
Within this curved series of highlands, dotted here and there by mountain ranges and occasionally broken by isolated peaks, lies the Congo basin. The depressed area extends northwards across the Nile-Congo divide and across the Sahara to the shores of the Mediterranean in the north and to the Atlantic Ocean in the west. In the far north-west will be seen the Atlas Mountains stretching across Morocco and Algeria to the eastern shores of Tunisia and shutting off the Mediterranean region from the rest of Africa. Our general impression will be that of an inverted saucer, sunk somewhat in the middle, towards which the coastal mountains rise in successive tiers. We shall see that the northern part is generally at a much lower level than the southern and that the general tilt of the land-surface is from south to north, in which direction it might have been expected that all the great rivers would flow. As a matter of fact, with the exception of the Nile, most of the great waterways, such as the Niger and the Congo, although their first course is northwards, eventually turn south. This is due to the fact that they have cut new channels through the coastal mountains.

Mountain Systems and Watersheds

The Atlas Mountains form the north-east corner of the continent and may be considered as an extension of the cordilleras of Spain, the Alps of Switzerland and the Apennines of Italy. The Ahaggar or Hoggar Mountains, rising in the midst of the Sahara, south of Algeria, are not inferior to the Alps in extent, contain peaks of 8,000 feet, and extend towards the south-east into an elevated region known as the Tibesti or Tu highlands, which in past ages has formed a bridge across the desert by which the African fauna has passed from north to south.

The West African mountain system is of little importance except in Futa Jallon, where the mountains, of no great height, form the watershed of the Niger, the Senegal, the Gambia, and numerous other great rivers. Of the mountains of Northern Nigeria and Cameroon, the former rise to a considerable height on the Bauchi plateau, which is the great tin area of Africa, and the latter culminate in the lofty Cameroon peak, 13,746 feet, which dominates the north-western corner of the colony.

The Abyssinian highlands are crowned by lofty peaks, many of which are snow-capped and form the watershed of the Blue Nile. The mountains of the East African plateau include the mighty granitic mass of Ruwenzori, between



Emery Walker Ltd. sc.

RELIEF MAP OF THE CONTINENT OF AFRICA

Lakes Edward and Albert, with Mount Margarita rising 16,790 feet above sea-level, and the volcanic cones of the Mufumbiro or Kirunga Mountains, some of which are active volcanoes, lying between Lakes Kivu and Edward.

With these may be considered, although far distant from the system and not forming part of it, the isolated peaks of Mount Kilima-Njaro, an extinct volcano in the north-east of the Tanganyika Territory, rising to a height of 19,328 feet; Mount Kenya, another isolated extinct volcanic mass, and Mount Elgon, both in Kenya.

The mountains of the South African plateau commence in the ranges west and east of Lake Nyasa and extend, with numerous breaks, to the great Drakensberg range, which, commencing in the north-west corner of Natal, forms the mountainous

country of Basutoland and extends as various ranges, broken and divided by large inland plateaux, such as the Great and Little Karroo, to the south-west corner of the Cape Province. In addition are the mountain system of the South-west Africa Protectorate and the mountains of the south-western littoral.

Africa's Chain of Lakes

West of the East African plateau lies that unique feature of Central Africa, the great lake system. This forms a great waterway which will be joined together some day by railways. The principal of these lakes are Victoria, an area of fresh water nearly as large as Scotland, from which issues the Nile, which then runs into Lake Albert before continuing its northward course; Lakes Edward and Kivu, the latter the most picturesque lake in Africa; Lake Tanganyika, a deep trough dividing the Tanganyika Territory from the Belgian Congo; and Lake Nyasa. Kivu and Tanganyika form part of the basin of the Congo. Nyasa sends its waters to the Zambezi.

While the mountains named form the great catchment areas, desiccation has rendered enormous areas sterile or desert. The greatest of these arid regions extends southwards from the Atlas Mountains to the great plateau region known as the Sudan, stretching at its widest part from the Atlantic to the Red Sea and extending on its eastern side into the Libyan Desert, west of the Nile, and the Nubian Desert east of that river, which runs as a thread of verdure through the eastern portions of this desert region.

Climate and Habitable Areas

The Sahara is dotted with fertile areas, known as oases, consisting of one or many villages and ranging in size from a few square miles to a territory like Fezzan. In South Africa a similar but much smaller region, the Kalahari Desert, is in process of formation.

The climate is in the main tropical, although temperate regions exist in the extreme north and in the south, while much of the tropical region is tempered by the fact that on the high plateaux life for Europeans is healthy. It is thus with the greater part of the Union of South Africa; large portions of Rhodesia, especially Southern Rhodesia; the highland regions of east Africa; the high plateau of Angola; while in Abyssinia the climatic conditions would be as favourable for Europeans as they are in Morocco, Algeria and Tunisia.

In many parts of tropical Africa, however, the climate is such that Europeans can only thrive for comparatively short periods without the stimulus of a journey to cooler regions. This is specially true of West Africa, the Congo regions and the coastal areas of East Africa; and although medical science has made great progress in eliminating or rendering less deadly the scourges of malaria, sleeping sickness and other diseases, it is not possible to visualise the period when Europeans can settle permanently in these regions.

Cereals and Other Produce

Africa forms a great storehouse of tropical products needed in the markets of Europe. It furnishes, or is a potential source of, cereals, cattle and sheep, and fruits, and supplies innumerable other products wanted in manufacturing industries, such as cotton and fibres, vegetable oils derived from nuts and kernels (also used as constituents of food), rubber, and products derived from wild animals, such as ivory.

The last and similar products are becoming more and more scarce as civilized man successively invades the haunts of big game and exterminates the indigenous fauna.

The great cereal areas, potential or otherwise, are the Mediterranean regions of north-western Africa, Egypt, the highlands of East Africa, and the plateaux of South Africa and Rhodesia, countries roughly corresponding to the areas possible for white settlement. Cattle and sheep thrive generally in the same areas and are extensively spread

throughout the Cape Province, Orange Free State, Transvaal and Rhodesia in South Africa; Kenya in East Africa; the Sudan regions of West Africa (where, however, they are of the native variety); the Anglo-Egyptian Sudan; and southern Angola.

The deadly tsetse fly is prevalent throughout large areas, and is the host of the parasite which causes sleeping sickness. It swarms in marshy districts and in the neighbouring forests, and there are three species that are fatal to cattle, goats, sheep, horses and dogs. In addition mosquitoes of numerous species, including the malaria-carrying anopheles, are common throughout immense regions.

Health, Temperature and Rainfall

In the bracing highland plateaux of eastern Africa and elsewhere, the European can live for long periods without any serious loss of vitality, but it has yet to be proved whether even on the Kenya highlands, under the direct rays of a tropical sun, Europeans will be able to rear healthy families without a constant influx of fresh blood from more temperate regions. This, of course, does not apply to South Africa generally, nor to the more temperate regions of northern Africa.

Both the northern and southern extremities of the continent are fairly temperate areas, but as Africa is almost bisected by the Equator, by far the greater part experiences a high temperature. The climatic differences, however, are far less extreme than in other continents.

In the more temperate regions the seasons are differentiated by temperature, but in the hot zone rainfall determines them. For this reason the distribution of rainfall is a predominating feature of the climate, the great tropical belt, including the enormous forest areas of West and Central Africa, being in the main the zone of heaviest rainfall.

The vegetation may be divided into six main types. The first is the Mediterranean vegetation, which is closely allied to the flora of southern Europe and prevails both in northern Africa and in the extreme south-west of South Africa. The second is the desert vegetation, which can be divided into two classes—that which springs up after occasional rains and that which depends in the main upon underground moisture. The latter consists of trees, shrubs and plants with succulent and thorny stems and leaves.

Various Types of Vegetation

The third type is the grass and scrub vegetation, forming an introductory zone to the fourth type, the area of savannah, which extends north, south and east of the Congo basin, and includes the great Sudan region of West Africa and much of the high plateaux of East Africa, South Africa and Angola. In these zones is much land suitable for agriculture either with or without irrigation and, wherever the tsetse fly is absent, for cattle.

The fifth type is the forest vegetation, which extends throughout much of West Africa from the coast of Sierra Leone eastwards in a broad belt to Cameroon, French Equatorial Africa and the Belgian Congo, and thence continues up the slopes of the Ruwenzori range. The forests are broken at intervals by river valleys and savannah.

Forest Regions and Denudation

On the whole, except in the zones of greatest rainfall, Africa cannot be considered a richly forested continent, although apart from the belt mentioned above there are numerous great forests, such as those in Uganda (especially the Toro forest on the west shores of Lake Victoria), Mozambique and Nyasaland.

South Africa itself is poorly timbered, the only important region being the slopes of the Drakensberg Mountains, while the greater part of northern Africa has been denuded of its forests. As trees have disappeared the desert has encroached, so that there are, at the present time, many regions in northern Africa, once well timbered, which are

now undergoing a process of desiccation. The sixth type of vegetation is the alpine flora, found on the higher peaks of East Africa, Abyssinia and Cameroon.

Africa, as a continent, has been subjected to successive waves of invasion by migratory tribes, driving before them the more primitive peoples. The most primitive existing types—the Hottentots, Bushmen and Pygmies—are supposed to be the aboriginal races of southern and central Africa. Apart from these races the peoples may be roughly divided into two great families, those belonging to the Caucasian races (Semites, Hamites and Europeans), and those belonging to the negro and negrito races.

The Hamitic people probably came originally from Europe or Asia, driven southwards during the glacial period, and include the Berbers, the fellâhîn or peasants of Egypt, and certain tribes in the Sahara, such as the Tuareg. Subsequent Semitic invaders from Arabia and Western Asia mingled with the Hamitic peoples and negroes. The Semites include the Arabs, who form the aristocratic class in Egypt and throughout north Africa generally.

The negroes, who occupy more than two-thirds of the continent, are roughly divided into those of western Africa, who speak hundreds of diverse languages, and those living south of a line running from Rio-del Rey in Cameroon to Lake Albert, known generally as the Bantu race. These people show evidences of a slight Caucasian strain and speak languages that are closely allied. With the exception of the Hereros of South-west Africa, they are mainly agriculturists, and include some of the finest types of negro races, such as the Zulus of Natal and their off-shoot, the Matabele of Southern Rhodesia.

The introduction of the European element was due mainly to the increasing demand in Europe for the raw materials of commerce, although the earlier settlement of the Dutch in South Africa had been due to a longing to escape from intolerable political and religious conditions quite as much as to a desire for trade and adventure.

Certain great industries, such as those based upon vegetable oils and fats, draw their chief supplies from this continent. In the same way the main source of European supplies of cocoa is the Gold Coast Colony.

In other products Africa is taking an increasingly important part. The cotton of Egypt, the Anglo-Egyptian Sudan and Uganda competes with the best American varieties. The immense mineral riches of many regions, some of which are developed and many of which are still awaiting adequate transport, represent a rich store for European exploitation. In return for these products Africa is importing an ever-increasing quantity of European manufactured goods, and the natives generally are learning the wants as well as the advantages of modern civilization.

AFRICA: GEOGRAPHICAL SUMMARY

Area. 11,500,000 square miles. Population, 180,000,000.

Position. Cairo, 30° N.; Durban, 30° S.; C. Verde, 17° W.; C. Guardafui, 51° E.; Accra and Oran almost on the meridian of Greenwich.

Continental Relations. South of the Sahara by origin and structure similar to the Brazil Highlands, the Deccan plateau of S. India and Australia, all remnants of the ancient continent of Gondwanaland; north-west of the Sahara the Barbary States are by structure, climate and vegetation part of Europe; Africa meets Europe at the desert rim.

Great Rivers. Nile (*v.* Egypt), Niger (*v.* Sudan), Congo (*v.* Congo), Zambezi and Orange (*v.* South Africa).

Great Lakes. Victoria, Tanganyika, etc. (*v.* East Africa).

Mountains. Atlas (*v.* Barbary States), Drakensberg (*v.* South Africa), Central Volcanoes (*v.* East Africa).

Coast. Entirely of the Atlantic type, where the regular coast follows the broken edge of a plateau and has no relation to the existing mountain ranges or valleys; hence there are few islands and no festoons of islets parallel with the shore; the continental shelf is narrow and the plateau rises sharply above the abysmal ocean.

ALASKA

A Vast Territory & Its Possibilities

by Vilhjalmur Stefansson

Arctic Explorer and Author of "Hunters of the Great North," etc.

ALASKA is an empire in extent. A straight line drawn between its south-eastern and south-western extremities is long enough to reach across the entire map of the United States. In Europe it would stretch from Madrid to Moscow and a little beyond. Geographically, therefore, a brief, complete and accurate description of Alaska is about as difficult as a similar one of Europe. In America it is common to speak of the climate of Europe, but those who live in Europe are more likely to discuss the climate of Sicily or of Holland.

We shall here make a rough division of the climates of Alaska into three groups, corresponding to areas that differ markedly in general outward appearance. The "Panhandle," that extends southward along the west coast to British Columbia, has a rugged topography in common with the entire south coast and extending westward into the Alaska Peninsula and the Aleutian Islands. The rainfall is very heavy, as much as 165 inches per year in certain places, or nearly four times that of New York and more than six times that of London.

Extraordinarily Heavy Snowfalls

Certain parts of this area have a very heavy snowfall, estimated for the Valdez region at from twelve to thirteen feet, while in the mountains it sometimes reaches depths of twenty-five to thirty feet. Of course, this does not mean that the snow is ever so deep as that, but merely that if you measure each snowfall while it is fluffy and fresh, and add up the various measurements of the year, you will get this total.

On or near the sea-coast it is never cold in winter, but the tremendous precipitation, together with the absence of extreme heat in summer due to the cooling ocean breezes, enables this coast to support huge glaciers that come down the valleys into the sea and break into icebergs—never as large as those of the Antarctic or of Greenland, but sufficiently large and numerous to enthral the tourist and confirm him in the general impression that he is approaching an Arctic land.

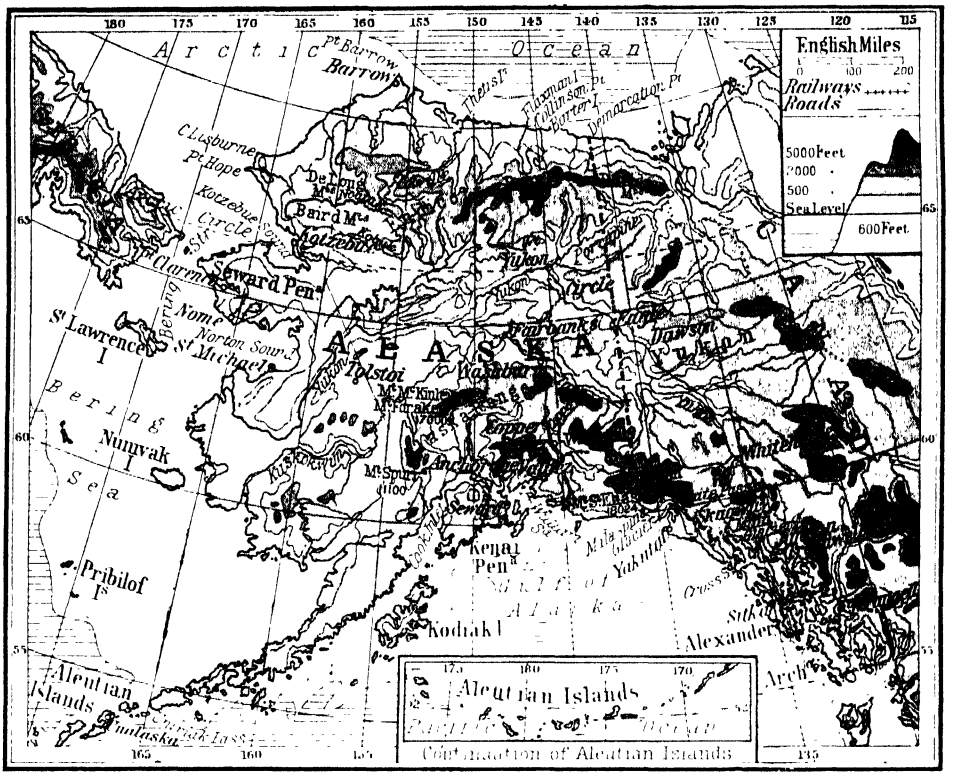
A Land of Mighty Forests

The coast and the slopes far up into the mountains are covered with one of the great forests of the world, similar in general nature to that of British Columbia, although not quite so valuable for lumber. This drawback is not now so commercially important as it was, since wood pulp has become a commodity ranking in value and importance with lumber.

This general region is also rich in minerals. There are few enterprises in the commercial world more famous than the Treadwell Mine and it is only one of many huge commercial undertakings in the development of copper, gold, silver and coal.

The agricultural possibilities of this region are those dictated by a climate where the temperature seldom falls below 0° F. in the winter and seldom rises above 80° F. in the summer, with extremes of 93° F. and 22° F.—a climate not very different from that of Scotland, except in the greater volume of precipitation.

Eventually the most important of the three sections into which we arbitrarily



PHYSICAL FEATURES OF THE TERRITORY OF ALASKA

divide Alaska is the interior. It is chiefly the Yukon basin, the drainage area of the third longest river in North America, and one of the dozen largest rivers in the world. But it includes also the basins of the Kuskokwim (the second largest river in Alaska), the Kobuk and the Noatak. Apart from its northern and southern boundaries in the mountain ranges, that roughly parallel the north and south coasts, this interior area may be described as rugged rather than mountainous, and it is covered in general with a forest composed mainly of evergreens but including quantities of cotton-woods, alders and smaller trees.

The climate is of the type called continental, the winter temperature in many places dropping to extremes of 60° F. and even 70° F. below freezing point, while the summers are correspondingly hot, reaching records as high as 90° F. and 100° F. in the shade both north and south of the Arctic Circle. Both rainfall and snowfall are comparatively light, corresponding to southern Canada or the interior of Russia.

The third division of Alaska, on the basis of climate and vegetation, is a narrow coastal strip along Bering Sea, widening northward into one of the great prairies of the world along the Arctic coast. This is the treeless section of Alaska, although narrow tongues of forest do stretch into it along some of the rivers with heavy growths of "willows" coming even nearer to the sea. Near some of the rivers that cross the wide northern prairie there are "willows" (alders, willows, etc.) fifteen to twenty-five feet in height and seven or eight inches in diameter, and they occur as much as a hundred miles beyond what is commonly considered to be the tree-line.

The rain and snowfall on the treeless strip along Bering Sea make a total precipitation somewhat heavier than that of the interior, but the Arctic

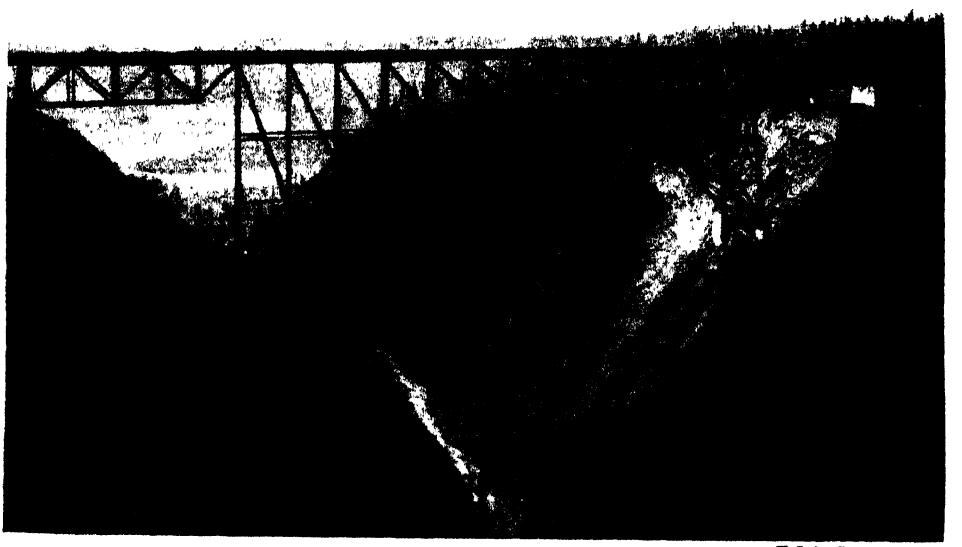
prairie has less. It is probable that if a careful estimate could be made—none has so far been made—it would be found that the snows of winter if melted would give an average of four or five inches of water. The summer rains would give about the same, making a total precipitation of eight or ten inches per year.

In the southern forested belt fogs and thick weather are common at all times of the year. In the great interior clear weather is the rule at all seasons, and especially in winter when there are weeks on end with scarcely a cloud. The Bering coast has a great deal of overcast weather in summer and a good deal in winter also. On the Arctic prairie fogs prevail on the coast from May till October and cloudy weather extends more or less inland. Even the coast is usually clear in winter. Those parts of the Arctic territory that lie between fifty and a hundred and fifty miles from the sea-coast have less cloudy weather than any other part of the world, except similarly located areas in Canada and Siberia and a few of the great desert areas of the world.

The mountains along the south coast of Alaska are high in places. One of the peaks is the highest point on the North American continent—now generally called Mount McKinley, although many authorities contend for one of the two or three native names, among which Denali has the most supporters. This mountain is 20,464 feet, and Mount St. Elias in the Panhandle is 18,024 feet high.

The northern Alaskan mountains seldom rise above ten thousand feet and the ranges visible from the north coast, although very imposing because they spring from low, flat land, are really only between five and eight thousand feet high. On account of the small precipitation in winter and the great summer heat, glaciers are absent from the most northerly mountain range, and are found in the second range only at elevations between five and ten thousand feet.

The soil of Alaska has been tested only in a few places, for it is a frontier land. An official publication of the Alaska College of Agriculture at Fair-



U.S.A. Government

HOW MAN'S INGENUITY OVERCOMES STUPENDOUS DIFFICULTIES

This picturesque cañon, known as Hurricane Gulch, has been spanned by a cleverly constructed railway bridge. Traversing this bridge one catches a glimpse of a graceful U bend of the Sushitna, a large and valuable river flowing through thickly-wooded valleys of the Alaska mountains into Cook's Inlet. Its upper courses are fed by many glaciers and mountain torrents

banks stated in October, 1923, that an acre of Alaska soil would produce three times the quantity of vegetables that an acre would produce in the United States, and would produce them quicker. It may be necessary to make some allowance for enthusiasm in this statement, but it would be a mistake to disregard it, for it is the common testimony all over Alaska that those plants which will grow at all will grow more rapidly and to a larger size than in " temperate " lands. Garden flowers, for instance, that grow knee-high in the central United States will grow to the height of a man's shoulder in certain parts of Alaska. Cabbages grow to a similar gigantic size. It seems that the great heat and twenty-four-hour-a-day sunshine of the Arctic and immediate subarctic produce not only the expected result of more rapid growth but the somewhat surprising result of giantism.

In considering the length of the northern summer it must always be remembered that a reckoning by the days of the calendar produces deceptive results, since the growth of vegetation is measured roughly by the number of hours of sunlight. The thirty days between June 10 and July 10 on the Arctic Circle are equal to not one but two months of Italian growing time. The calendar months immediately before and after are each equal to about a month and a half. Thus these three calendar months make up about five growing months from the point of view of vegetables.

In the Arctic and subarctic portions of Alaska the diurnal variation of temperature is smaller than in the majority of more southerly countries, since the sun shines continually, leaving no cooling period. At the weather observation station at Fort Yukon, just north of the Arctic Circle, the mean temperature for June, July and August is 50° to 60° F. The maximum summer temperature recorded for Fort Yukon is 100° F. in the shade, and the minimum winter temperature is −76° F., which is nearly if not quite the maximum temperature range for any given place in Alaska.

The chief forest trees of the southern or rainy zone are western hemlock, Sitka spruce, western red cedar and yellow or Alaska cedar. In the interior



TROPHIES OF A WALRUS HUNT IN THE ARCTIC NORTH

The Pacific walrus was formerly found abundantly round Alaska and the north-east coasts of Siberia, but has been exterminated in many districts by relentless hunting. This huge, fin-footed mammal, related to the sea-lion, is distinguished when adult by a pair of long tusks growing from the upper jaw. A full-grown male walrus is 10 to 12 feet in length and may weigh 3,000 lb.



U.S A. Forest Service

FEEDING HOUSE FOR BLUE FOX ON FOX-BREEDING RANCH

Among the fur-bearing animals of Alaska, moose, fox, beaver and mink are some of the most valuable, and most eagerly sought after by white trappers. Several kinds of foxes are found, including the white Arctic fox and the black, red and blue foxes. The blue species is plentiful in the Aleutians, where it is bred on account of its fur, fox ranches proving very successful commercially

the main trees are spruce and cottonwood. These are also found along a few of the northward flowing rivers, extending into the Arctic prairie which itself has a vegetation of grasses and sedges in part similar to that found on more southerly prairies as of Montana and Dakota, and in part peculiar to the Arctic. Varieties of bluegrass and timothy are in places conspicuous. The prairie vegetation is seldom knee-high and more often only half that. Contrary to common belief, mosses and lichens do not prevail over flowering plants except in a few restricted localities, chiefly mountainous.

In the beginnings of agriculture so far made in Alaska there have been cultivated with success wheat, oats, barley, rye and most of the north temperate zone garden vegetables. Some of these grow better in the hot interior summers than they do in the longer Scotland-like summers of the south coast.

Alaska is known to the world largely through its mineral wealth. Like the other riches of Alaska, the minerals were not suspected at the time when the United States through Secretary Seward purchased the territory from Russia in 1867. For about thirty years after that it was known as " Seward's Ice Chest," " Seward's Folly," etc., and was supposed to be for ever incapable of returning to the United States the $7,200,000 spent in the purchase. It is now reckoned that the gold output alone of the territory up to the close of 1921 had been $328,104,100. Some of the other minerals are rated in the same Government report as follows : Copper, $134,840,700 ; silver, $8,104,000 ; output of all other mineral products, including tin, marble, gypsum, petroleum, lead, etc., $7,430,145.

The most interesting recent development in the mineral situation of Alaska is that in 1923 the United States Government, on behalf of the Navy, set aside as an oil reserve the western half of Arctic Alaska from Cape Lisburne to a little beyond Point Barrow. The same area is known to contain large



HARDY ANIMALS OF THE ARCTIC REGIONS: MOTLEY CARIBOU-REINDEER HERD ON A BANK OF THE LOWER YUKON

The reindeer was introduced into Alaska from Siberia, and with its usual hardihood thrives well in this bleak and mountainous country. It is notable for the fact that both sexes have antlers, which, placed higher on the forehead than those of other deer, are very long and curved. The American type of reindeer is commonly known as the caribou; it is of the same species as the European reindeer, but has been little domesticated, for the Alaskans do not tame their deer like the Lapps of Europe. In the wild state it subsists on lichens and moss among the mountains in winter, and on the grass of the valleys during the summer



ARRIVAL OF A REINDEER TRAIN IN AN ALASKAN TOWN

In Alaska reindeer are used very little as draught animals; the Alaskans seem to prefer journeying by dog team, but it is believed that with proper training the deer would soon become good travellers, for their feet are broad—a special adaptation for traversing the snow in winter and marshlands in summer. They are used in the south in large numbers to provide food for the natives

coal deposits, but no restriction was placed upon them by the proclamation of the Government.

Fish is one of the chief industries, and the salmon the chief fish. The so-called sockeye is only one of several kinds of salmon, and in 1918 only about half of these were canned. But the value that year of the portion canned is given at $23,500,000, showing that this one fish in one year has returned to the United States more than three times what the entire territory cost. Few statements have ever been made with greater assurance than those as to the permanent worthlessness of Alaska, and few now look more ridiculous.

The ordinary European domestic animals are all bred here and there over more than two-thirds of the area of Alaska. That this cultivation is sporadic could be sufficiently explained by the newness of the country. However, it seems likely that the Arctic reindeer of the Old World, imported into Alaska as a domestic animal first in 1892, will supersede the ordinary domestic animals, even where the latter are already established, for there are many places where cattle can be raised experimentally, but where the stabling and other expenses, incident to a long winter, eat up most or all of the profits.

The reindeer need no barn to shelter them, and they fend for themselves in any weather, depending solely on the native vegetation. Their meat is considered by most people who know it as quite the equal of beef and, since it can be produced almost without cost, a handsome profit can be got where cattle would show a loss.

During the ten years between 1892 and 1902, the United States, according to the official reports, imported 1,280 reindeer from Siberia. These have increased beyond the prophecy of the most enthusiastic of the early advocates, and the Government census of 1922 gives 252,000 animals as then living, although perhaps 110,000 have been butchered. It is estimated by the Department of Agriculture that the grazing areas of northern and western



PRIZED POSSESSIONS FOR SEA AND LAND TRAVEL IN ARCTIC AMERICA

The umiak, like the one-man kayak, is essential to the existence of many shore-dwelling Alaskans. Made of skin, it is stout and capacious and used chiefly as a transport boat. The dogs employed for sledge-drawing are little more than domesticated wolves ; they have remarkable powers of endurance, and, when the going is favourable, one dog will draw on an average over 300 lb. for 35 miles in a day



Ewing Galloway

DOG TEAM RESTING AFTER DELIVERING THE MAIL BAGS AT NOME

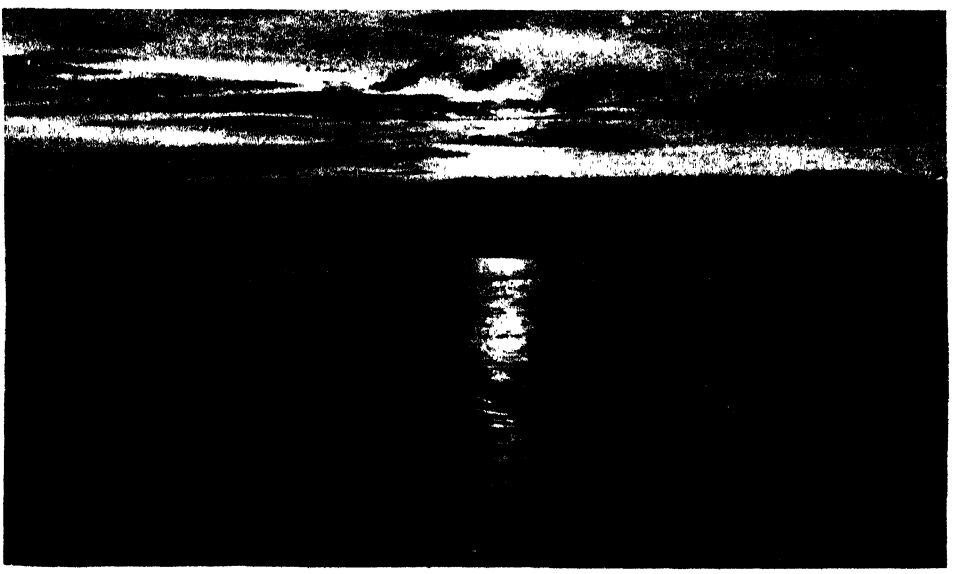
In the immense country of Alaska, which extends into the Arctic Circle, dog sledges are constantly used during the long winter months when the inhabitants are almost isolated from the outer world, and the mail is conveyed to the coast by dog trains. The dogs, often half wolf, are extremely powerful, sometimes requiring a good deal of management, and can withstand the severest cold



Ewing Galloway

SALMON CANNERY IN A BEAUTIFUL SETTING OF SOUTH ALASKA

The salmon industry is the most important of the fishery industries of Alaska. Large numbers of salmon are caught along the coast, as well as in the Yukon, much of the work being carried out by Indians, and all the five species of this fish to be found in Alaskan waters are of commercial value. Canning, mild-curing, and pickling are among the principal methods of preserving salmon



Keystone—Burton Holmes

MOONLIGHT ON THE YUKON RIVER IN THE SALMON SEASON

In its more than fifteen hundred miles course from the Yukon district of British Columbia to the Bering Sea at Norton Sound the Yukon river virtually bisects Alaska. Its valley comprises the Upper Yukon, Yukon Flats, the Rampart Region, and the Lower Yukon. The river swarms with salmon, thousands of which are caught in traps like that in the foreground of this photograph

Alaska can support between three and a half and five million head of reindeer, and that this saturation point will be reached between 1935 and 1940, by which time Alaska should, therefore, be one of the great meat exporting countries of the world.

larger number were formerly employed by the whalers at Point Hope and off the Barrow headland.

The collapse of the whaling industry about 1906, consequent on the invention of a commercial substitute for whalebone, threw even these few



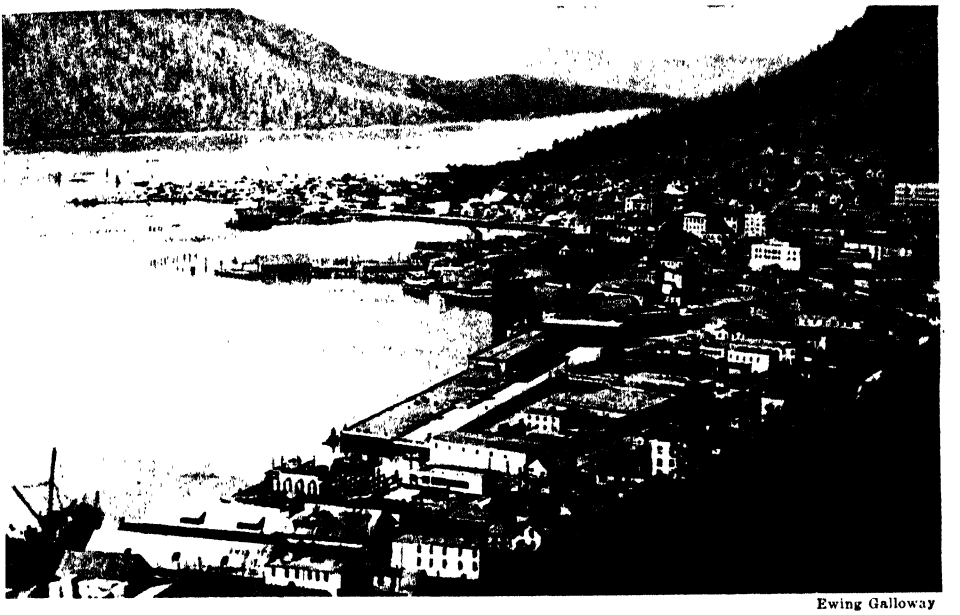
Keystone—Burton Holmes

SPECTACULAR LANDING OF PASSENGERS AT NOME

The city of Nome, on Seward Peninsula, designated as a "squalid Monte Carlo of wood and corrugated iron," stands on the north shore of Norton Sound, and grew from a settlement called Anvil City. Gold was first mined here in 1899. Formerly the coast was inaccessible to ships, and passengers were transported to dry land by means of an aerial cage depending from the long arm of a crane

The population of Alaska is given for the year 1920 as 55,036, about equally divided between white and native (Indians and Eskimo) populations. The traditional occupation of the natives is hunting and fishing for their own direct support, and the trapping of furs for sale to traders. In southern and south-western Alaska there are, however, a number of Indians employed by white men in fisheries and other industries, on the basis of either wages or profit-sharing, and in some cases both. With greater independence of character, the Eskimo are more generally their own masters. Very few of them have worked for gold miners and a somewhat employed Eskimo back on their own resources. The high price of furs since about 1908 has enabled them to purchase more imported goods than they can reasonably need. They have no idea of saving from year to year, but will buy something or other for whatever skins they secure. When they have purchased all the clothes, food, ammunition, etc., that they have any conception of wanting, they go on to buy expensive phonographs in mahogany cases, silks and velvets by the bolt, perfumeries, and the like.

The reindeer herds of north-western and northern Alaska are about the only considerable accumulations of property



Ewing Galloway

JUNEAU, ALASKA'S CAPITAL, SET AMID MOUNTAINS AND FJORDS

Since 1906 Juneau, a principal seaport of Alaska, has been the capital of the territory. A well-paved, well-lighted town of about 3,500 inhabitants, it has manufacturing and fishing interests, but owes its prosperity mainly to the gold mines in the neighbourhood. It is situated in south-east Alaska, on the shore of Gastineau Channel, amid Alpine scenery characteristic of the Panhandle coastline



U.S.A. Government

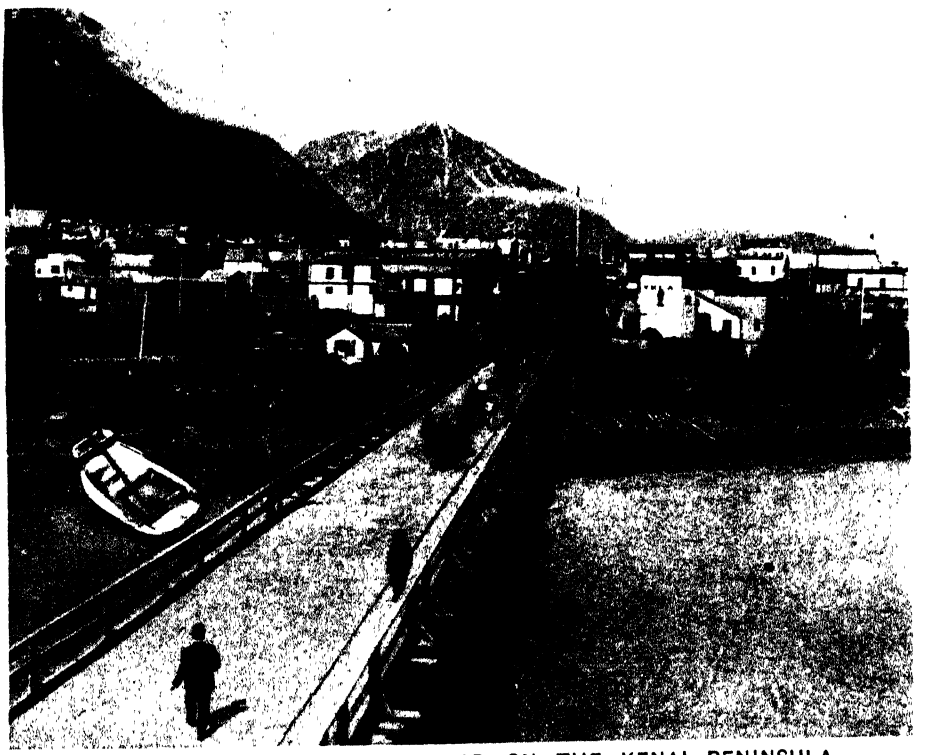
SUMMER IN ARCTIC AMERICA: FLOWER-FRINGED HIGHWAY OF ALASKA

Alaska is a country of contrasts. On its mountains snow lies all the year round and snow-storms are experienced on its high peaks in the height of the summer season. But in the lower lands the long hours of warm sunshine produce a tangle of rich vegetation; tall grasses spring up in the meadows, flowers abound, and in some parts numerous berries may be had for the gathering



ISLAND SURVIVALS OF ALASKA'S SUBMERGED MOUNTAINS

Wrangell, on Wrangell Island at the mouth of the Stikine river, has direct steamship communication with Seattle in Washington State. Salmon canneries and a hatchery employ many of the inhabitants. These islands of the Alexander Archipelago are the peaks of a submerged mountain system, and glacial action is shown in the scarred sides of the steeps that rise from the deep fjords



FLOURISHING TOWN OF SEWARD ON THE KENAI PENINSULA

When first purchased by America in 1867, Alaska was derisively nicknamed "Uncle Sam's Ice-box." It was believed that Russia had made a good bargain. Since then, Alaska has paid for itself many times over; its mineral resources are boundless, and towns like Seward, in a rich mining area, spring up like mushrooms, and daily increase in population and prosperity



U.S.A. Forest Service

MOUNT WRANGELL'S LOFTY PEAKS CROWNED WITH FIRE AND ICE

Inset between the Chuzach and the Nutzotin mountains, forks of the St. Elias range, is a group of volcanic peaks comprehensively called the Wrangell Mountains. The group reaches its highest altitude of 17,140 feet in Blackburn Peak, and other lofty cones are Mount Sanford, 16,200 feet; and Wrangell Peak, 14,005 feet. Viewed from afar this volcanic mass is impressively majestic



U.S.A. Forest Service

SKIRTING THE SOUTHERN FACE OF SNOW-CLAD MOUNT ST. ELIAS

Mount St. Elias, a volcanic mountain, is the dominant peak of the St. Elias range, one of the four ranges that make up the Pacific Mountain system in the south of Alaska. Towering to an altitude of 18,024 feet, its snow-clad summit marks the international boundary between Alaska and Canada, and on its southern declivity facing the sea is the vast Malaspina glacier covering 1,200 square miles



R B. Dance

MONARCH OF THE MOUNTAINS OF NORTH AMERICA: MOUNT McKINLEY IN THE ALASKAN RANGE

With an altitude of 20,300 feet, as determined by the United States Geological Survey, Mount McKinley is the loftiest peak in the continent of North America. An immense mass compact of granite and glaciers, it is the monarch of the Alaskan Range. On the Sushitna-Kuskokwim divide, and about 130 miles north of Cook Inlet, whence it is clearly visible, it rises sheer from marshy country on the west side and long baffled explorers and mountaineers. Extended exploration of the range began in 1902 and the first ascent to the summit of Mount McKinley itself was accomplished in 1913



Ewing Galloway

PART OF THE WHITE PASS BEARING THE SINISTER SOBRIQUET OF DEAD HORSE GULCH, SEEN FROM THE RAILWAY

Skagway, the Alaskan seaport, has direct access to the Canadian goldfields of Klondike, which, discovered in 1896, lie not far over the boundary, for it is the terminus of the famous railway running through the White Pass to Whitehorse on the Yukon. During the first rush of the early fortune-seekers, the White Pass took terrible toll of human life. The would-be diggers streaming out of Skagway with their horses and belongings suffered untold hardships; numberless horses succumbed along the perilous path which became known as "Dead Horse Trail." On one mile of its most difficult course 3,500 dead horses were lying

in the hands of natives. Some own several thousand, valued nominally at twenty-five dollars per head. During the last few years white men have entered the reindeer business and one company owns more than fifty thousand animals. The native shrewdness of the Eskimo and a measure of preferential encouragement given them by the Government will doubtless enable them to keep a considerable share of the reindeer industry indefinitely.

At the beginning of the present century gold mining was the chief occupation of most of the white men in Alaska, or else direct service to the gold miners. More recently other minerals have increased in importance, as also have the fisheries. Lumbering is attaining, and market gardening has attained already, considerable proportions, the vegetables being shipped south to supply Seattle and other large Pacific cities. Thus the division of labour among white men in Alaska is fast approaching a correspondence with that of Americans resident in the United States.

Apart from the railways, winter travel in the interior of Alaska is exclusively by sleigh. Dogs were for long the only draught animals, but horses have been introduced in the mining communities and mails and passengers are now carried to the Yukon and elsewhere by horse stage. Reindeer are beginning to be used also in the west and north, although the dogs still keep their popularity in many places, even where reindeer are available.

Summer travel is mainly by water. The north coast of Alaska east of Point Barrow is accessible to trading ships most years between the latter part of July and the middle of September. Between Point Barrow and Bering Strait the season is a month or two



FETISH SUPERSTITION CARVEN WONDERFULLY ON TREE TRUNKS

The Indians of Alaska, though very uncleanly and indolent in their ways, have more than one interesting art. The making of ornamental canoes is an ancient hobby, but in their totem-poles —trees carved into extraordinarily weird and fantastic shapes—their imaginative genius is given full expression. These ceremonial posts are sometimes over 20 feet in height

longer. The important mining town of Nome on the Bering Sea is open to ships about five months in the year. The navigation season of the Yukon river in 1923 began in May and closed November 16, the longest open season on record and a month in excess of the average. The ports of southern Alaska and the Aleutian Islands are open all the year.

There are three main ways of reaching Alaska. One is to go by American steamer from Seattle, or Canadian steamer from Vancouver, to Skagway. From there the White Pass and Yukon Railway takes you over the mountains to Whitehorse on the Upper Yukon, where a small river steamer carries you to Dawson and a larger steamer thence to the mouth of the Yukon river. If there are a number of passengers on the steamer, a wireless will bring a small boat ninety miles from Nome to meet the steamer at St. Michael. The second way is to take an American steamer from Seattle to Seward or Anchorage. From there the United States Railway carries you north to Fairbanks. If you desire to proceed farther you take a river steamer down the Tanana to the Yukon and then go by steamer either up or down the river.

The third way is to take an American passenger steamer from Seattle by way of Unimak Pass to Nome. You then have the choice of returning by that steamer or of proceeding up the Yukon. At the junction of the Tanana with the Yukon you have the further option of going north up the Tanana or ascending the Yukon east and south to Dawson and Whitehorse.

A time of great commercial activity in the interior of Alaska was between the years 1898 and 1910. Steamers almost comparable to those of the Mississippi were then going up and down the Yukon river every few days. The chief commodity was gold, and the steady rise in the value of nearly all other things was equivalent to a drop in the value of gold. Mining became more and more precarious and trade



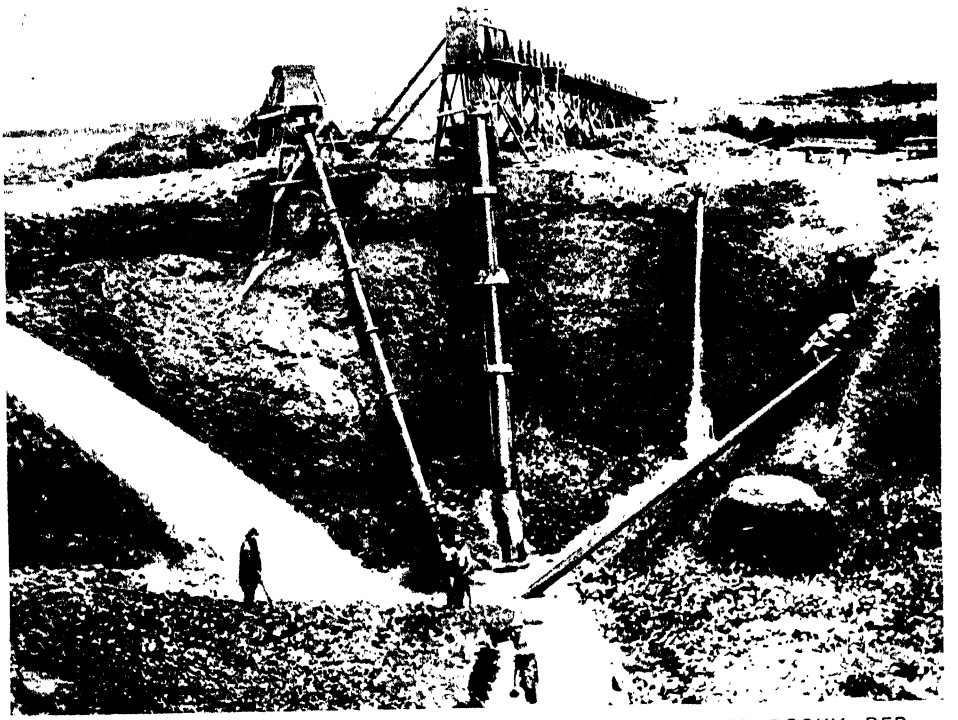
C. W. Collinson

FAMILY TREE OF INDIAN ORIGIN

Carvings of totemic animals and birds, generally of a highly-grotesque workmanship, are still to be seen in some Alaskan districts where Indians dwell, as in this street

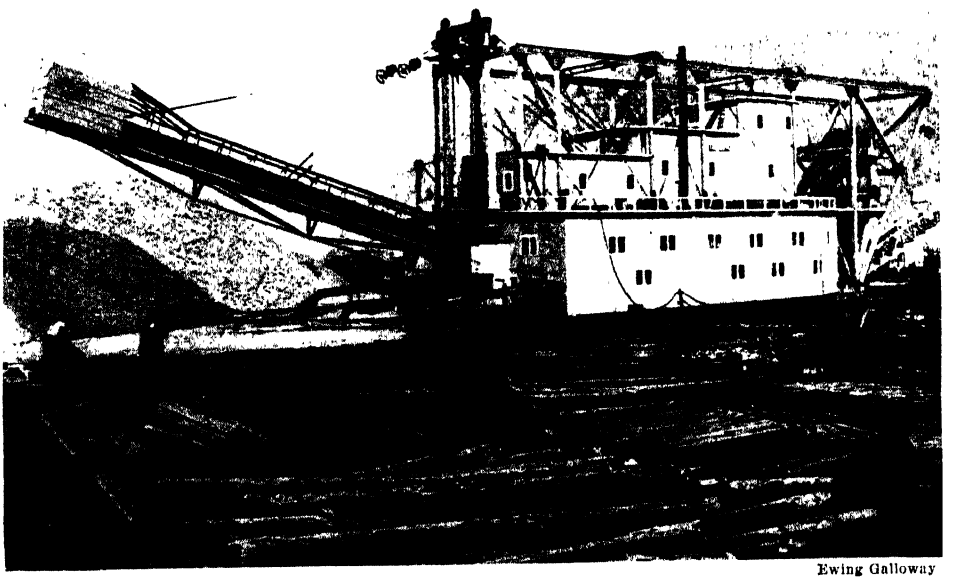
gradually dwindled in consequence. Then came the paralysing rise of prices caused by the Great War and gold dropped to half its pre-war purchasing power. From the consequent collapse Alaska is only just beginning to recover. One of the results is that the intending traveller must inquire carefully in advance as to how the steamers run, for they are no longer numerous or regular. The building of the Government railroad has also had a bad effect on the river navigation. By taking the mail it has removed one of the chief incentives for boats to ply the full length of the river.

All towns south of the Yukon, as well as Nome, are connected with the outside world either by telegraph or wireless and mail service is regular, if somewhat slow according to modern ideas. In summer it would take about the same length of time for an



REMARKABLE METHOD OF RECOVERING GOLD FROM ITS ROCKY BED

Gold has brought much fame to Alaska in recent years, and increased its white population by tens of thousands. This illustration shows the hydraulic gold-mining system in operation at Glacier Creek. The water is served from the main and directed through nozzles on to the gold-bearing rock. The material washed out is carried off in a channel, the rich dirt being allowed to settle at various points

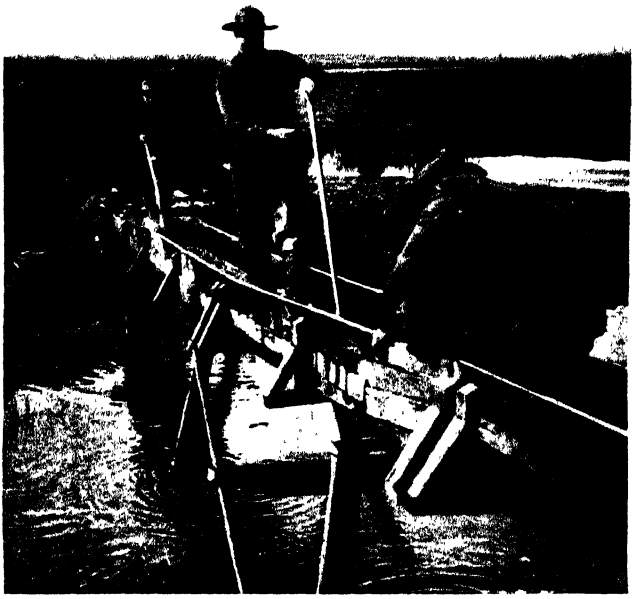


Ewing Galloway

DREDGER WORKING OVER SUBMERGED GOLD-BEARING STRATA

Dazzling discoveries of gold in the nineties drew many a fortune-seeker to perilous adventure in Alaska. The primitive methods then employed in obtaining the precious metal have been superseded by more elaborate machinery, and dredging is now practised on a large scale. The dredgers are similar in almost all essentials to those used in harbours for removing accumulations of sand or mud

English letter to reach Nome or Melbourne, Australia; in winter the time from England to Nome would be about double that to Australia. A letter to Barrow, if it made just the right connexion, would take about three times as long as from England to Australia. There are, however, only four mails a year to Barrow, one in the summer and three by sleigh in winter.



PRIMITIVE GOLD-MINING IN ALASKA

Many ambitious men working on their own account still sift the river sands by means of primitive appliances. Washing alluvial deposits in the old-fashioned manner is no easy task, but man makes light of labour in his haste to acquire wealth

In its heyday Nome is said to have had a population of about 40,000 people in summer with perhaps 10,000 spending the winter. The permanent population is now between two and three thousand. Juneau, the capital, has a population of about three thousand, and Fairbanks, on the Tanana river, has about one thousand inhabitants. In appearance the Alaska towns are much like towns of the same size in the United States, mainly frame buildings with occasional structures of brick or stone. There are similar public buildings, schools, churches, post offices, city halls, court houses, motion picture theatres, etc. The streets are lighted by electricity, and houses are commonly steam-heated.

The natural health conditions in Alaska are usually considered about the best in the world. The general hardiness of the type of men and women who seek the frontier tends to the same result. Although the summers are very hot in the interior disease germs are fewer and fever conditions less likely to prevail than in most other countries. Mosquitoes, sandflies and other insect pests are perhaps on the average as bad as in any area of the same size on the earth's surface, but these are annoying rather than dangerous. The mosquitoes may suck blood but they do not carry the germs of malaria or yellow fever.

ALASKA: GEOGRAPHICAL SUMMARY

Natural Divisions. Northern extremity of the North American Cordillera. Northern lowlands, part of the lowlands on the edge of the Arctic basin (v. Arctic Lands).

Climate and Vegetation. South coast like British Columbia a region of warm, wet winters and cool summers with heavy precipitation on the coast. Cf. climate of Scotland. Interior continental climate of great extremes, long hot summer days and short intensely cold winter days, with scanty precipitation. North coast insular Arctic climate (v. Arctic Lands). Natural vegetation is forest wherever summer warmth permits growth and rainfall or river water supply is plentiful.

Chief industries. Trapping, fishing, lumbering, and mining. Reindeer herding as a contribution to the world's meat supply. Minerals are typical of the Cordillera (v. America, North).

Outlook. Gold and other mineral resources are being exhausted. Lumbering and salmon fishing are capable of extension. Reindeer herding is full of promise. The country will develop exports in response to demands from the United States in exchange for foodstuffs, cereals, etc.



H C Woods

WHERE THE BROAD BOYANA WINDS THROUGH SCUTARI FROM LAKE TO ADRIATIC

Scutari is situated near the Montenegrin frontier on the Boyana river, close to where that stream enters Lake Scutari, which is itself divided by the frontier. The city is not to be confused with the other, and far larger, Scutari which stands on the Asiatic side of the Bosporus, opposite Constantinople. ' The Albanian town whose Albanian name is Skodra is, commercially, about the most important in the country, and from it tobacco, hides, maize and sumac—a shrub whose leaves are used for tanning and dyeing—are exported

ALBANIA

Mountain Province of the Eastern Adriatic

by Henry Baerlein

Author of "Under the Acroceraunian Mountains," "A Difficult Frontier," etc.

SOLEMNLY to sit down and describe Albania is no simple task, seeing that the "sons of the eagle" (Shkŭpetar or Shqyptart), as the inhabitants of that peculiar country call themselves, have only in the majority of cases a very vague idea of the meaning of the word Shkŭpenia or Shqvpenia. We may be told by enthusiastic tourists that this people is by far the most united and patriotic of the Balkans, or of the world; and it is a fact that when it came, in 1920, to the forcible turning out of the Italians a great number of aged warriors and of beardless youths took part in the proceedings. They inquired very little as to the rate of payment, but they had a pretty shrewd idea that the persons of their prisoners would, with or without torture, yield an abundance of good things - and so would the dead.

Tribal Montagus and Capulets

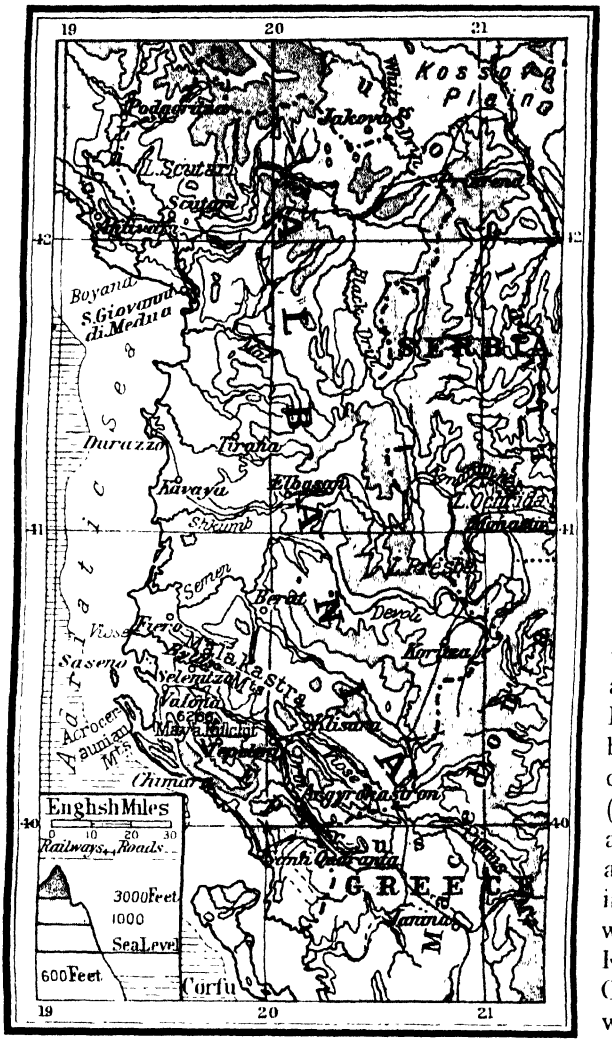
More precious even than gold—which, in the form of napoleons, is the standard currency, though Albania is devoid of banks—would be the rifles and munitions, since one must remember that an Albanian, whose wardrobe consists of a pair of close-fitting white trousers, a jacket, and one shirt, may be the proud owner of twenty rifles. These are mostly used by him and his friends for the destruction of other Albanians. In the Great War this interesting people fought with equal gusto on both sides.

What we call Albania contains, I suppose, slightly more than the population of Liverpool spread over an area some 4,000 square miles larger than that of Wales; and even so there is not room enough for them. When you are going from the territory of one tribe to that of another you may have to cross a fordless torrent, as their chronic Montagus and Capulets have smashed the ford. If you request the mayor of any place to lead you to the next he will, perhaps, go half the journey, and, although you threaten him with death, refuse to go another inch, because he is in blood-feud with the neighbouring village, and he knows that he would never more return from it. Thus will the reader understand that Albania—which the Powers created just before the Great War, with Prince William of Wied as its Mpret, or ruler—is not one's ideal of a unit.

Albania's Natural Frontier

Physically this oblong-shaped province of the eastern Adriatic has for many leagues along the north and east a chain of bare and lofty mountains; in the south, to which we shall afterwards refer, the Acroceraunian Mountains are a mere incident, whereas they should certainly be the frontier. But if Albania was intended to be a separate country, the natives of it, although they are the most ancient people of the Balkans, took no steps of their own accord. They appeared to be quite satisfied with the old Turkish regime, which collected the taxes in a very half-hearted way, and, with regard to military service, offered to these ruthless mountaineers the proud distinction of joining the Imperial Guard at Constantinople.

You may say that, as the Albanians undoubtedly are quite different from the other races of the Balkans, they are entitled as much as any to have their own independent country; but the first condition of independence is



THE JAGGED CONTOURS OF ALBANIA

that the people themselves should desire it, and as yet the Albanians have been too much preoccupied with inter-tribal conflicts as well as with the everlasting animosity between Moslem, Roman Catholic and Greek-Orthodox. Perhaps in time this people will become as national as their ardent friends abroad and some of their own big men assert; but, on the other hand, they may relinquish the independence that was thrust upon them. The north may come into the Yugo-Slav and the south into the Greek sphere of influence, to the joy and relief of a large number of the Albanians, who, by the way, have not yet made up their mind whether they will be a republic or a monarchy.

Since the flight of William of Wied in 1914—he had never ventured more than a few miles from Durazzo, his dilapidated and marshy capital—no successor has been invited to come and live in the mournful, draughty old building which is still surrounded with the remains of William's barbed-wire entanglements. But the application of a multi-millionaire would be considered. At present the capital is the village of Tirana, a ramshackle place with fewer amenities than Scutari or Koritza, but lying in a much more central and also in a Moslem district. Unlike Durazzo, it cannot be attacked by a foreign fleet. There the cabinet of Moslem landowners (a Christian or two being added for the sake of appearance) has above it a rather impotent Regency of four worthies—two Moslems, one Roman Catholic and one Greek-Orthodox—so that the world may perceive how full are the Albanians of toleration and brotherly love.

Nevertheless, the country does for the moment figure on the map. Let us, therefore, briefly describe it. We have spoken of Albania's mountains. They are very formidable, and they render all communications difficult. Here and there among the mountains of the north and east one comes across an isolated village, where the priest will often be the only person who can read and write. As the country bends down to the Adriatic there are portions of comparative fertility; but it is characteristic of the Albanians that a shepherd with a lanky sheep or two will have a gun to keep off robbers. Near the coast the land is often marshy; it is said that

efforts will be made to remedy this state of things. And one of the most pressing needs is a harbour at which a ship can come up to the quay.

Nowadays, at the dreary little malarial port of San Giovanni di Medua, from where there is a road to Scutari; at the picturesquely walled Durazzo; at Valona (Avlona), full of empty structures left by the Italians; and at Santi Quaranta, a straggling, disconsolate village most of which was the Sultan Abdul Hamid's private property, and was bestowed by him on one of his wives—everywhere it is necessary for a merchant-vessel to tranship her cargo into barges at some distance from the land. (Opposite Valona, by the bye, is the precipitous little island of Saseno, which is now the sole spot of Albania in Italian occupation. It is interesting to note that although Saseno is far from the Ionian Islands it used to be reckoned as a member of that group, and as such was a British possession until 1863; but no British official resided there.) Down to this desolate coast there wander a few rivers, but they are of very little navigable use. Here, again, we have to listen to the "music of the future," for a scheme exists to drain the Boyana (or Bojana) which would then convert Lake Scutari into a magnificent harbour, to the common advantage of the Albanians and the Yugo-Slavs.

In certain parts, especially around Koritza and in the valley to the south of Argyrokastru, there are fields of good arable soil which the predominantly Greek or Albanian-Orthodox population of those districts cultivate to the best advantage. Around Moslem Elbasan, a place of blank walls and winding alleys, there is likewise a fruitful tract of



SCUTARI'S WALLS AND TOWERS ALONG THE SHORES OF THE LAKE

Lake Scutari is unquestionably one of the most beautiful in Europe. Its south-eastern end, upon which stands the town of Scutari, is about twelve miles distant from the Adriatic coast, while its northern and larger half lies within Montenegro. The lake is, in general, shallow, though near the south-west shore are deep depressions. It measures 27 miles in length and 10 in breadth

country in which maize is grown ; and the farmers being hand-in-glove with the government, there is—at any rate there was not long ago—a heavy import tax on flour, so that many starving peasants were obliged to pay large prices for the inferior maize-bread. Apart from this cultivated land, the general aspect of Albania is dreary and bleak. It is as certain that there is oil below the ground as that there are olive-trees above it, but as yet there is no proper exploitation. And one hears, too, constant and most persistent rumours of all manner of untapped mineral wealth. But what, you may ask, do the natives do for a living ?

Though Albania lies upon the Adriatic, very few of its people devote themselves to fishing. And the soil in many parts affords the peasant an exiguous livelihood. He scratches it with prehistoric implements or lives upon his miserable goats and sheep. The difference between the cattle of the Albanian and that of his neighbours can be seen, for example, in the Jakova (Djakovica) region, which has for the last few years been included in Yugo-Slavia. Most of the inhabitants are Albanians, and so little thought have they hitherto devoted to the improvement of their stock that a cow grazing in this district has the appearance of a large and emaciated St. Bernard dog.

Under the tuition of the Yugo-Slavs this state of things will be remedied, for there will no longer be the danger that a handsome beast will be appropriated by the head brigand of the district. And where the peasant, as in the plain to the south of Argyrokastru, tills a more gracious soil, he is always more or less at the mercy of the authorities, who are either Moslem or else Christian adherents of the tyrannical Moslem regime. All three religions, as we have mentioned, are represented in the government ; but that this is only to impress the world may be discerned



E. N. A.

PRIMITIVE METHODS OF SANITATION IN ALBANIAN SCUTARI

Scutari, which has spread beyond its old borders, is crowded unhealthily in the centre, where narrow streets twist in a tortuous maze of shops, houses and bazaars reminiscent of the days of the Turkish regime. Even in the more modern part of the town, as in the rue Ernest Renan shown here, drainage is primitive and the tree-lined open sewer runs parallel to the houses



Alfieri

HILLSIDE BUILDINGS IN AN ALBANIAN VILLAGE

Civilization halts among the remote villages of this mountainous country. The houses are often built largely of wood, of which there is usually an abundance near at hand, although, under Turkish administration, the forests suffered great denudation. Every dwelling has a tumble-down appearance. The inhabitants have scanty acquaintance with comfort and appear content to live without it



Gregorius Brown

CITY OF WINDING STREETS AND ORIENTAL BAZAARS

One of the winding streets in Scutari, picturesque but with ramshackle tenements, the timbers of many of which are solid enough but have become so rickety with age as to seem in almost imminent peril of collapse. Turkish rule favoured lethargy, and the natives are not conspicuously energetic in the work of repair



E. N. A.

COFFEE AND CIGARETTES AT A CAFÉ ON A SUMMER MORNING IN SCUTARI

As the vicinity of the coast is reached the presence of the marshes that fringe it makes itself felt. There is often an enervating feeling about the air while there is usually plenty of time and opportunity for lounging, so far as the rickety rush-bottomed chairs on the broken pavement will permit. The most popular drink, distilled from plums, and forming a mild and not unpleasing spirit, is called raki, while immense quantities of coffee are consumed with innumerable cigarettes. Sticky cakes of inordinate sweetness are great favourites



H. C. Woods

CITADEL OF SCUTARI ON ITS CRAG OVERLOOKING THE BOYANA

Many buildings in Scutari have an Oriental appearance, which is enhanced by the various mosques that rise above the surrounding roofs. But the finest pieces of architecture in the town are to be found in the Roman Catholic Cathedral and this ancient Venetian castle, a sentinel in stone, that watches above the city. To the left is seen one of the light-draught boats that ply on the river

from the fact that in the army the Christian troops are not provided with a chaplain or permitted to observe their fast days; they have to fast in Ramadan with the Mahomedans.

What is manufactured in Albania is for home consumption. A woman will be capable of making her husband's rude clothing of thick white cloth with black braid. On his feet he wears leather sandals. Wool and leather are among the scanty articles of export, while the list of imports, mainly from Italy, embodies practically all the requirements of Albanian civilization. Those among the Albanians who regard themselves as the most civilized are the men who have been in the United States, where they have usually managed to learn English while working in a factory or selling fruit in the open air. Equipped with the knowledge they have thus gained they return to their native country and are made into gendarmes or civilian officials. Sometimes they take a hand in schoolmastering; but frequently this job is given to a Moslem who has stayed at home, and, perhaps, been a stevedore at one of the quays or an itinerant seller of Turkish delight. He is usually just able to sign his name.

The condition of the schools is, in fact, alarming; and especially is this the case in southern Albania, that portion beyond the Acroceraunian Mountains. Until it became incorporated in Albania—against the urgent advice of the British and French missions who had inspected the country—the schools had been Greek, and now the great majority of these schools have been closed, and it is even prohibited to let a Greek-speaking schoolmaster give private lessons at your house. The result is that numerous boys who were studying for the medical or legal professions are now wandering aimlessly about the roads. Others have been sent by their parents to Corfu, and others, in Koritza, are attending a French lycée, where for a year they have to learn the language before they can proceed with their education.

It may be asked why the Albanians of this, the most advanced part of the country, had Greek schools. The reason



E N A

STREET LIFE IN DURAZZO. WHITE WALLS REFLECT THE GLARE OF THE SUN ON PRACTISED IDLERS

Up in the mountains where the air is bracing and the temperature either cold or mildly warm there is not so much to tempt the Albanian to sit about As a rule, the mountaineers are considerably more animated and energetic than the townsfolk Although Albanians are essentially a mountain people they tend to grow, if more lethargic, at least less excitable and more orderly once they have settled down to town life The temperature at the lower altitudes, and especially near the sea, is often high and the atmosphere damp and sultry

is not so much because they are members of the Greek-Orthodox Church as because the Albanian language is in far too elementary a condition. An Albanian youth cannot say to a girl that he loves her, only that he wants her.

The road between Argyrokastru and Janina, in Greece, would be looked upon in other countries as very lonely. In Albania it is one of the chief thoroughfares, being a section of that great highway constructed by the Turks from Santi Quaranta to Koritza. This road is now traversed by a few public automobiles, most of them having been abandoned there by the Italian army. In the whole of Albania there is no railway, and when the Italians, who occupied Albania during the Great War, offered to construct one from Valona that would link up Albania with Turkey, via Salonica, this proposal was received in a very tepid fashion, as it was thought among the Albanians that Italy would not wish to bear the whole expense. Another railway that has been talked of is that along the Drin, from Yugo-Slavia to the Adriatic. But the Yugo-Slavs are not likely to build this costly line unless they are given control of the strip of country through which it would run.

Meanwhile, as in the south, all communication is by road. The merchants of Scutari would undoubtedly welcome this line, as would the Klementi, the Kastrati, and all the other mountain tribes who are now compelled to fetch their supplies on mule-back from Scutari. But the government in Tirana fears that the northern province would come too much into the Yugo-Slav sphere of influence. The communications on the Adriatic are in the hands chiefly of Italian and Greek shipping companies, Albania being destitute of such things. To what degree one can be destitute of creature comforts in Europe is nowhere, I imagine, more flagrant than in the average Albanian village, where the houses are primitive in the extreme and utterly devoid of sanitation. (There is said to be a solitary water-closet in Albania; at least, I learn this from an Austrian explorer.) The most characteristic type of architecture is the so-called "kula," which resembles an Irish tower. The windows are high above the ground, and, once inside, the inhabitants are relatively safe from attack. Yet in the Albanian landscape one often sees a "kula" standing ruinous and half demolished.



PALACE AND QUAY OF DURAZZO BUILT AMONG MARSHES AND HILLS

Backed by ruins of a Byzantine capital whose walls can be seen in the background, Durazzo is a little port about sixty miles south of Scutari and faces the Bay of Durazzo, which is formed by a small and rounded peninsula whose furthest point is Cape Poli. The harbour, if cared for, would be a fine one, but has somewhat silted up. There is a small export trade in fruit, oil and timber

As for the towns, by far the most presentable are Scutari and Koritza, each with roughly 30,000 inhabitants. The former, crowned with an antique fortress and the burial place of medieval Montenegrin princes, would be a worthy capital if it were not situated at the extreme north. Aforetime it was the residence of the Turkish vali, and now it is the seat of the Roman Catholic metropolitan who, with his flock, is rather overawed by the Moslem. Scutari is a dusty, extensive place, full of curving little roads and noteworthy for its Oriental bazaars.

Away in the distant south is Koritza, where half the inhabitants are Greek-Orthodox; but here, too, the Moslem prevails. In spite of international agreements both the large churches have been taken from the four-fifths majority which desires to have the Mass sung, as it always has been, in Greek. The churches were seized by Moslem gendarmerie and delivered over to the control of the minority which asks for an Albanian Mass.

Koritza has more fine private houses than any other place in Albania; they are often of two storeys, but the upper part is usually uninhabited except for the week of Easter, when carpets, furniture, and so forth are taken out of their receptacles and the family entertains its friends. Though Koritza is half Christian, it is very Oriental. At a concert, for instance, I noticed that only two ladies were present and one of them was French.

When Edward Lear, some seventy years ago, penetrated to Chimara on a sketching tour, he found an untamed people dwelling in the most romantic surroundings. Over the Chimariote



Alinari

ROAD WITH COBBLED SIDES THAT RUNS THROUGH KAVAYA

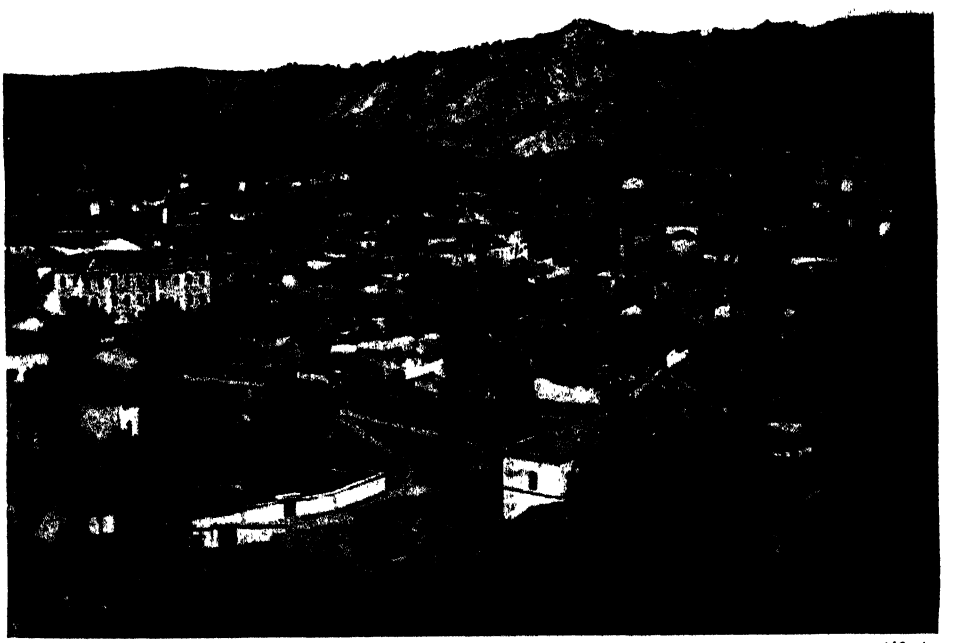
Northern Albania is broken with the ramifications of a southerly extension of the Dinaric Alps whose sides are here clothed with dense forests. In the south are the ranges of the Acroceraunian and Chimara Mountains. Only in the centre is there much open country where the wide and fertile plain of Kavaya spreads itself towards the sea. This road is raised to provide a dry surface



Alfieri

CRUMBLING HOUSES IN THE HIGH STREET AT VALONA

Valona, the chief of Albanian sea-ports, lies about a mile and a half from the open sea upon the eastern shore of the bay of the same name. This inlet is some ten miles long and five miles wide, and at its entrance is the island of Sasseno and the mountainous headland of Glossa. Thus there is convenient and safe anchorage off the town



Alfieri

AMONG THE WOODED CLIFFS THAT EMBRACE VALONA PORT

Girdled with woods which contain many oak trees and nearly surrounded by mountains, Valona has, even in the winter-time, a mild climate, and, save on the tops of the higher hills, snow seldom falls. The acorns from the neighbouring woods are used for tanning purposes, and there is also trade in tortoiseshell and wool. The town has a population of over six thousand

villages the Turk had scarcely the shadow of authority. And the natives were as hospitable to travellers as they still are in most parts of the country. The Italians constructed a grand motor-road from Chimara along the coast to Santi Quaranta, but very soon it fell into disrepair, and is now, in many places, like the old Spanish high-roads of Mexico, on which your horse does not trust himself to advance until he has tested the security of each boulder.

and dwells in towns is he phlegmatic. Otherwise, he is alert enough.

Living in remote valleys, poverty stricken, in blood-feud with various neighbours—what can be expected of this people? A woman who has a grudge against a man will step outside her hut, and, lifting up a jar of milk to the rising sun, she will curse him. If he sees her doing it he will shoot the jar out of her hand, so that the curse becomes of no avail.



IN A LAND WHERE PUBLIC WORKS ARE LITTLE CARED FOR

This scene in a market square where the oxen can smell the water they cannot reach and in which their boy driver sits beside the broken pump is an epitome of Albanian life. The pump was used till it broke down, and it was no one's business to repair it. And the oxen are small and stunted, since for years no one has troubled to improve the stock

Perhaps the Italian and Austrian engineers whom the Albanian government has acquired will turn their attention to this road. It would then become a second Route de la Corniche. But how long will it take to mollify the temper of the population?

Wiry and tall, burned by the sun, the peasant strides over his rocky country. In his girdle and on his back are several weapons, while very likely he is carrying in his hand a large cotton umbrella. Only when he waxes rich

Perhaps the present condition of the people can best be shown by glancing at three of their priests. The Roman Catholic tribesmen of the north will not allow a priest to live among them if he has not a moustache, and if he has been over to Italy he is obliged to stay in Scutari until he can present himself to his wild flock. When he is there he does not shirk his part in mundane matters. With his rifle he will assist in keeping off either the emissaries of the government, if need



WATCH-PARTY AMONG ALBANIA'S BROKEN CRAGS

Albania's ruthless mountaineers match their hard and rugged countryside. Here an armed party watches for some foe believed to be penetrating their own particular valley. A report echoing among the rocks will be all that tells of yet another victim of the blood-feud. This photograph well shows how the scanty vegetation manages to cling precariously to the unkindly soil

be, or any unwelcome neighbours. The Greek-Orthodox priests of the south are not always persons of culture, although their bishops and several of the village priests have been trained in Greece, and have become as learned, almost, as they look. But in a village near Koritza I met a time-worn ecclesiastic who said that in his day there were not many schools. He could scarcely read, but he had learned the wedding and the burial services by heart. How did he become a priest? Well, he allowed his hair to grow, and one day the people started saying, "See, there goes a priest!"



COUNTRY HOUSE BUILT FOR DEFENCE

Albania has ever been a land of brigands, and these and the inconveniences of the vendetta or family feud have made it necessary that remote houses among the desolate hills shall resemble fortresses. Every window is barred

A typical example of the Moslem hodja (priest) is the one who, two or three years ago, declared that his profession was not going to keep him from carrying out the obligations of the blood feud. He therefore killed one of his parishioners with whose family his own was at the time in feud. The relatives wished to have the funeral conducted by another priest. But when this came to the ears of the assassin he let it be known that if any other priest came from his village and usurped a duty that was not his, earning also a fee that was not rightly his, then the offended parish priest and his friends would be waiting with their guns behind a wall. The matter was settled by means of a three-days' "besa" (truce), during which period the murderer repaired to the house of his victim, buried him and took part in the subsequent carousing.

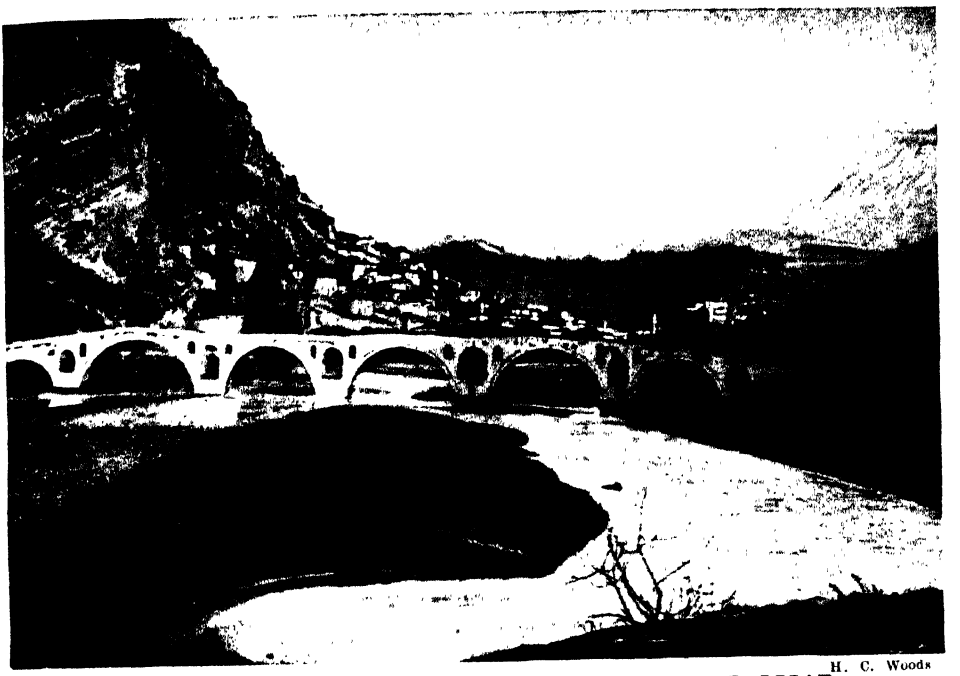
A wholesale "besa" is wanted all over Albania.

ALBANIA: GEOGRAPHICAL SUMMARY

Natural Division. Part of the great Old World Mountain System between the Dinaric Alps and the Balkan Mountains. A narrow, coastal sill backed by the mountains, cf. the Riviera.

Chief Industries. Home production of foodstuffs and clothing materials for strictly local use. Primitive cultivation of the soil and the herding of beasts of poor physique.

Communications and Route Centres. On the basis of the Roman Via Egnatia, a road from Durazzo via the Shkumli valley to Macedonia. During the War a light railway followed this route from Durazzo to Elbasan. Motor road from Durazzo to Tirana with an extension to Scutari. From Elbasan the road to Berat and Epirus was widened for motor traffic by the Austrians. Coast road Valona to Argyrokastru and Santi Quaranta. Road from Valona to Koritza and Salonica. The lack of effective local administration and an inert central authority cause these roads to deteriorate rapidly; stretches of excellent surface connect patches which resemble nothing so much as a boulder-strewn hillside. Bridges and culverts seldom repaired.



H. C. Woods

REMARKABLE BRIDGE THAT SPANS THE OSUM AT BERAT

Berat is in the south of the country, and about thirty miles north-east and inland from Valona. It stands on the River Osum not far from its confluence with the Devoli, the two streams then flowing to the sea under the name of Semeni. A Greek archbishop has his seat here, and there is an export trade in olives, oil, wine, fruit, and grain



H. C. Woods

ALBANIAN POTTERY KILN NEAR BERAT

One of the reasons for the slow progress of manufacturing on any large scale has always been the rudely efficient ability of the Albanians to produce, home-made, the essentials of life. Every Albanian wife can make clothes for the entire family. Above is seen a local brick-kiln with the kindling stacked at the side. It is noticeable that every pot is of a standard and unvarying shape



E N A

COBBLED STREETS THAT WAKE THE ECHOES IN METZ

South-west of the cathedral and the big business streets of Metz, the Place S. Louis or S. Ludwig's Platz is the heart of the old town. On its cobbled expanse the barrows rattle and the market plies with little hint of the fortifications without that made Metz in German days one of the strongest garrison towns in Europe. Preserved fruits and wine form the staple industries, but tanning is also carried on



NOTRE DAME: CHIEF GLORY OF OLD METZ

Rising high with its airy fretted pinnacles and flying buttresses, like the spirit of the Middle Ages epitomised in stone, the cathedral of Metz stands, a stately queen above the tortuous streets of old tile-roofed houses. Architecturally it belongs to the Reims school, and it dates from the late 12th century ; the original windows are resplendent with choice stained glass of the 13th and 14th centuries

ALSACE-LORRAINE

Linked Border Lands of the Vosges

by Percy Allen

Author of "Impressions of Provence," etc.

ALSACE and Lorraine—the Elsass-Lothringen of the Germans—are border lands now definitely linked together in European thought as two of the most fiercely contested regions known to history. But their historical, political and ethnological connexion all follow upon the fact that physical nature has placed them side by side and given them a common backbone—the Vosges.

On either side of that mountain chain the two ancient duchies lie, Alsace comprising their eastern heights and the fertile plain extending between them and the river Rhine, while Lorraine, as we understand the term to-day, is the undulating country that slopes westward from the Vosges towards Champagne and the Paris basin.

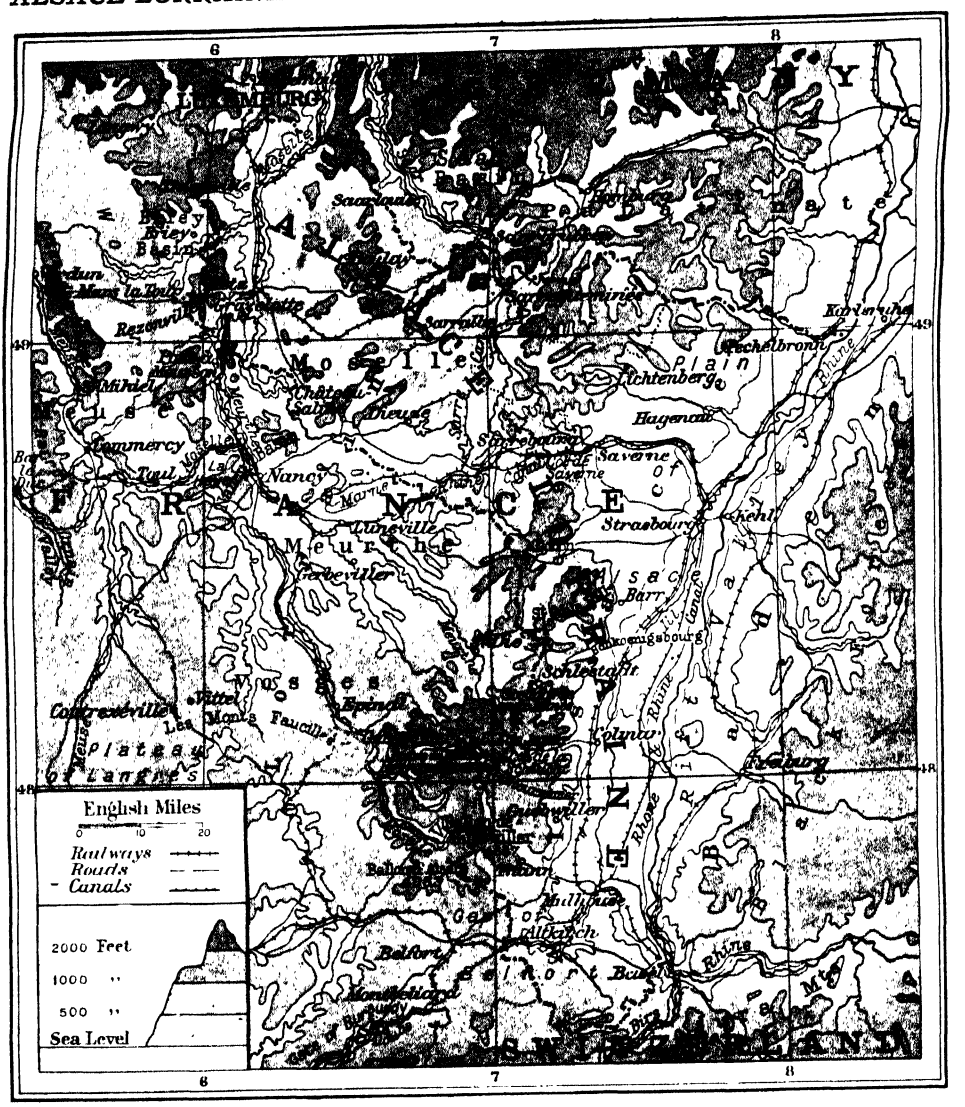
Command of Important Trade Routes

Alsace, then, is a unit geographically well defined, whereas, on all sides but the east, the boundaries of Lorraine have been politically as much as geographically determined. The original kingdom of Lorraine (Regnum Lotharii), created by the Treaty of Verdun in A.D. 843, was a vast country situate between the realms of the eastern and western Franks, extending from the North Sea down into Italy and including the whole of Alsace; but the kingdom and the great medieval duchy following thereupon dwindled until, from the eleventh century onwards, Lorraine has meant only Upper Lorraine, or Lorraine Mosellane, the bulk of it represented by the modern departments of Vosges, Meurthe and Moselle, and Meuse. The name Alsace, on the contrary, has never been applied to a geographical area much larger than is connoted by that word to-day.

The two provinces together are but small, the distance west to east as the crow flies from Bar-le-Duc to the Rhine near Strasbourg being no more than about 120 miles and from north to south—Sarreguemines to Belfort—only about 100 miles; but their situation as border countries, faced on the north by Luxemburg and the Rhine Province, on the east by Germany (Baden) and south and west by Switzerland and France—thus assuring to their possessors command of important trade routes between central, southern and western Europe—has made them throughout history the object and battle ground of national cupidities. Alternately occupied or invaded by raiders or immigrants from adjoining countries, both provinces have shared in an unenviable publicity that lands less dramatically placed have been fortunate enough to escape.

The Glory of the Vosges

Physically, or geographically, Alsace-Lorraine divides itself into three quite distinct districts—mountain, plateau and plain; the mountains being the Vosges, the plain that narrow strip running north and south between the Vosges and the Rhine, known as the Plain of Alsace, and the plateau that higher, undulating country to the west, which forms the greater part of Lorraine. The Vosges are the natural glory of both provinces; and the world has few fairer sights to offer than the panorama of Alsace seen on a stormy October day from the hill of legendary Saint Odile. The iridescent rainbows,



PHYSICAL MAP OF ALSACE-LORRAINE

intersecting one another and mingling their colours, arch themselves across the deep, green, fir-clad gulfs and purple mountain chasms, while the streaming storm-clouds scatter their largesse of rain down upon the warm green plain below, dotted with towns and villages, over which the sunlight and shadow, racing, lead the eye across the Rhine river, to the huge mass of the Black Forest darkling against the sky.

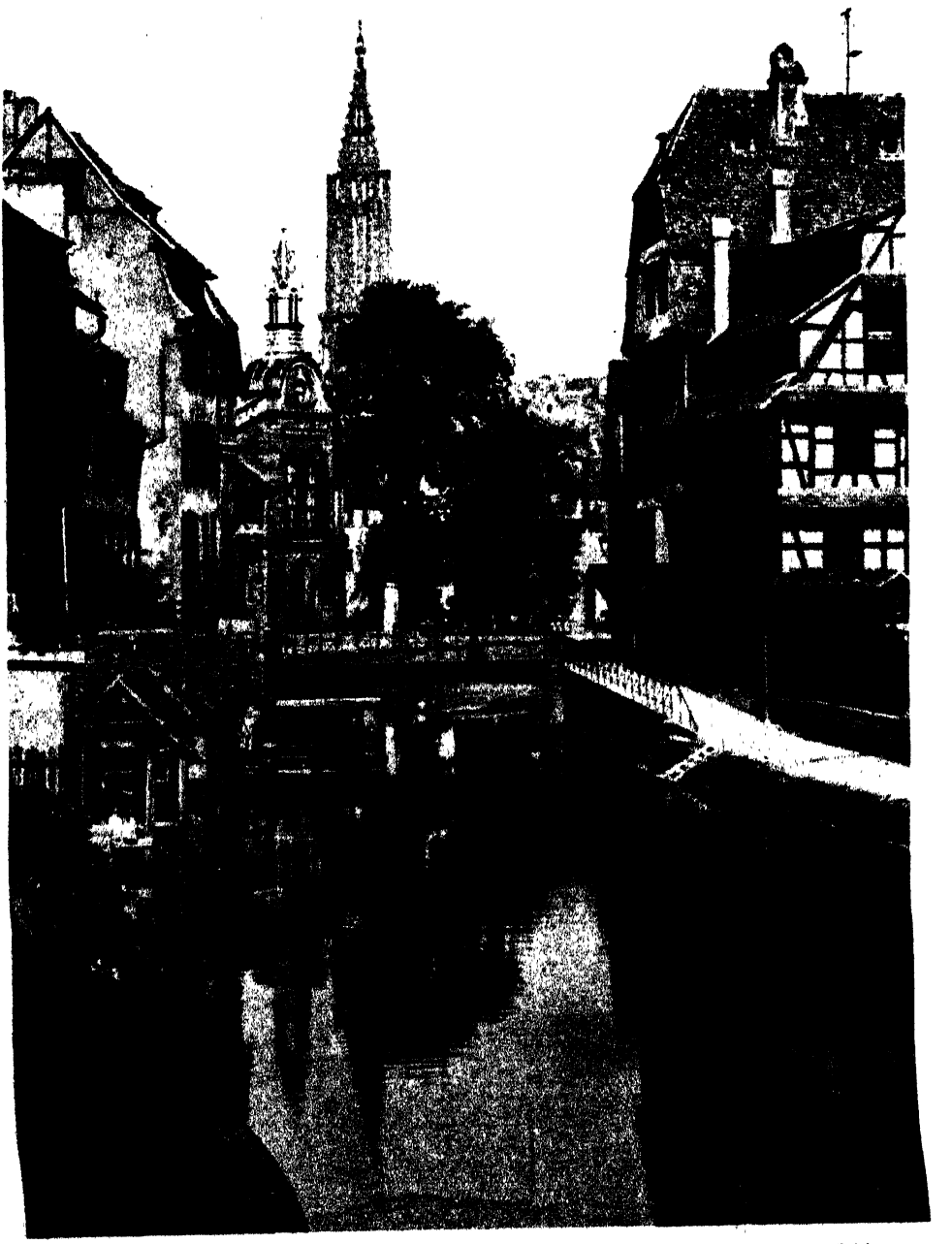
Those mountains, the geologists tell us, were in bygone ages one with the Vosges, but in the course of geological evolution a succession of cataclysms caused the vault between them gradually to collapse and settle, until, little by little, was formed the Plain of Alsace, through which, ultimately, the river Rhine made its way.

To-day the Vosges, as huge masses of eruptive rock rising originally to some 10,000 feet, and now worn down by countless centuries of wind, ice, and water to a modest 3,000 feet or so, stand alone, some with rounded desolate tops, bare or fir-capped, some rising in sharper peaks, deceptively known as "ballons," or balloons, which they are not, and others crowned, like the



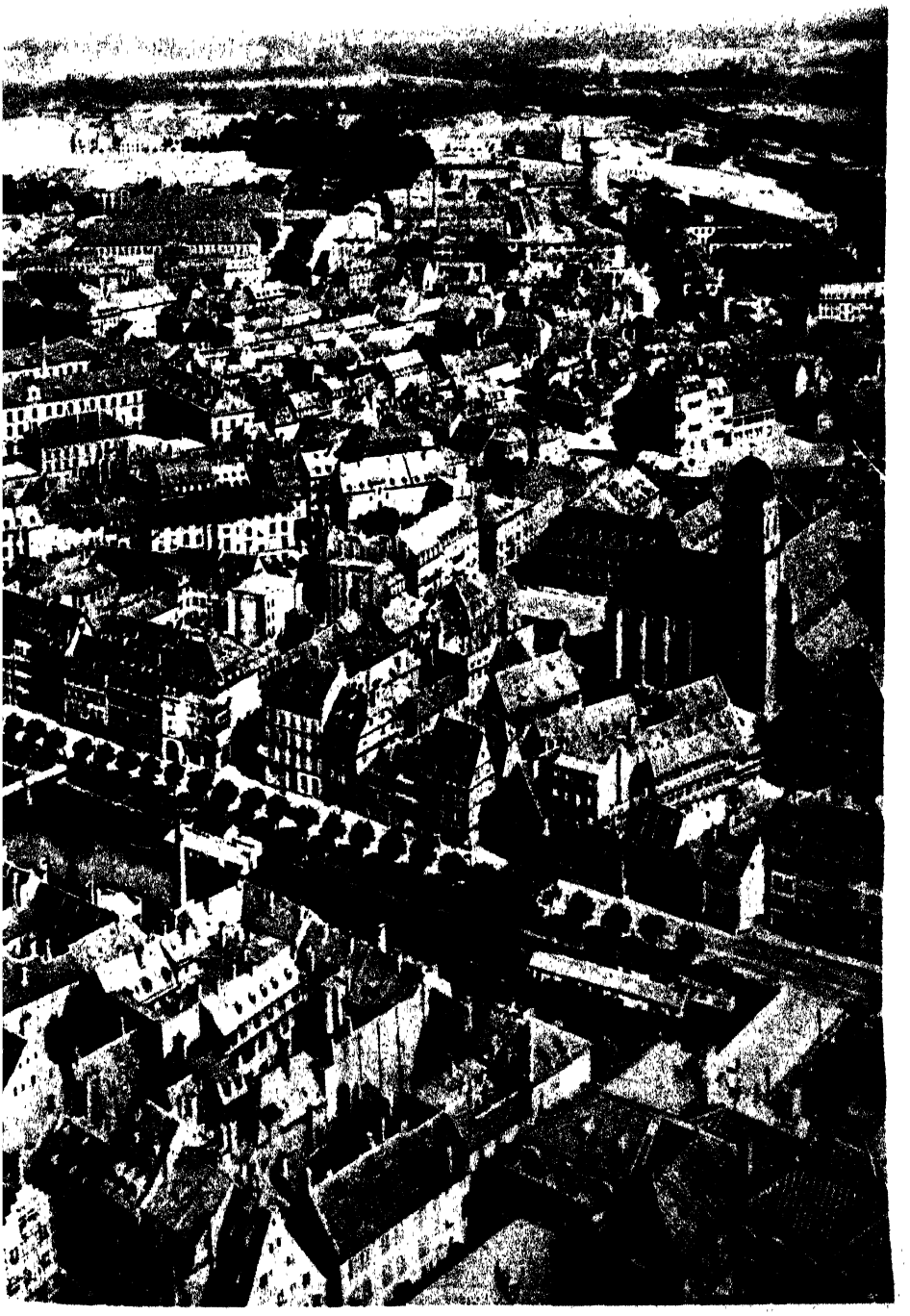
Donald McLeish

ALSACE. *The French peasants, freed from the German yoke, work with a will on their liberated fields—some of the most fertile in Europe*



Donald McLeish

ALSACE. *Dominating the old and new buildings of Strasbourg soars the Cathedral Tower, 465 ft. high, one of the loftiest in Europe*



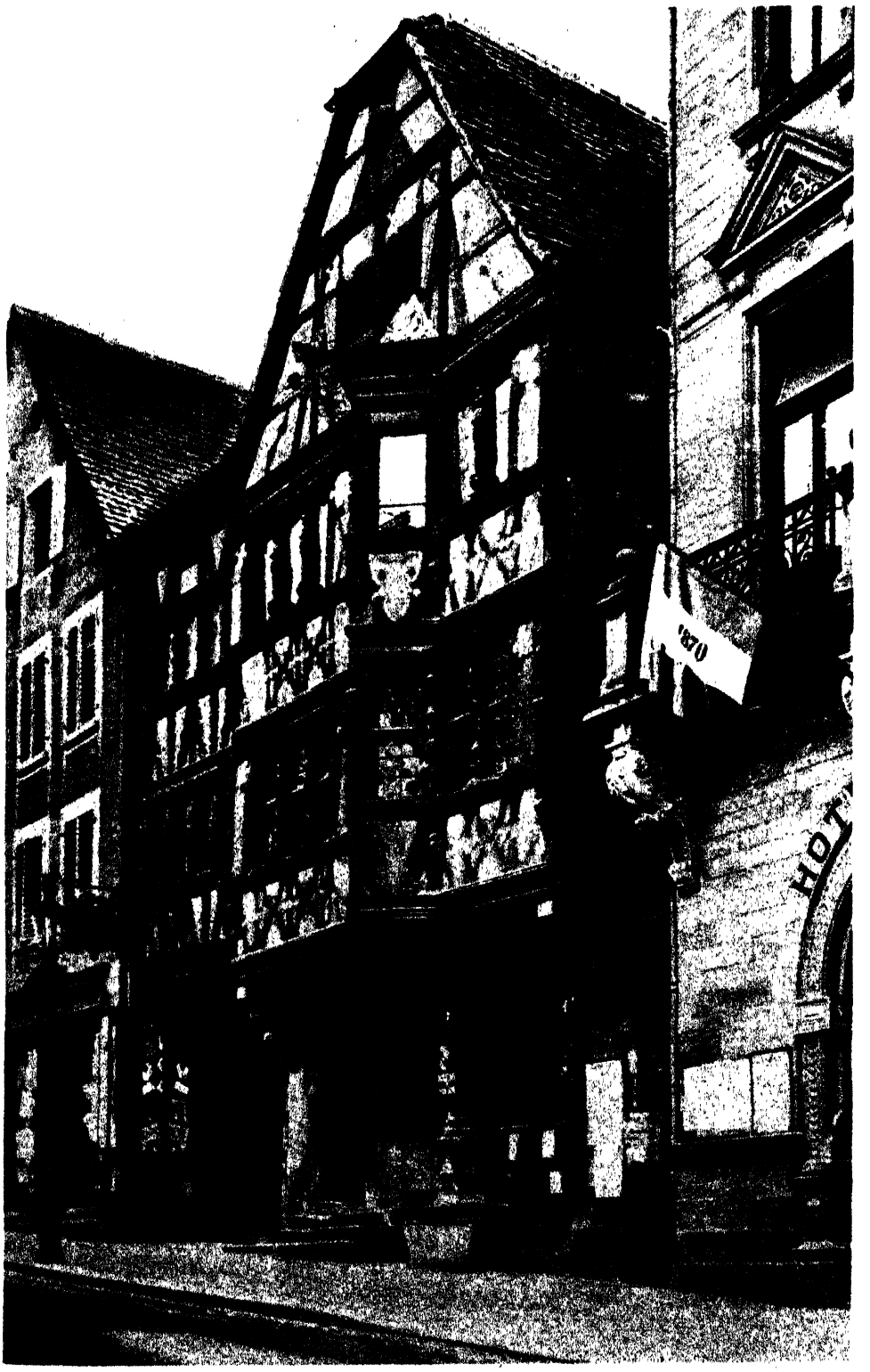
Donald McLeish

ALSACE. *This modern quarter of Strasbourg lies beyond the southern branch of the Ill; ancient only are the houses lining the water*



Donald McLeish

ALSACE. *Spite modern suburbs the heart of Strasbourg, with narrow streets and half-timbered houses, retains a medieval aspect*

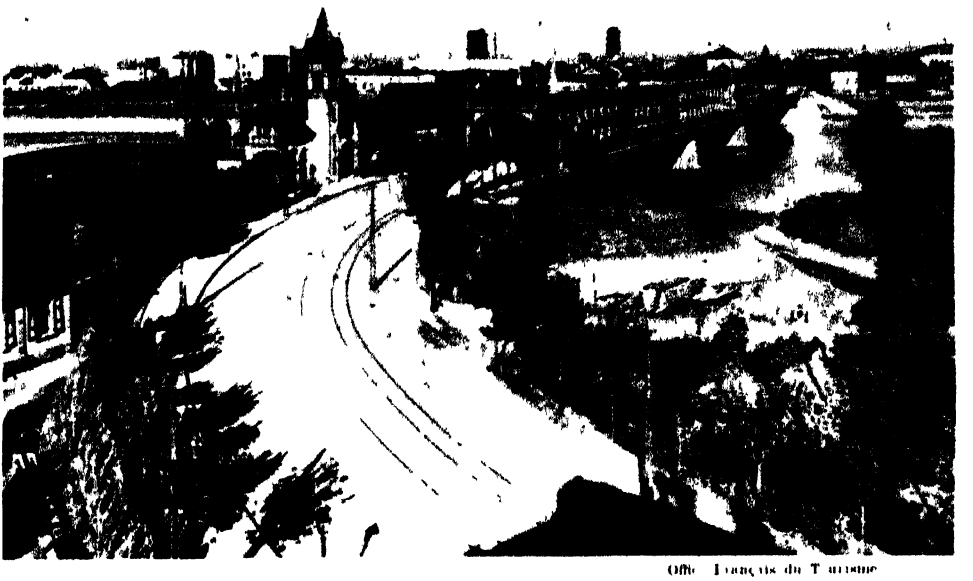


Donald McLeish

ALSACE. *The town Saverne, incorporated with the German Empire in* 1870, *was restored to France by the Peace Treaty of* 1919



ALSACE. *Strasbourg's pride is her stately minster, a beautiful Gothic edifice with west façade cased in exquisite tracery and sculpture*



Office Français du Tourisme

Two notable bridges lead from Strasbourg, Alsace's capital, across the Rhine to Kehl; the iron railway bridge was erected by the Germans



Office Français du Tourisme

ALSACE. *Sheltered by the eastern slope of the Vosges, the small town Niederbronn, famed as a watering-place, lies in a lovely setting*





These quaint towers adorn the Alsatian towns of Haguenau (left) and Mulhouse, and are remnants of their prosperity as free imperial cities





Office Français du Tourisme

ALSACE. *The medieval character of Colmar and Ribeauville is well portrayed in this venerable dwelling-house and gate tower respectively*

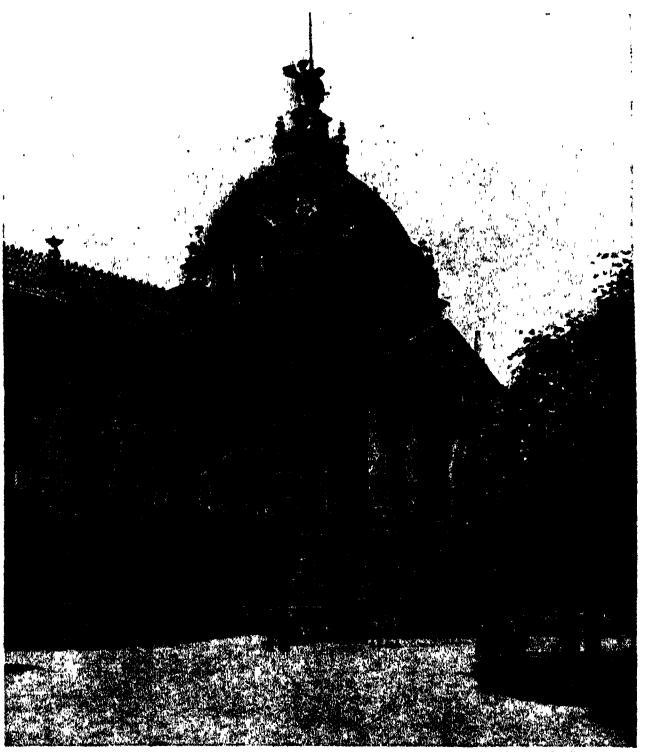
shoulder or promontory of Hoh-Koenigsburg, with a towered, embattled feudal castle, restored or ruined, but always commanding, romantic, and distinctly picturesque.

On the Alsatian side the mountain slopes, generally, are very steep, and since there is a heavy annual rainfall on the Vosges amounting, in a wet year, to some four or five feet of precipitation, torrents of water, at certain seasons, come rushing down the hillsides, and would work destruction had not a system of dams and reservoirs already harnessed a part of this fall to the docile service of man.

Most of the eastern streams of the Vosges find their way, at last, into the river Ill, which, rising in the Jura Mts., and flowing northward through the midst of the plain, joins the Rhine a little below Strasbourg. Much of this Alsatian plain, thus drained by the Ill and the Rhine, has been covered, by an age-long flow of water over it, with a thick layer of "loess," a calcareous deposit which has made of these lowlands one of the most fertile districts of France, and had won for them, from across the Rhine — until 1918 —the name "Garden of Germany."

With a soil thus made suitable to many kinds of culture, well watered, sheltered from northerly winds, and enjoying a mild climate, this plain of Alsace is a home of great prosperity and abundance. The mean temperature at Strasbourg is about 49.8° F., at Metz about 48° F., and the annual rainfall some 27 in.; but on the Vosges the weather is more severe and the heights are snow-covered annually for six months. On the western side of the Vosges the slopes are usually less abrupt, the fall being by a series of gentler gradients slowly sweeping down towards the Paris basin.

On the western foothills of the Vosges, approached from Alsace by the famous Col de la Schlucht, lie the beautiful mountain lakes of Longemer and Gérardmer called after Gérard of Alsace, first Duke of Lorraine-Longemer; and, loveliest of all, Retournemer, above which, half hidden in the trees, rises the great escarpment of the Roche du Diable. These lakes, becoming every year more popular, both as summer and winter resorts, are the most picturesque sites in Lorraine, a province which, in general, is harsher and less picturesque, as it is also less fertile, than Alsace. One has heard a proverb, hereabouts, to the effect that "Without Gérardmer and a



Donald McLeish

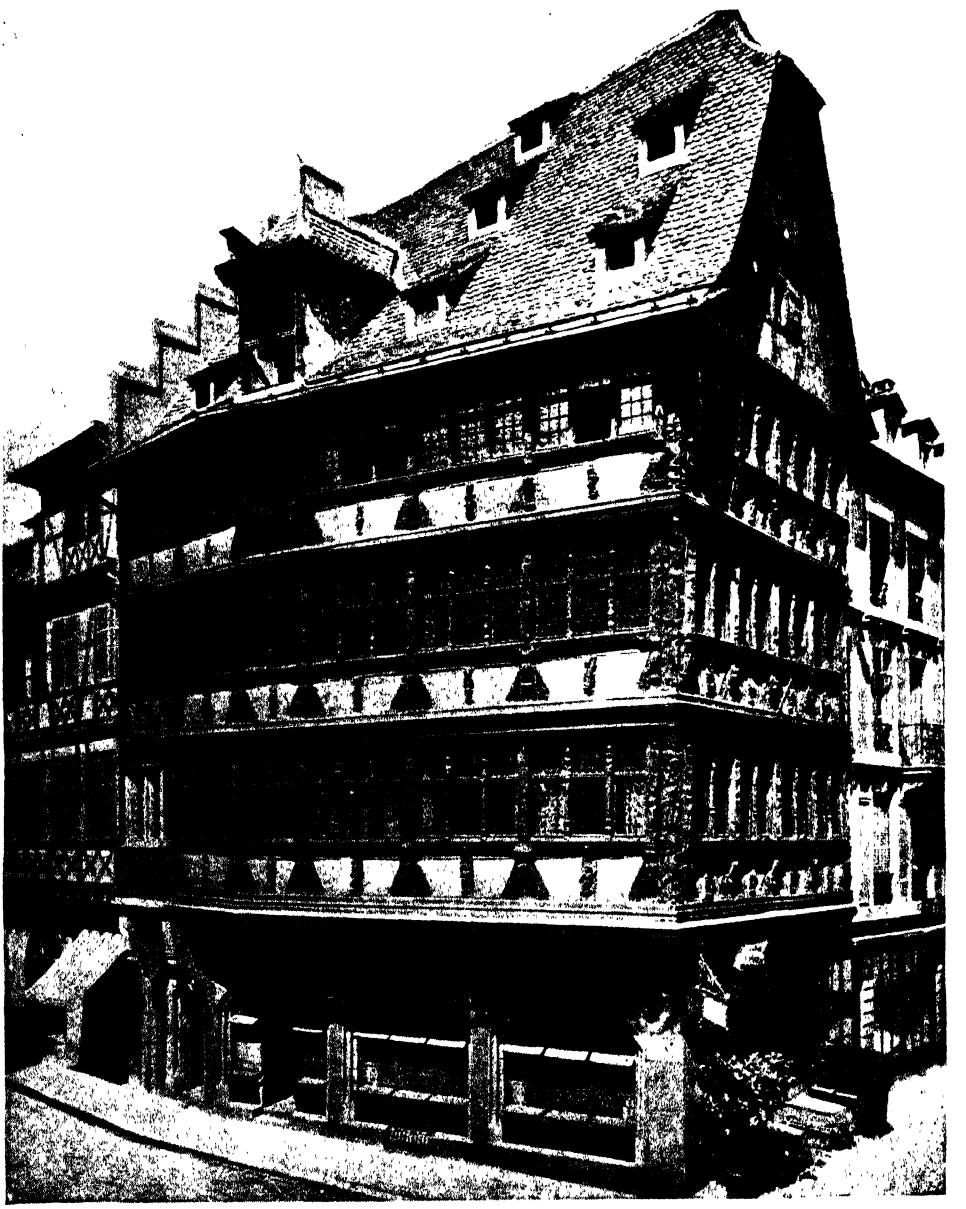
RELIC OF PRUSSIAN RULE IN STRASBOURG

Built in Strasbourg after the Franco-Prussian War as a provincial residence for the Emperor William I., this very florid edifice stands in the Kaiser Platz; the heralds on its soaring dome are one hundred and fifteen feet above the road

bit of Nancy, what would Lorraine be?"

But it is not quite so bad as that. *Lorraine, though sorely battered by the Great War, still possesses, in common with every other French province, a charm peculiarly its own. Let us enter it, then, not by the Schlucht and the Vosgian lakes, but by what is geographically the more natural way, namely from the south, over the plateau of Langres, because that way, northward, flow this province's principal rivers, the Meuse and Moselle.*

These rivers have been humorously dubbed traitors to France, since they have not followed the more ordinary course of French waterways of "the



HALF-TIMBERED HOUSE OF MEDIEVAL STRASBOURG

The more ancient and picturesque quarters of Strasbourg lie in the island formed by the two branches of the Ill on which the city lies; and not least beautiful is the square before the western façade of the cathedral. Among its wonderful old houses is the Maison Kammerzell or Kammerzell'sches Haus, a fifteenth or sixteenth century dwelling restored with skill and converted to a wine-shop



Société Générale d'Alsace-Lorraine

COLMAR, A HOMELY VENICE OF ALSACE

Lying fair in the watered plain between the Vosges and the Rhine, Colmar with its old-world streets and modern cotton industries is the chief city of Upper or Southern Alsace. The Lauch and the Logelbach, tamed and canalised, flow through the town, sometimes flanked with streets and open squares and sometimes hemmed, as here, between the back doors of picturesquely huddled dwellings

East," such as the Aisne and the Oise, which is westward, towards Paris, but have preferred a northern course, thereby, however—and this applies to the Moselle in particular—rendering good service to the new traffic with the Rhinelands which the now regained French influence upon the great river seems certainly to forecast.

So, due north, across a rather somnolent and inactive region, the Meuse makes its way, through Joan of Arc's country, once a land of almost unbroken forest, but now much denuded by ravages of time. Sometimes straight, then twisted, and strangled into hair-pin bends, when the stream forces its way through impeding rocks—as at the " organs " of St. Mihiel, not evacuated by German troops until near the close of the Great War—its waters glide between pleasant hills, that are geologically of coral formation, wrought in the days when a warm, semi-tropical sea flowed over the marches of Lorraine.

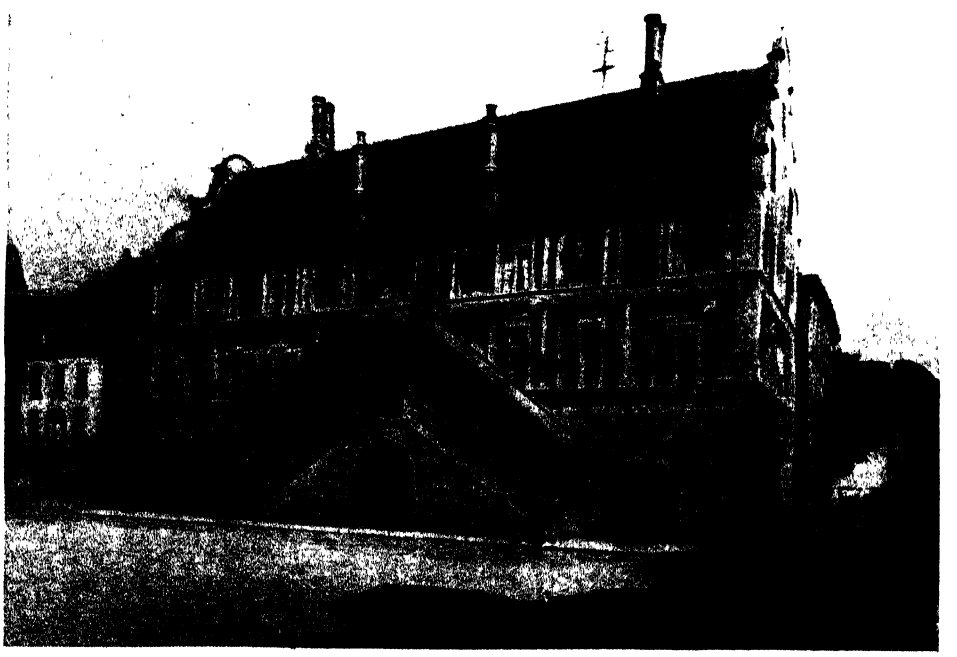
Westward, as we reach Commercy, lies the Barrois, once a separate duchy, now merged in the greater Lorraine—a district of calcareous plateau, riddled with caves and grottoes, shaded with majestic forests, dear to the muse of André Theuriet—and sparsely

inhabited, except in the valleys, such as that of the Ornain, where lies its ancient capital, Bar-le-Duc. Eastward, towards Nancy, cut through by a bend of the Moselle, is the district of La Haye, given over to agriculture, its slopes rich, in their seasons, with hops, corn, and vines, among the best that Lorraine produces.

Still further north, nearly midway between Meuse and Moselle, is the Woevre, a country once wooded, like the others, but now a somewhat harsh and sombre region, of flat horizons, and sad, if glorious, memories of Mars-la-Tour, Rezonville and Gravelotte. Through its stiff, clayey, clinging soil the plough is not easily driven, and certain of its cantons bear, to this day, the significant epithet "Malpeine." Eastward from it you may see, by night, blazing, a lurid red upon the darkness, the watch-fires of a modern industrialism that, more than any other, contributes materially to the riches of Lorraine and draws upon itself the covetous glances of every neighbouring government. For this is "the Iron Country," the "Pays du Fer" of the Briey basin, where, among the farms, still worked by native peasants, an alien industrial population of Belgians, Poles, and other races, work the mines and the forges.

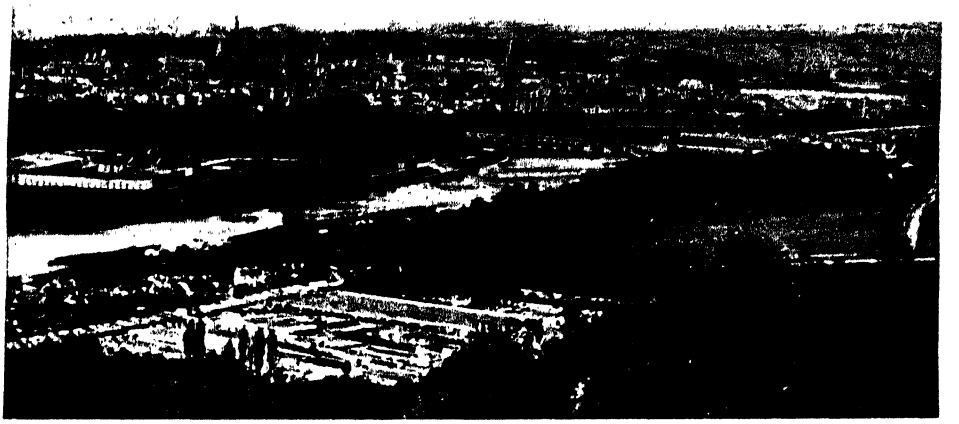
Equally rich is the southern section of this iron country, the Nancy basin. Germany, when, in 1871, she annexed a large part of the province and thrust out her new boundary some twelve miles south-westward from Metz, divined to some extent the enormous underlying wealth of Lorraine's sub-soil, and would, doubtless, have taken more of it even than she did had her scientists then known how to dephosphorise the mineral ore; but that discovery, which opened the mines of Lorraine for the first time to full exploitation, was not made—for France's benefit—until 1878.

It was from Lorraine, nevertheless, that Germany dug a very large proportion of the mineral by means of which she munitioned herself during



THE TOWN HALL, EPITOME OF MULHOUSE'S OLD-TIME PROSPERITY

Among the chief industrial towns of Upper Alsace, Mulhouse has been for 300 years a centre of the cotton-weaving industry started first under water-power from the Vosges tarns, and now worked by steam from Saar coal; paper and ironware are also manufactured. The historic town hall, erected in 1552, is a solitary witness of the medieval pre-eminence of Mulhouse as a free imperial city



Société Générale d'Alsace-Lorraine

ROOFS AND SPIRES OF METZ FROM THE HEIGHTS

Formerly capital of German Lorraine and now a departmental capital of France, Metz stands on the rich banks of the Moselle, surrounded by hilly, well-wooded country. River traffic here is considerable in the famous Moselle wines, agricultural produce and fruit. In the town itself the streets are narrow and winding save where modern building in the German style has been introduced

the Great War, and it seems certain that the Continental power (i.e. France) now controlling the exploitation of such vast stores of material must exercise in the future a dominating control over the iron and steel industries of central Europe, provided always that it can at the same time lay hands upon coal enough to supply the necessary motive force.

In this connexion, therefore, France's Ruhr policy is significant, and it must be remembered also that, some fifty miles only north-eastward from Nancy, in the Rhine Province, and abutting upon the Lorraine boundary, is the rich coal area known as the Saar basin, which, by the Treaty of Versailles, became a state, under a government representing the League of Nations, with France as the occupying power. This was not the first time that France had occupied the Saar basin. She held it from 1792 to 1815, and the rules laid down under the Napoleonic regime to some extent have guided the administration in their difficult task there. The coke needed for working the Lorraine iron is best obtained from the Ruhr, the Saar coal being generally too soft for the purpose.

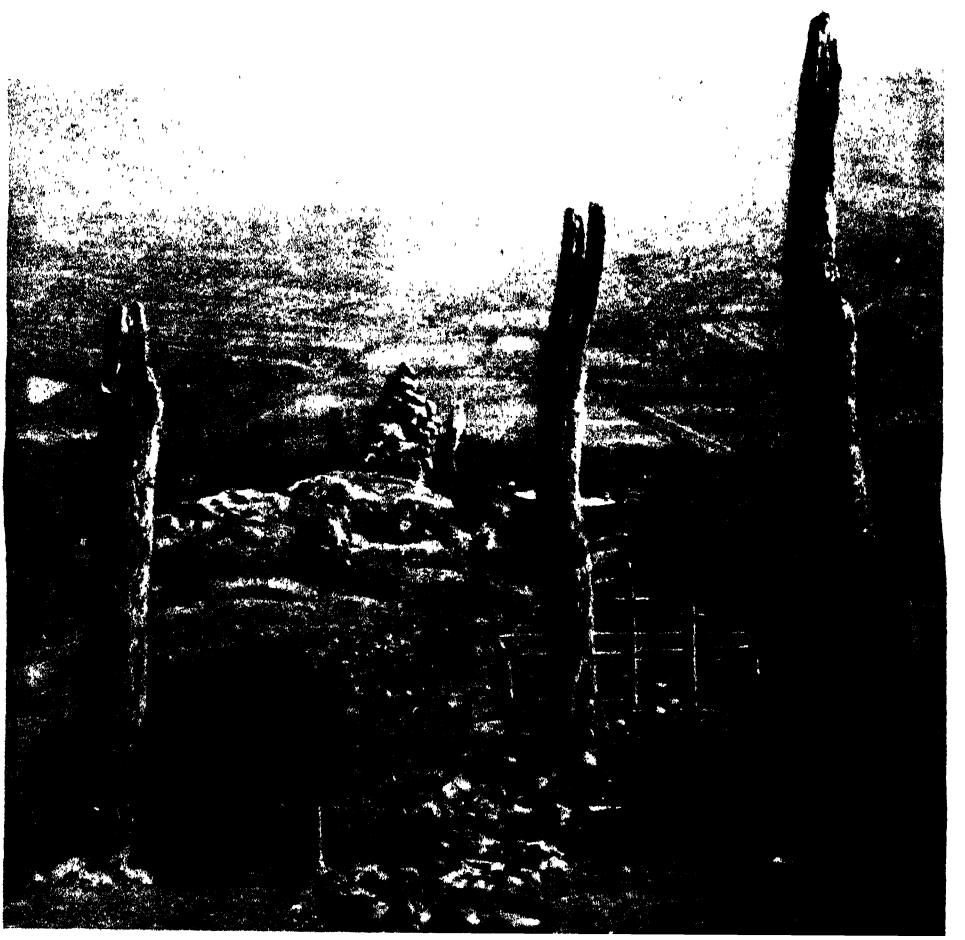
Mining and metallurgy, therefore, are the first industries of Lorraine, and they include, besides iron, the working of the salt marshes around Château-Salins, north-east of Nancy, whose crystal galleries are far pleasanter to wander in than are the gloomy underworlds of iron or of coal. Another secondary industry, springing directly from below ground, is that provided by the carbonated, sulphurous, iron springs of Contrexéville and Vittel, known almost throughout France.

Above ground the Lorrainers generally are occupied with agriculture and forestry. Such woods of the Côtes des Meuses as the Great War did not destroy support many of its people, and about the valley of the Moselle, by the Zaintois and Vermois, are found the corn-lands that fill the granary of Lorraine. La Haye grows much barley and oats; many an acre bristles with hop-poles, and the slopes of its hills in summer time are green with vines. On the Alsatian side the hillmen's principal occupation is the rearing of cattle; on the lower grassy slopes, the culture of the vine, and the exploitation of the fir, and other forest trees. A pleasant sight it is to watch the

"Schlitteurs," or sledge-woodmen, at work among the pines, some of which attain a height of 100 feet, piling the logs upon their wooden sledges, and trundling the roped loads over a railroad of hewn trunks down to the villages below, that are vocal from early morning until the evening with the thrilling whir of the saws and the mingled voices of the sawyers.

In the plain of Alsace, with a soil generally richer than that of Lorraine, a more intensive culture is carried on, and many crops are grown in abundance, among them wheat, oats, barley, rye, maize, potatoes, sugar-beet, hops, tobacco, flax and hemp; but, rather strangely—its raw material being an exotic growth of more tropical latitudes than these—a major industry of Alsace aided, among other favouring circumstances, by the bleaching qualities of the Vosgian waters, is cotton manufacture, and, to some extent, that of woollens also, carried on around Mulhouse and Colmar and in the valleys that nestle below the great mountains of the Vosges.

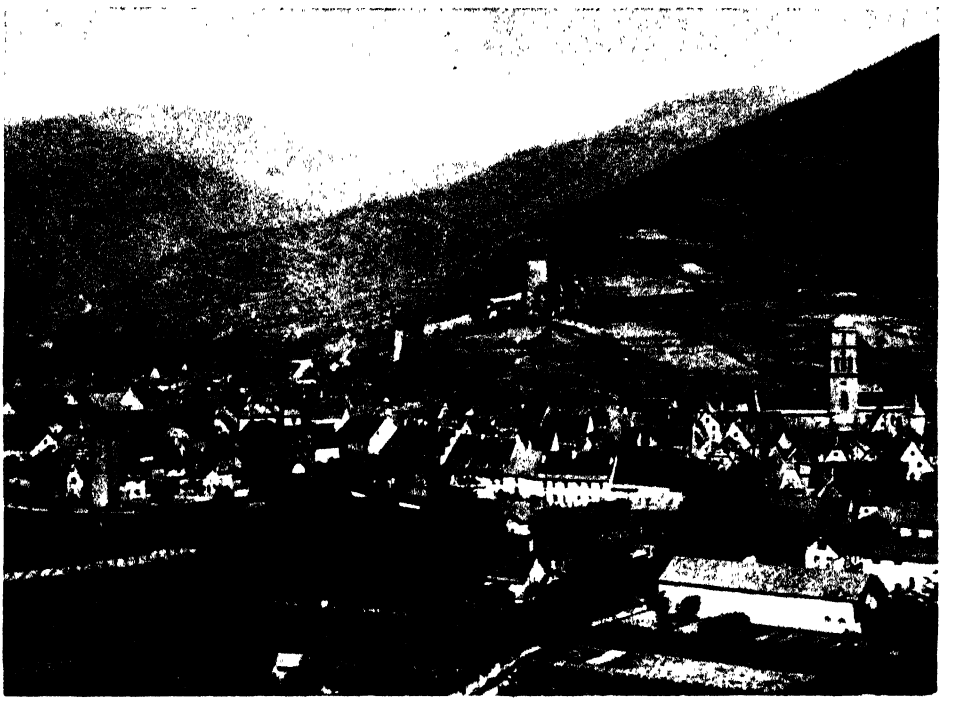
Equally important, having regard to future developments, is the fast growing exploitation of that useful alkali-salt so much in demand for



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ALSACE FROM A LOFTY PINNACLE OF THE VOSGES

From the blasted, grave-strewn summit of Hartmannsweilerkopf, scene of some of the fiercest fighting of the Great War, an impressive view may be had of the rich Alsatian plain stretching eastward north of Mulhouse to the Rhine. Formed mainly of a deep, water-deposited "loess," it is extremely fertile, supporting many a famous vineyard and bearing abundant crops of cereals, etc.



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KAYSERSBERG NESTLING CLOSE IN A VINE-CLAD VALLEY

Lying along the foothills of the Vosges Mountains is an uninterrupted chain of towns mostly of great antiquity. Of these, Masmunster, Thann, Kaysersberg, Ribeauville, and Sennheim are important. Above, we see the dry, sun-baked slopes, so useful for vineyards, above Kaysersberg; these mountains are also valuable as they provide quantities of easily-worked building stone

manure as well as for the manufacture of explosives, and numerous other chemical activities, viz. potash, of which a vast deposit, covering some seventy-eight square miles, extends between Mulhouse and Colmar. Thus what was until recent years a German monopoly passed, in part at least, to France, and is becoming a great source of Alsatian revenue. Petrol also has been discovered in this province.

In the matter of transport both provinces are moderately well served by road and rail, and since France regained control of the Vosgian slopes the much discussed new line and tunnel through the Vosges have been in course of construction, and will considerably shorten the journey to Paris. A fairly regular air-service between Paris and Strasbourg has been for some time in operation. The river and canal system, never very satisfactory, needs development, and the Rhine in particular, always a rebellious river, of little use hitherto above Strasbourg, may be made a more effective waterway.

Under the Treaty of Versailles a French official presides over the river's commission of control, and the ports of Strasbourg and Kehl are temporarily united. Strasbourg, in the future, can easily become a much more important centre of distribution for local commodities, such as Ruhr coal, whose natural way of transport is the Rhine; but it is essential that the canal system, including canals of the Marne-Rhine, Rhône-Rhine, and Saar, should be widened and deepened. A scheme for the construction of a lateral Rhineland has long been talked of, but has not, so far, materialised.

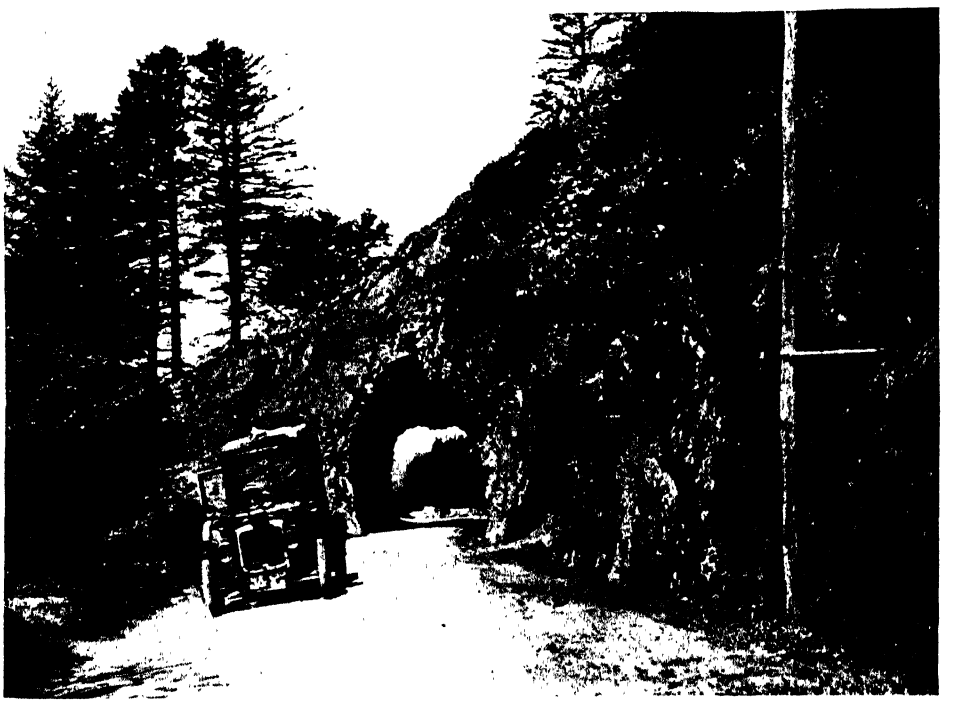
Little by little, no doubt, as things in this much troubled region of Europe become more settled, France will develop a larger and more ambitious policy as regards the whole of her Rhine communications. The most important branches of Alsatian foreign trade, at

the present time, are the exports of textile cotton from Mulhouse and district, and those of potash to England and America, the commoner stuff for direct application to the land, and the refined qualities for compound manures.

Full of pictorial and historical interest and extremely fascinating to wander through are the cities of Alsace-Lorraine, excepting, perhaps, only Mulhouse, which, though commercially important, is, to the stranger, comparatively dull. First in dignity and interest comes Strasbourg, the great capital of Alsace, with a population of 180,000. It is a magnificent city, watered by the two branches of the Ill, and offering most vivid and striking contrasts between the modern town of heavy and rather pretentious German architecture, with fine public and university buildings, and the ancient, medieval Strasbourg, whose narrow, picturesque streets, of timbered, gabled houses, with overhanging roofs, group themselves about the great Gothic cathedral of Nôtre Dame. In the Place Kléber, at Strasbourg, the Marseillaise was first publicly sung, and the entry of the French troops into that city in 1918 was the occasion of frenzied rejoicing.

Equally picturesque, and for charm second only to Strasbourg among Alsatian towns, is Colmar. It was here that, in 1354, Charles IV. sanctioned the alliance of the ten imperial towns of Alsace, known, thenceforth, as "The Décapole," whose resolute spirit of freedom is still reflected in the traditionally independent Alsatian character. Colmar was the home of "Hansi," whose busy and bitterly ironic pencil during the war did much to foster, in Alsace, the already instinctive hatred of despotic German rule.

Wherever you choose to wander among the towns and villages hereabouts, beauty and historical memories are to be found, whether you keep to the lowlands or climb to almost any



C Uchter Knox

NATURAL GATEWAY ON A MOUNTAIN PASS: THE "ROCHE DU DIABLE"

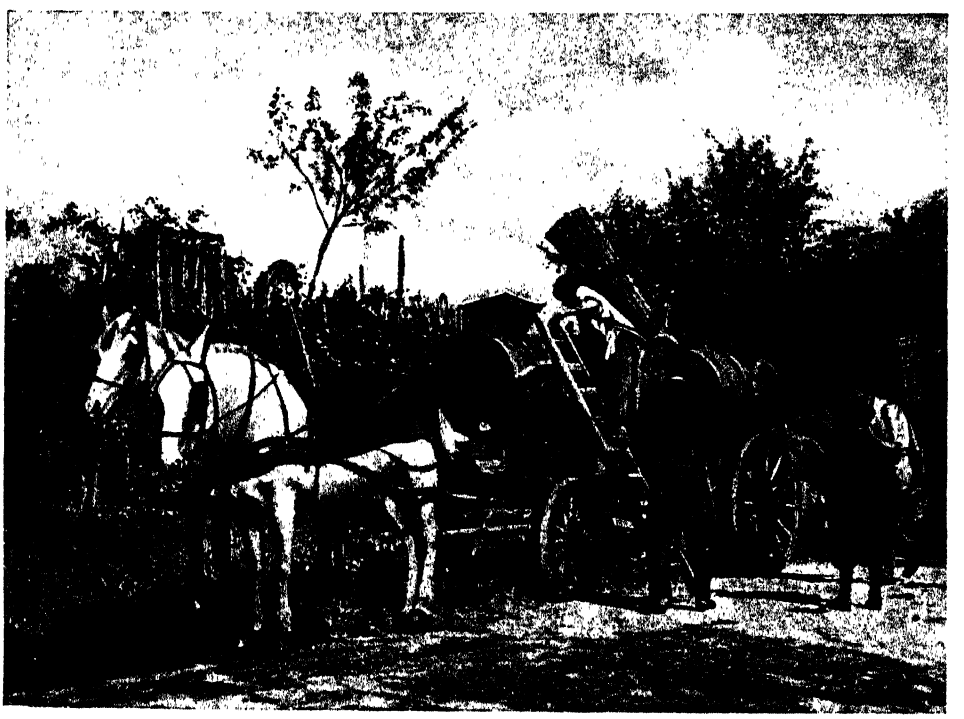
Nowhere in the continent of Europe is there to be found any more beautiful country than that which lies round the western spurs of the Vosges on the borders of Alsace and France proper. Here lie the lovely mountain lakes, Longemer, Gérardmer and Retournemer, and above them, climbing up through the trees, is the Schlucht pass with its tunnelled escarpment, the "Roche du Diable"



Société Générale d'Alsace-Lorraine

HOW THE STURDY LORRAINERS GARNER TIMBER FROM THE VOSGES

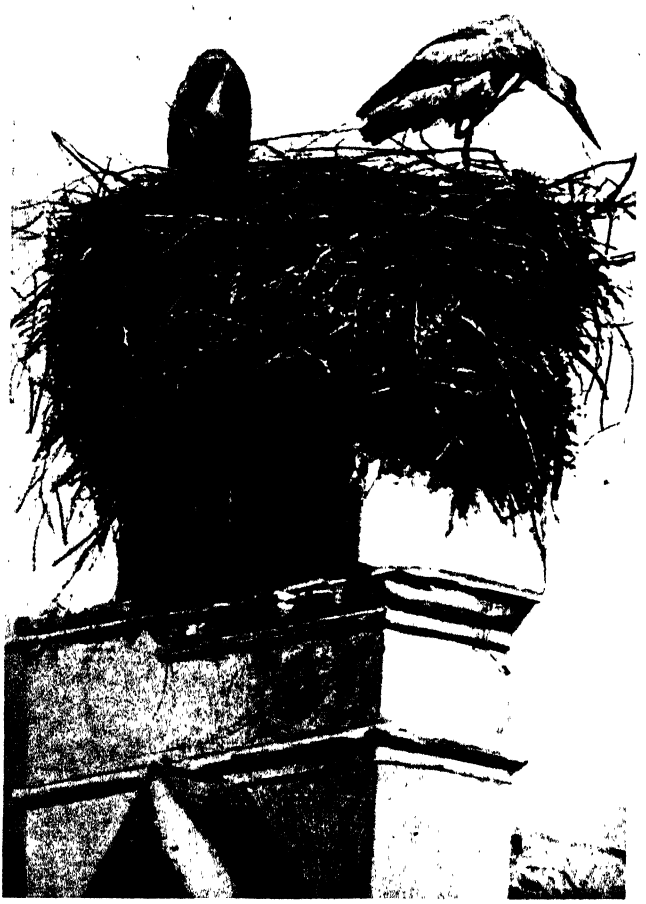
Above the green meadows of the lower slopes of the Vosges tower high the crags and clefts covered with dense forests—the raw material of one of the staple industries of Alsace-Lorraine. The trees are felled, trimmed and sized, and then piled on sledges that run from the heights on wooden railways to the valleys where are the saw-mills. The sledge-working foresters are known as " schlitteurs "



Société Générale d'Alsace-Lorraine

VINTAGE TIME NEAR REICHENWEIER

Between Ribeauville and Kaysersberg lies the little township of Reichenweier (Riquewihr), notable for its beautifully preserved medieval walls and gates. It is in the district around that some of the finest wine of this wine-producing land is vinted ; and here by a laden vineyard we see its pale sweet produce being tipped from funnel-shaped baskets into great casks that will bear it to the press



Société Générale d'Alsace-Lorraine

WELCOME IF UNINVITED GUESTS

On gable and chimney-top throughout Alsace the cumbrous nests of the storks are a familiar sight. They build there safe from molestation, protected by age-old custom and the sanctity of undying folk-lore

small town of the Vosges, such as Lichtenberg, where, after a heroic resistance, the little garrison defending its medieval fortress—fiercely bombarded, and beset by numbers ten times greater than their own—surrendered on August 17, 1870.

Charming, too, in their degree are the smaller towns and the villages of the lower Vosgian slopes, such as Barr, beloved of Gustave Doré, the painter, and a typical example of its kind. Barr is a busy, bustling little town. The mountain stream bubbling through the street turns many a merry mill-wheel. From every side comes the pleasant chip-chip of wood hewn with an axe and the long-drawn whir, whir, whir of machines sawing the mountain pines. Logs are piled right and left before the cottage galleries, overhung by friezes of vine, and one catches here and there a faint odour of leather, recalling the fact that tannery competes with timber as an industry of the town. Looking up at the centuries-old roofs of Barr, the eye is caught and held at once by an object familiar to all who know Alsace—a stork's nest perched upon a chimney top and showing black against a sunlit sky. The provision of electricity to nearly every Alsatian village has been a great boon to the farmer and the rural community.

Lorraine also possesses beautiful cities, ancient and picturesque, the most important being the French and German capitals, Nancy and Metz, both astride the lazy waters of the Moselle. Metz, the great frontier military city that the Germans, after 1871, protected with a new enciente of forts and maintained as the most impregnable stronghold in the world, is a live and imposing town; but for beauty and interest it is eclipsed by its rival, Nancy, the great city which grew up during the Middle Ages around the palace of the dukes of Lorraine.

Stanislas Leszczynski, ex-king of Poland, father-in-law of Louis XV. of France, on his accession to the dukedom in 1737 gathered to his court a brilliant company of artists who between them

united the old town and the new with a series of squares and buildings that have made of Nancy the loveliest example of an eighteenth century city in all France. The ensemble formed by the Hôtel de Ville and the Place Stanislas, the Arc de Triomphe, the Place de la Carrière and the Palais du Gouvernement has of its kind no rival in French architecture.

It is no wonder that the ex-kaiser William longed to ride in triumph into this capital of his "cousins the Hapsburgs," as he called them—with some reason, since Francis I of Lorraine married the Empress Maria Theresa of Austria. But he longed in vain. The French, at bay upon the heights of the Grand Couronné de Nancy to the north, successfully defended their city. A short distance southward from Nancy is another summit of deep though gentler interest, the "colline inspirée" (inspired hill) of Nôtre Dame de Sion, patron lady of Lorraine, a subject memorable in the writings of Maurice Barrès. Two other important Lorraine capitals are Epinal, which is the chief city of the Vosges department, and Bar-le-Duc, chef-lieu of the department of the Meuse.

The inhabitants of the towns and villages of Alsace-Lorraine, originally Celtic by origin—because the Rhine and not the Vosges is the ethnological boundary of ancient Gaul—and mixed with a strong strain of Gaulish, Roman, Frankish, and Germanic blood, reveal special characteristics. Physically they are of middle stature, square-headed, and often distinguished, in the typical Alsatian type, by rather high, prominent cheek-bones.

Despite, or in part because of, their country's lamentable history as a battle-ground, both races are born fighters, independent, racially sensitive and gifted with a strong vein of Gallic humour, generally ironic, which from 1871 onwards exercised itself freely at the expense of their Germanic masters.

Sturdy independence is the keynote to an understanding of these people's characters; but in endeavouring to comprehend them fully it should always be borne in mind that the big civilizing influences which have made the two countries what they are have come down the centuries mainly from beyond the Vosges rather than from across the Rhine. The deeper civilization and with it the deeper affection, as well as the essential spirit, of Alsace-Lorraine are certainly far less German than French.

ALSACE-LORRAINE: GEOGRAPHICAL SUMMARY

Natural Divisions. Alsace is the western half of the Rhine rift valley, Vosges Mountains (chief peaks: Ballon de Guebwiller, 4,667 ft., Ballon d'Alsace, 4,083 ft.), Lorraine a section of the Paris basin.

Chief Rivers. Ill, a left bank tributary of the Rhine, parts of the Rhine (v. Germany north and south), Moselle (v. Germany south), Meuse (v. Belgium).

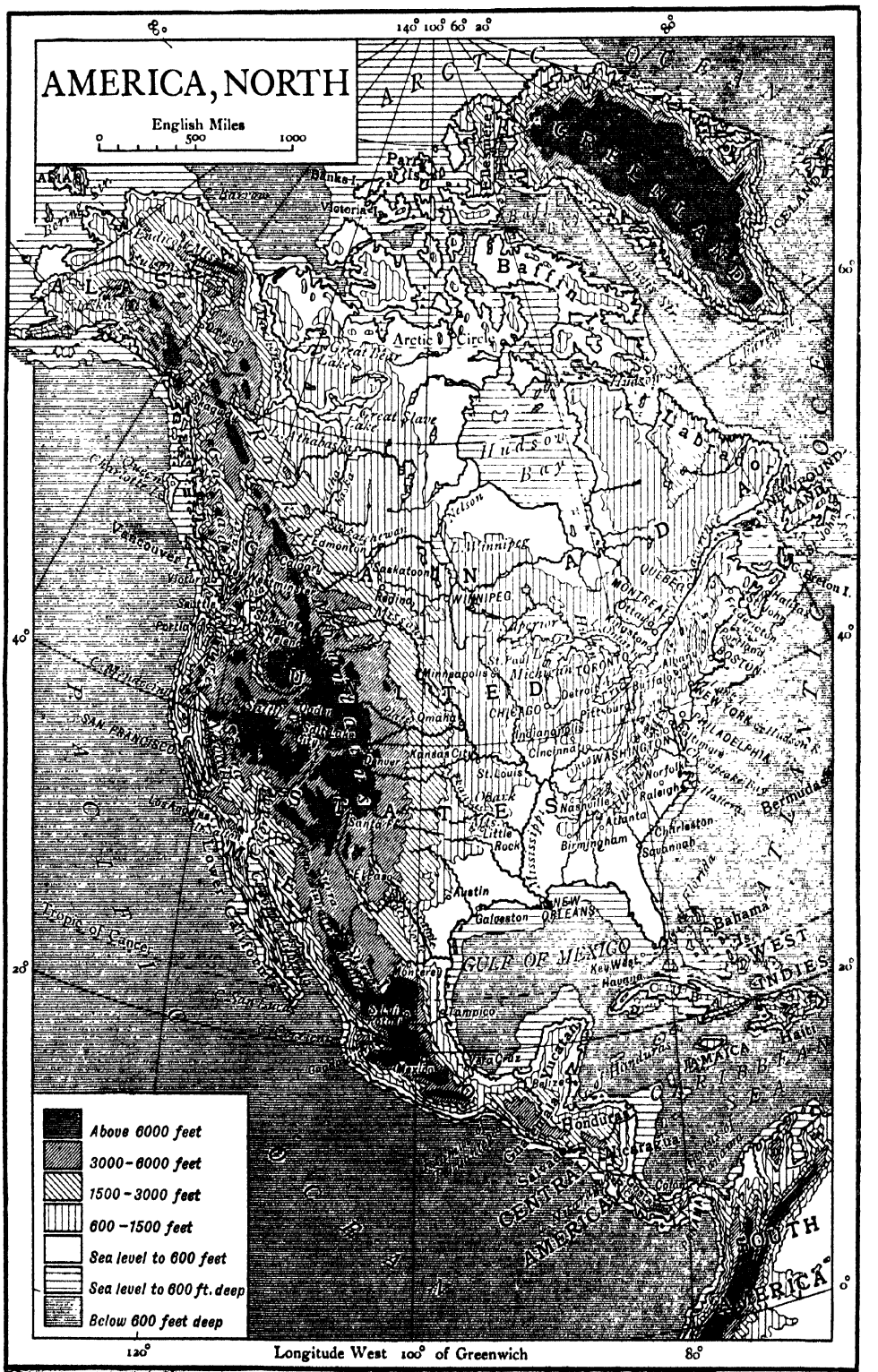
Chief Industries. Agriculture, particularly on the plain of Alsace, mining (see below), textiles on both sides of the Southern Vosges. Centres, Mulhouse and Epinal.

Minerals. Lorraine ironfield, from Longwy, south almost to Pont à Mousson, the chief ironfield in Europe. Its possession makes France second only to the United States as a producer of iron ore; part of the Saar coalfield, Sarreguemines. Salt: Nancy, Dieuze, and Sarralbe. Potash: north of Mulhouse, deposits of finer quality than those of Stassfurt, 3 per cent. of the world's supply. Petroleum at Pechelbronn in North Alsace.

Natural Outlets. The Burgundy Gate, from Mulhouse to Belfort by the Rhône-Sâone valley to the Mediterranean Sea, followed by the Rhine-Rhône Canal, at present not much used. The Middle Rhine valley, northwards towards Cologne by the Rhine Gorge and towards Hamburg and Berlin by the Main valley and Frankfort. Down the Paris basin to Paris. Internally, the Col de Saverne, followed by the Rhine-Marne Canal, to which is connected the Sarre Coal Canal from the Saar coalfield.

Railways. Strasbourg and Mulhouse are the chief centres; the Vosges are a barrier, and before the Great War French lines on the west were not connected with German lines on the east of these heights.

Route Towns. Nancy, Metz, Strasbourg, Mulhouse.



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AMERICA, NORTH

The Continent & Its Resources

by B. C. Wallis, B.Sc.

Author of "A Geography of the World"

THE northern half of the new world is a land of contrasts. Within an area which extends from 10° N. to 70° N. contrasts between tundra and jungle, snow-clad hillocks and mighty mountains rising in naked majesty about the timber line, are inevitable, but North America presents a more fundamental contrast than even these; by physical circumstance its closest ties are with the Pacific Ocean, while human bonds make it almost wholly an Atlantic country.

Turn the continent over on its back, as it were, and it will fit North-East Asia. Both areas are triangular. The northern limbs lie along the Arctic Ocean from Bering Strait east to Greenland, or west to Novaia Zemlia. The Pacific limbs are symmetrically balanced round the oldest of the world's oceans; they reach the isthmuses of Panama and Kra, half the world apart.

New Continents for Old

The third limb, in Asia, is no longer a coast-line, but before North America existed, the Asiatic triangle, then the ancient continent of Angaraland, here met the waters of the equally ancient Middle Ocean. The third limb, in the new world, now the Atlantic coast, corresponds, in part, with the western shores of the Middle Ocean, and for the rest, with the broken edge of the fractured ancient continent of Atlantis.

In each triangle, in north-west Angaraland or in Greenland and North-east Canada, occurs one of the oldest areas in the world.

Gentle bulges in the land contour comprise extensive almost level areas of hard, azoic, crystalline rock.

In Angaraland the ocean has gone and the old triangular continent has grown into Asia; in America the Canadian Shield has lost its eastward extent of continent and found the Atlantic ocean. Youthful North America corresponds with ancient Angaraland as part of the land mass surrounding the Pacific deeps.

Nature's Work in Prehistoric Time

The smallest of the ancient continents, Antillia, has been so submerged that its mountain ridges alone show above the deep waters to form the West Indies and Central America. These remnants best preserved of the world's oldest mountains, form a unique feature of the North American continent.

The mountains of North America were made later by strains and stresses from the Pacific, which crumpled the earth's crust against the stable and undisturbed Canadian Shield. The first crumplings produced a line of mountains between Atlantis and Antillia; deep troughs separated great ridges and molten earth matter intruded into even the oldest rock. Subsequently, the ridges were worn away until the eastern edge of North America was a plain; later still, this plain was elevated, and newly-formed rivers carved the levelled surface into ridges and valleys which modern travellers know as the Appalachians or Eastern Mountains.

Rocks exposed in the numerous gorges of these rivers show that the tops of the present ridges were once the bottoms of the troughs formed when the land was first crumpled. The second mountains arose at a later date; ridge and trough appeared parallel to the present Pacific

coast, and mighty volcanoes uprose as part of the fire girdle of the Pacific. The period of disturbance is not concluded; earthquakes still distort the land surface near the Pacific Coast. These are the Western Mountains, where a cover of sedimentary rocks raised high above sea level is pierced in many places by intrusions of molten earth matter.

Thus arose the four dominant physical regions of America; the ancient Canadian Shield, a lowland so hard that rivers merely etch its surface; the West Indies and the Central American isthmus, mountains flanked by abysmal oceanic deeps; the Eastern Highlands, residual heights carved by erosion, the Western Mountains still unfinished.

Zone of the Great Rivers and Lakes

The fifth physical region is the hollow between the old Atlantis and the newer mountains. Within this lowland lie the chief American rivers and lakes. The lakes, along the edge of the Canadian Shield, are wide shallow pans due largely to the glaciation which ensued during the periods when ice, now confined to Greenland, covered the whole of the shield. The Great Lakes, Superior, etc., drain to the Atlantic by the St. Lawrence, an accidental trench in the shield; even to-day a short, shallow canal cut south of Lake Michigan would drain much of the lake water into the Mississippi. The other Canadian lakes, Great Bear, etc., drain to the Arctic Ocean as part of the normal drainage in the hollow west of the Canadian Shield. Here and also to the south great rivers flow down the long gentle slope eastwards from the Rocky Mountains, which are merely the eastern buttresses of the Western Mountains. The Athabaska, Saskatchewan, Missouri, etc., drain to the Arctic, Hudson Bay, and the Gulf of Mexico, in consequence of comparatively recent arrangements of the superficial layers of the great central lowland. From the eastern highlands the Ohio and other rivers drain westward to the Mississippi. Metallic minerals originate along the edges of great intrusions of molten earth matter. Free-flowing lavas give rise to the sequence tin, copper, zinc, silver and lead; in North America tin has not been found except in Alaska. More viscous lavas yield iron, nickel, cobalt, manganese, and chromium. Gold, however, seems to occur merely by accident. The mineral regions of the continent depend therefore on its geological history. Coal occurs along the edge of the central lowland or in depressions in the Western Highlands; metallic ores are present near the lava intrusions along the edges of the mountains.

Mineral Wealth of the Continent

Copper, nickel, iron, and silver occur in the Great Lakes region on the edge of the Canadian Shield; iron in the Appalachians; copper, silver, mercury, zinc, and lead in the Western Mountains, chiefly on their eastern side. Gold is frequently found in alluvial deposits which are relatively soon exhausted; the heyday of the Yukon is past. Mercury is being deposited even to-day in the unstable Western Mountains.

Variety of Climatic Conditions

Most of the continent lies within the range of the westerly winds; the north is Arctic and the south is tropical, and within the range of the easterly winds. The westerlies bring warmth, clouds, and moisture from the Pacific, cross the Western Mountains and descend to the plains as denser warmer winds, which are avid for moisture, and leave the east coast usually as cool as cold winds from a northerly quarter; their passage is marked by cyclonic storms where the surface varies in elevation or alternates between land and water. The continent has climatic regions, east-west zones subdivided by the north-south trend of the physical features.

South of the Arctic region, in the zone of the permanent westerlies, the coast

of British Columbia is wet with heavier rains in winter than in summer, and snow on the heights. The mountains depend on aspect, the windward side is wet, the slopes facing south are warm. The lowlands are arid in the west and rainier to the east. Rain comes in summer time as a short break in the succession of days of brazen skies and torrid heat, the ground is frozen and usually snow-covered in winter. The east coast is cool in summer, cold in winter, and, in the main, harsh and inclement.

Rainfall Contrasts of East and West

In the transition zone of winter westerlies the Californian coast has warm, wet winters and hot rainless summers. The mountains are usually arid, especially in the Great Basin, with hot, dry days and cold nights; the lowlands resemble those of Canada, but are warmer throughout the year. The Eastern Highlands and east coast have more rain than the lowlands.

In the zone of the easterlies, the Mexican coast is dry, Florida is wet, particularly in summer, and the West Indies endure heavy rains, usually each mid-afternoon. The zone is tropical, with relief from tropical heat only on the heights. The British Columbian coast has a climate most like that of the British Isles, and with its infinite diversity provides the best stimulus to human endeavour both mental and physical.

Crops and Cultivated Areas

The New York region comes next in the scale of suitability to man, but here the frequency of long spells of weather of the same kind and the intensity of the summer heat or the winter frosts react on man unfavourably. Elsewhere the climate lacks variety, the cold of the north, the continuous warmth of the south, the long successions of similar days on the lowlands all fail to stimulate the worker.

Naturally, North America falls into definite vegetation regions. The Arctic lowlands are tundra with stunted perennials and brilliantly coloured annuals. The southern plateaux and the arid sections generally are almost barren; on their edges man cultivates the ground by dry farming methods. The Central Lowlands are mainly prairie grasslands, verging from scrub in the lee of the Rockies to parkland near the Appalachians. Across northern Canada and among the mountains is the temperate forest. The lowlands of Mexico, the West Indies, and Central America are jungle forest.

Elsewhere mixed woodland and grassland does not pay best for farming or plantations. Naturally a transition area, it is not successfully either forest or grass. The cultivation of grass-type plants only pays in exceptional circumstances. The farmer ceased to grow wheat in face of the competition of the prairies. Maize, cotton, and tobacco require special treatment in selected areas. Fruit-growing and other industries dependent upon the markets of neighbouring great cities all pay better.

The Catastrophe of the Boll-Weevil

The natural grass lands, the prairies, have seen many changes. First ranching lands, they were later covered with grain. Maize, the chief indigenous useful plant, was grown and fed to pigs to give rise to the meat-packing industry. The prairies became a granary for Europe until the growth of the American population threatened to leave no surplus for export. Wheat-farming was forced into Saskatchewan and westward into arid areas, and the ranching areas were further curtailed.

For decades it has seemed that the continent would supply the bulk of the world's raw cotton. The cotton belt was responsible for negro slavery with tremendous consequences upon the history and social organization of the United States, and, equally, upon the prosperity of Lancashire.

American pre-eminence in raw cotton seemed secure in face of actual competition with Egypt and India and potential competition with all the lands

where experiments in cotton growing were in progress. But catastrophe threatens the industry and human ingenuity seems incapable of dealing with the boll-weevil, the depredations of which will, unless speedily checked, drive many of the cotton planters out of the business.

Native peoples are of little account in the mosaic of the American population. The continent has been peopled chiefly from Europe. Apart from race or diversity of origin man may be classified in regard to his activities. Upon this principle and in a broad way North America may be divided into human regions. In the simplest human region man merely garners what he needs; in the tundra the Eskimo exploits the food supplies within his range. Next comes the collector of natural products for trading purposes. The fishers of Newfoundland or New England, the lumberers of Quebec or the Rockies, and the miners form regions where the product obtained after great physical exertion is transported so far that the return for labour is poor, and the life of man is dour.

Primitive cultivation marks the next region. Man breeds plants and animals, stores a surplus and leads a self-contained existence. The farmer of the Maritime Provinces, the freed negro of the South, the husbandman in the isolated Appalachian valleys, all exist where man merely endures or flourishes as nature is harsh or kind.

Developed from such types are the men who plan to obtain a natural surplus for the purposes of world markets, and the men who preserve the produce for the same purpose. Next come the manufacturers on a large scale. In the region of such producers man is controlled by topography. He frequents the valleys and the coast; by the sources of power when he puts his factory near coal or iron fields; by the climate when his works are placed where atmospheric conditions stimulate the workers or make manufacturing processes easier; by supplies of raw materials when he aims at getting primary products easily.

The last human region is that of the organizers, the men who make production possible. The majority of the people of North America live in close relation with the rest of the world as collectors, planners, producers, or organizers, and this relation finds expression in a world-wide commerce.

AMERICA, NORTH: GEOGRAPHICAL SUMMARY

Location. 10° N. to beyond 80° N.; 20° to 165° W. New Orleans, 30° N., cf. Cairo. Boundary between West Canada and U.S.A. 49° N., cf. the Lizard in Cornwall 50° N. Cape Farewell, Greenland, 60° N., cf. Cape Wrath, Scotland, 58½° N.

Physical Divisions. Western Cordillera, Eastern Highlands, Central Plain.

Climatic Divisions. West coast: north, westerly winds, cf. British Isles; middle, westerlies in winter and Mediterranean climate; south, trade winds off shore, arid. Interior: continental climate of extremes; north, extremely cold winters with snow; middle, light summer rains with great heat and light snowfall with intense cold; south, rainy summers. East coast: north, cold and humid; middle, rain at all seasons, extreme temperatures with winds from the interior; south, summer rains, tropical heat.

Vegetation. From north to south: tundra, minute plants, frozen subsoil, summer flowers; forest, chiefly coniferous; mixed woodland and grassland; prairie, grassland without trees; desert and semi-desert; evergreen jungle forest.

Rivers. Susquehanna and Potomac to east coast; St. Lawrence an accidental outlet for the Great Lakes; Colorado, Columbia, and Fraser to west coast; Mississippi and Missouri draining southern lowlands, Mackenzie, Saskatchewan draining northern lowlands.

Products. More than quarter of the wheat and oats; more than three-quarters of the maize; two-thirds of the cotton, quarter of the tobacco, quarter of the horses, one-fifth of the cattle, nearly half the pigs, but only one-ninth of the sheep of the world. Sugar-cane in the south and the West Indies, beet in the north. One-tenth of the world's wool. Nearly one-third of the world's coal, more than one-third of the world's iron ore, pig-iron, and steel respectively. Two-thirds of the copper, about one-third of the silver, lead, and zinc, quarter of the mercury, and a large share of the petroleum of the world.

AMSTERDAM

Prosperous Capital of a Little Land

by Dr. J. Morgan-de-Groot

Author of "Jan van Dyck," etc.

AMSTERDAM, built in half-moon shape on the river Amstel, is the capital of the kingdom of the Netherlands, but not the seat of government, which is The Hague. This arrangement is criticised by many; for The Hague, through its proximity to the coast, is open to naval attacks in time of war, while Amsterdam is comparatively safe. Indeed, the defences of Holland protect primarily Amsterdam, which is surrounded by forts, and the encircling country can be flooded, thus virtually isolating the metropolis. The cost of this flooding, with its aftermath of pumping the water out again and damage to houses and land, would amount to about seventy-five millions sterling.

The population (700,000) is enormous for the capital of so small a country. Even in Napoleon's time Amsterdam took her place as third city of his Empire, Paris and Rome alone exceeding it in number of inhabitants. The drawback of a big city in a small country is that Amsterdam tries to dominate the whole of Holland, and provokes thus a good deal of jealousy and chagrin. By way of retaliation some of her most cherished schemes are thwarted in parliament by members of other constituencies.

Rise of the Patricians

Gradually the population of Amsterdam have come to think that they alone count. This opinion has been growing for centuries. It began in the Eighty Years War with Spain (1568–1648): Amsterdam bore the brunt of the enormous struggle and began to despise those parts of Holland which lagged in patriotism. In the same way, an identical situation came into being within her own walls—certain families that fought foremost and ruled in those troublous times began to look down upon others; and thus the patricians were created, or created themselves.

The Burgomaster Has No Chief

The pardonable pride of the patrician families is as great now as it was in the first flush of victory. They, and not the nobility, form the aristocracy of Amsterdam. It is said that King William III., Queen Wilhelmina's father, offered a baronetcy to one of these patricians, and the honour was refused: "His Majesty can make noblemen, but not patricians. I am a patrician, and can desire no higher distinction," came the answer. The royal well-meaner had at least one consolation to temper the rebuff: he, too, was a patrician, through his great ancestor William the Silent, the father of his country and leader of its patriots.

In spite of socialist, communist and other agitations, the Amsterdam patricians maintain their elevated isolation, pride and prejudices. In this they are well supported by their burgomasters. Burgomasters in Holland are appointed by the sovereign for seven years, at the recommendation of the governor of the province, who is their superior. Some years ago the governor of the province of North Holland, in process of a difference with the burgomaster, wrote: "As your chief, I order you to do the following——" To which came the reply: "The burgomaster of Amsterdam has no chief."

Although Amsterdam lies in about the same latitude as London (52° N.L), its extremes of heat and cold are much

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PLAN OF THE CANALISED CAPITAL OF HOLLAND

further apart than those of the British metropolis. The oceanic winds account for the warmth, and the blasts of east wind, fresh from the steppes of Siberia, for the cold. During the hot weather most of the well-to-do families leave the city and go to their country homes. Thus they have two houses ; but a large percentage, with true Dutch thrift, has only one set of furniture, which is carted backwards and forwards. It was the boast of a particularly rich family that they had stoves " both in town and in the country."

The excessive cold of a Dutch winter enables the population to become proficient in Holland's favourite pastime —skating. On the outskirts of the town lies a huge terrain, which, though in milder seasons used for various sports, has its main function in winter when it is flooded for ice.

There is water and to spare in Amsterdam, hence the by-name " Venice of the North." In spite of the evil smells of the numerous sluggish, muddy canals, the Dutch capital is, according to statistics, the healthiest city in the world, the mortality being as low as 15.2 per 1,000 (London, 17.4 ; New York, 19.4). Some say that the canal exhalations are beneficial to pulmonary and throat troubles ; others, that the race around are the descendants of fit survivors, and have a heritage of immunity.

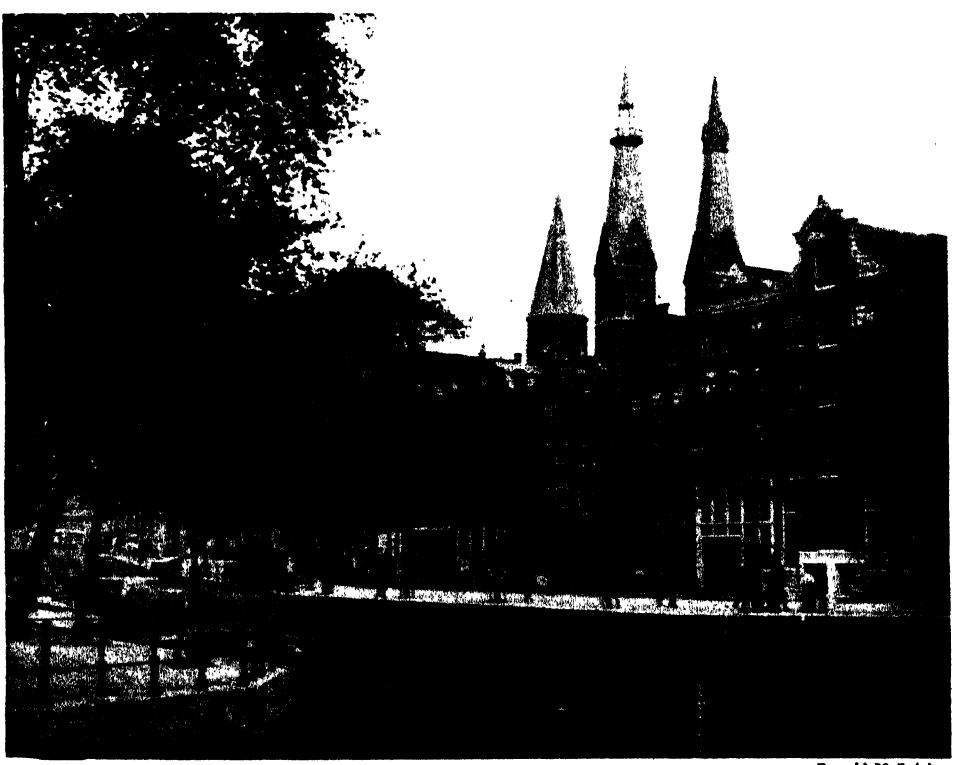
The streets built along the canals, called " grachten," are wonderfully

impressive and picturesque, the stately elms which adorn them giving a beauty of mood unsurpassed in any other streets in Europe, and setting off the old-world houses on either side. The "grachten" boast the most elegant dwellings, mainly dating from the seventeenth and eighteenth centuries. These mansions were built by rich merchant princes of those periods, who derived their wealth from trade with the Baltic countries and the Dutch East and West Indies. Even now, the Heerengracht and Keizersgracht are the abodes of the ultra prosperous. In one place ("the Bocht") live ten millionaires in a row.

One would not suspect that all these massive, stately edifices were built on piles; but the soil being marshy, like that of Petrograd, mere bricks and masonry would sink into the ground if this precaution were not taken. The piles are from 14 feet to 60 feet in length, and, by means of pile drivers, are forced into the ground until the ends find a firm hold in the substratum of sand. The wood petrifies in the brackish soil, and is then practically indestructible.

To give an idea of the number of piles used, it need only be mentioned that the Royal Palace, originally used as the town hall and certainly not larger than the National Gallery in Trafalgar Square, London, stands on 13,659 piles. This palace is called "the house without a door," owing to its unpretentious entrance. It is situated in a busy but unattractive quarter, and fronts on to one of the main tram junctions. No wonder that Queen Wilhelmina prefers her other residences. Custom has ordained itself into a law, nevertheless, that the sovereign must spend at least a week every year there.

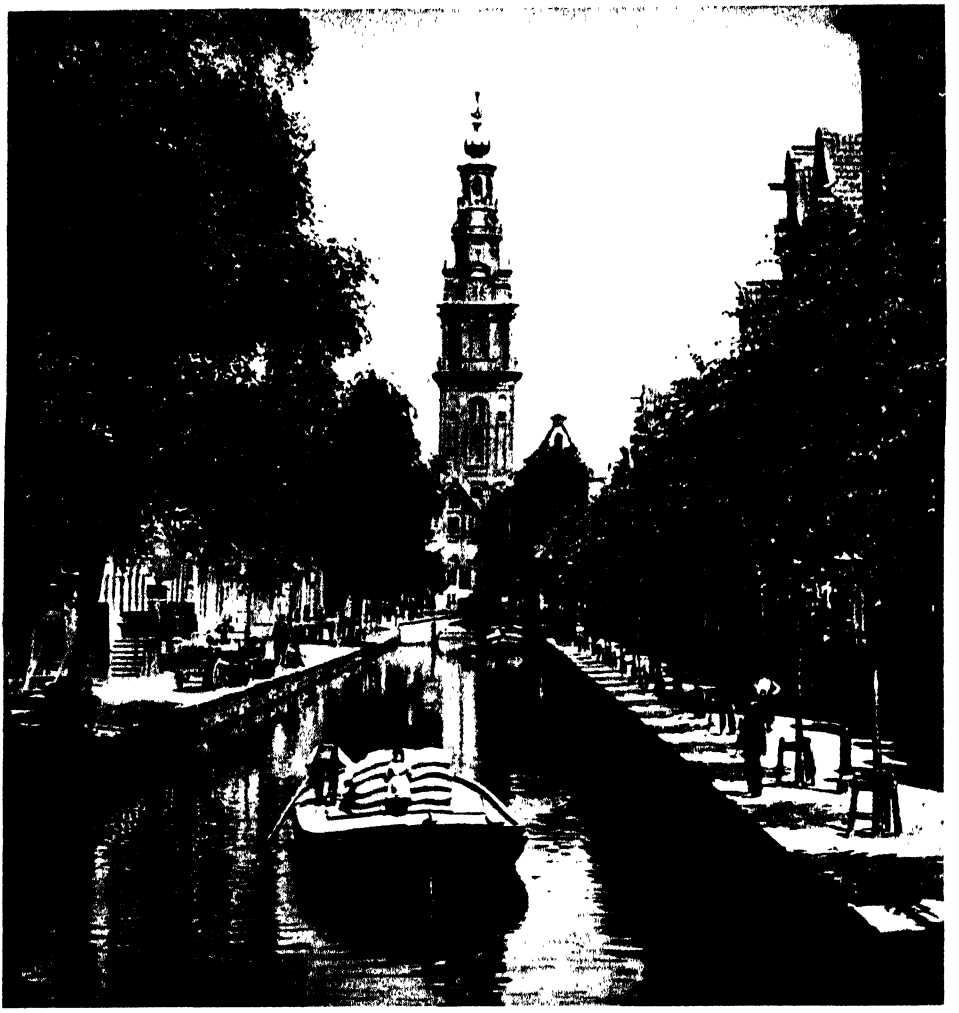
Amsterdam, in the thirteenth century, came into being in conformity with the



Donald McLeish

RED BRICK HOUSES FRINGING THE PRINSENGRACHT

Flanked with avenues of elms and quaint old houses, mostly tall and narrow with gables turned towards the street in the peculiar rose-red brick style of the seventeenth century, and all resting on a foundation of wooden piles, the Prinsengracht, one of the canals which intersect Amsterdam in every direction, presents a picturesque appearance and reflects a pleasing variety of colour and form

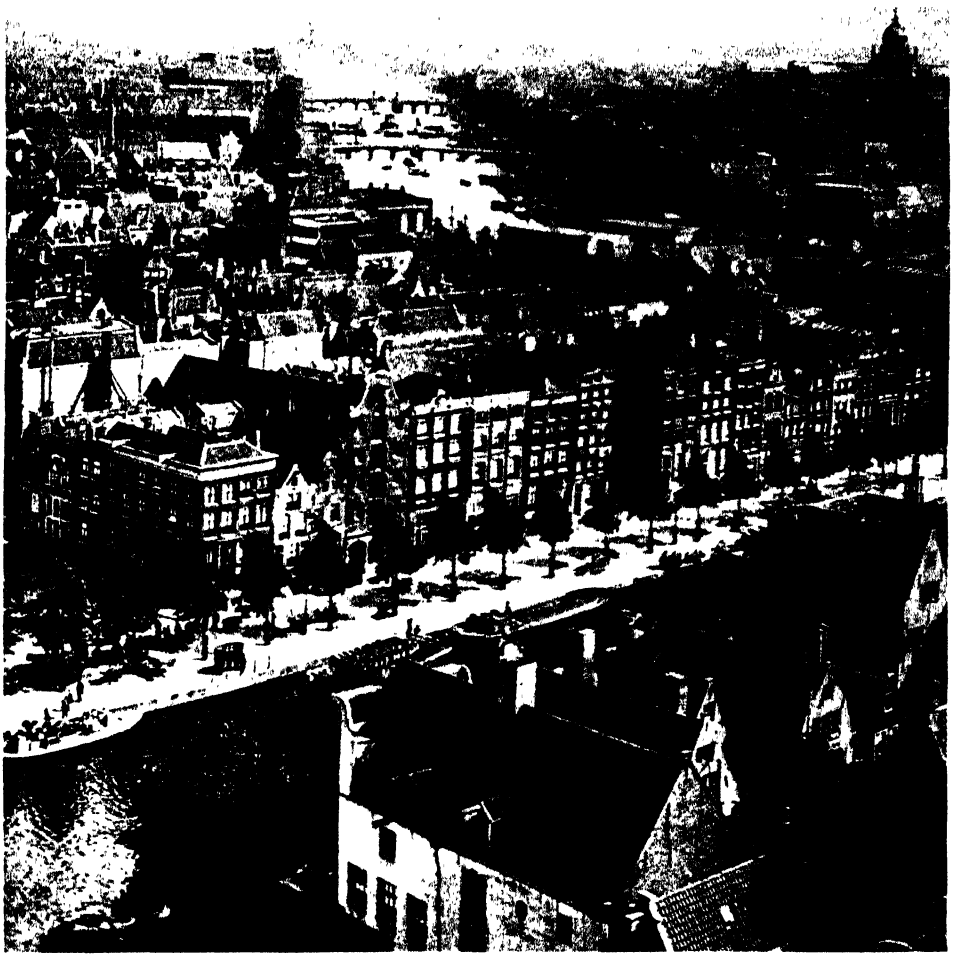


SUNLIT WATERWAY IN THE VENICE OF THE NORTH

In the larger canals of Amsterdam ships pass to and fro, the smaller ones are frequented by barges and light craft. Along these pleasant waterways avenues of trees have been cultivated, and it is no unusual thing to find a fashionable street with comfortable houses of the well-to-do fringing one side of the canal, while on the other are the humble dwellings of sailors and fishermen

rule applying to the birth of all other important cities: it sprang forth in a place where commercial routes met. The river Amstel, tracks from north and south, and the Zuider Zee (communicating in its turn with the North Sea) all met here. The animosity of the country at large, already mentioned, showed itself at the very birth of the town and the infant settlement was often attacked and sometimes partially destroyed by the neighbouring Kennemers. Yet it grew the stronger, maybe, through these ordeals; for in the seventeenth and eighteenth centuries we find Amsterdam with a merchant fleet larger than those of the rest of the world combined, and her harbour a "forest of masts."

Then came Napoleon. Under his dominion, Holland lost her colonies, and Amsterdam her proud wealth through England's "Continental Blockade," aimed at the Corsican. No wonder that in 1813, when Bonaparte was tottering, Amsterdam gave the signal to throw off the hated tyranny and recalled the Oranges, who were sheltering in England. As soon as French rule ceased Amsterdam's commerce



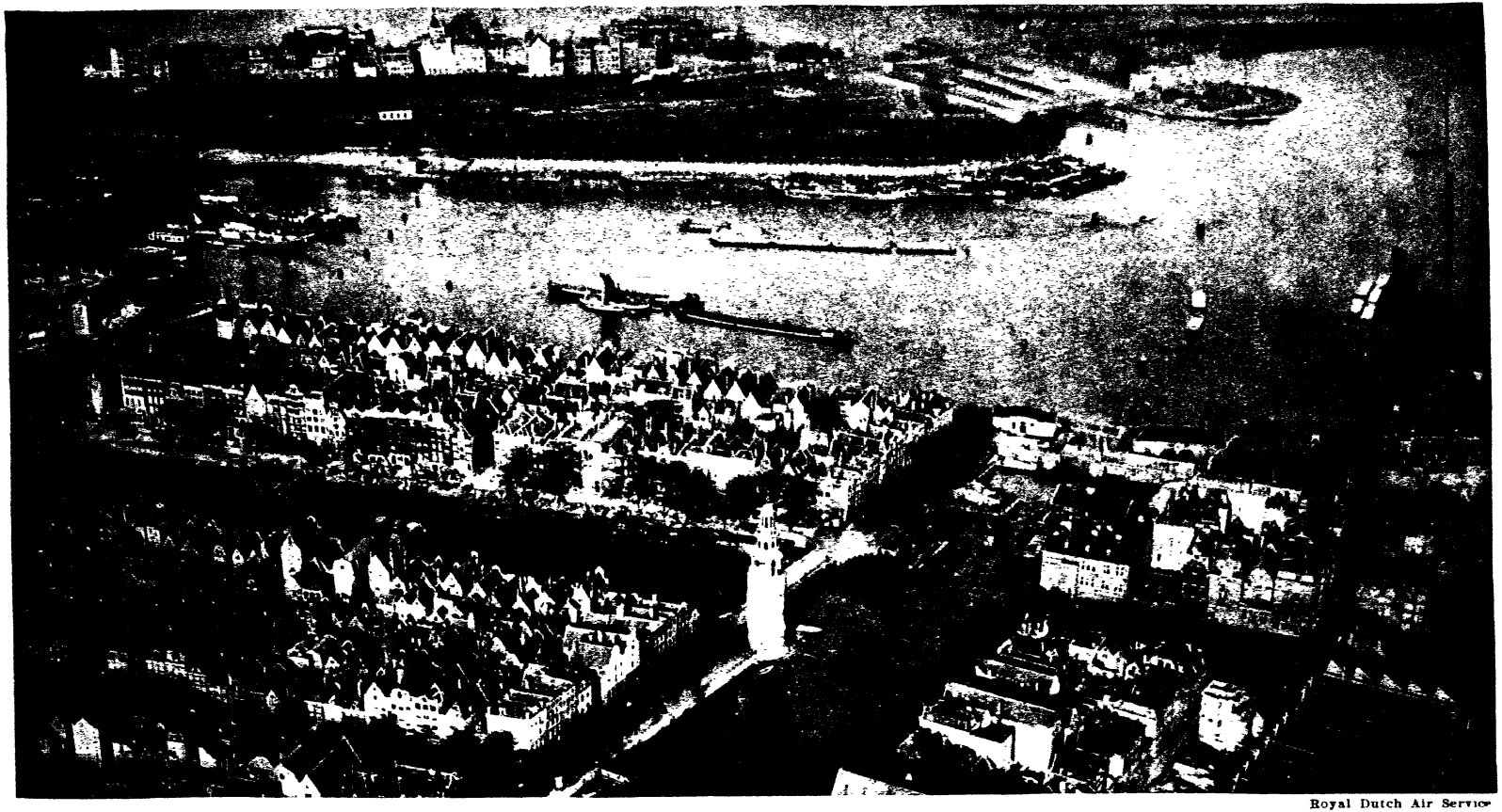
CITY OF NINETY ISLANDS AND SOME 300 BRIDGES

Amsterdam, originally a small fishing village, received its name as a dam on the Amstel river, and developed into a city towards the beginning of the sixteenth century. It is Holland's largest city and one of its principal seaports. Situated on an inlet of the Zuider Zee, the centre of navigable canals, it once enjoyed the favoured position of being the foremost mercantile city in Europe

revived; she mustered merchantmen together again, and re-established a trade in tobacco, coffee, tea, sugar, chocolate, spices, tin, etc., important to this day.

The town also has kept up to date: the output of aeroplanes by the Fokker factory (named after the renowned Dutch aviator), and of motor cars by the Spyker company, is considerable. Further, in order to attract some of the "transito" commerce between Germany and Great Britain and America, Amsterdam, at great expense, linked herself up by waterways with the Rhine (at Vreeswyk) and with the North Sea (at Ymuiden). As a matter of fact, most transport in Amsterdam is done by water. The streets are too narrow for heavy vehicular traffic; some, indeed, are so contracted that "one way" traffic had to be resorted to, and has proved a great success, although this system of coping with cramped space has failed elsewhere—in Birmingham, for example.

Amsterdam is the principal centre of diamond cutting. Many blocks of buildings are given over to this industry. Up to thirty years ago the town had no rival in this delicate craft; then the



Royal Dutch Air Service

ONE OF THE CENTRES OF THE COMMERCIAL ACTIVITY OF AMSTERDAM, HOLLAND'S FAMOUS SEAPORT

By referring to the plan, page 102, the principal features in this fine panoramic view of Amsterdam may be easily recognized by the reader. The broad expanse of water is the Ooster Dok, or East Dock, excavated about 1830, where the loading and discharging of canal barges take place. In the central foreground, Montelbaans Tower is seen rising on the left of the Oude Schans; this busy waterway winds down to the Prins Hendrik Kade, the old quay, which skirts the north side of the town, and was formerly known as the Buitenkant. The prevailing architectural style is well exemplified in the tall, narrow, and gabled houses



Royal Dutch Air Service

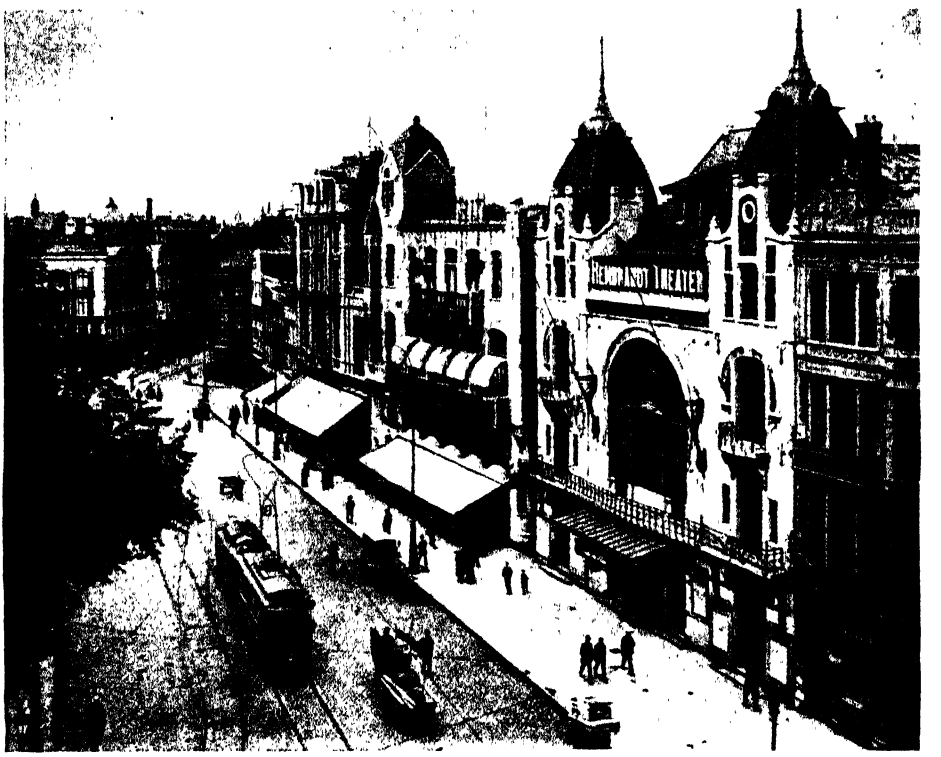
AERO-PHOTOGRAPH GIVING AN ADMIRABLE VIEW OF THE SOUTH PART OF AMSTERDAM'S OLD TOWN

A bird's-eye view of the city certainly corroborates its sobriquet of "The Venice of the North," for Amsterdam is divided into ninety islands, connected with each other by some 300 bridges. The canals seen above may readily be traced in the plan, page 102; the central building with the tower being the old Mint, erected in 1620, near the Inner Amstel. Though Amsterdam is Holland's principal money and mercantile market, its chief glory is undoubtedly associated with Dutch art, and possibly its possession of magnificent art treasures gives it a higher rank among the world's cities than does its position as a commercial centre

workers took to striking for higher pay, and masters answered by relinquishing their factories in Amsterdam and moving to Antwerp. Strikes are not popular in Holland, and the societies of employers are usually powerful enough to prevent them, while as a rule they decline to engage workmen who belong to trade unions.

and so forth. Still, it must be understood that, socially, the holders of these divergent doctrines do not mingle. Most notable is this exclusiveness between the Roman Catholics and the members of other faiths.

Not only employment and elections, but also education is controlled by religion, there being schools and



IN THE REMBRANDTPLEIN, THE PLEASURE-GROUND OF AMSTERDAM

One of the most frequented spots in Amsterdam in summer is the Rembrandtplein, which has succeeded Warmoesstraat and the Nes as the centre of popular amusement. In the middle of the grounds, surrounded by tall trees, stands a bronze statue of Rembrandt, the celebrated Dutch painter, whose house in the Jewish quarter, where he resided for several years, is still to be seen

It is a strange thing that these combines of employers are usually made up by the religious sections of the population—Orthodox Protestants and Catholics. Most questions in Amsterdam are fought out on religious lines; members of council are elected on account of their creeds, etc. Since the famous coalition, founded by the Orthodox Protestant, Dr. Kuyper, and the Roman Catholic priest, Schaepman, the religious sects have gone together, and fought the non-religious groups—such as liberals, socialists, communists

universities for religious and non-religious sections, much to the resentment of the taxpayer.

Students play no important part in the executive life of the city. They are supposed to live their own lives, and be a world unto themselves. Their manners and gaieties are somewhat exuberant, and their hours, though regular, are not conventional. Many a landlord will not let apartments to a student. Those who do give them shelter, however, know what to expect, charge accordingly, and are generally



Donald McLeish

MODERN SANCTUARY AMONG ANCIENT DUTCH DWELLINGS

Amsterdam contains some fifty churches, the bulk of them belonging to the different divisions of Protestantism, and several synagogues, chiefly in the Ghetto, where 60,000 Jews have their dwelling. Many of the houses in the old portion of the city have been in existence for several centuries, but the Roman Catholic church of S. Nicholas, seen above in the background, was built in the years 1885-86

sympathetic and good-natured to the boys. Of the latter sort was the heroine of the following incident. Some four or five students, having partaken of supper, wished the table cleared for cards. The host opened the window and, with help from his boon companions, gathered the tablecloth up by its four corners, and dropped it and all that lay on it out into space! In due course the landlady appeared. "We have cleared the table," said the host, "the things are below." He indicated the open window. "Thank you, sir," replied the woman, "the great thing is, that one knows where they are," and she left.

Healthy and Ornamental Town Planning

Universities, schools and institutes for different forms of instruction have sprung up like mushrooms: institutes for artists, draughtsmen, electricians, industry, university extension, higher architecture, sugar refining, housekeeping, and so on, to say nothing of various evening schools. Even foreigners are taken into account: at the "International Studio" they can receive lessons in painting and drawing, practically without charge.

Education and building, indeed, form the main "plank" of the socialists on the Amsterdam town council, and education having been provided in every conceivable branch, the authorities, at their instigation, now spend enormous sums on bricks and mortar. Huge public buildings and great blocks of private dwellings are rising up in all parts. Hygiene, aesthetics, harmony and uniformity of the whole are primary objects. A healthy and ornamental town-scape ("stadsbeeld") is aimed at.

Dissatisfied with "Ideal" Homes

As to the private dwellings of moderate and low rentals, the cost of these (owing to price of materials, demands of health laws and expense of sites) is so high that the class of occupier for whom they are erected cannot afford the rent, and the taxpayer has to pay the difference between the actual rent received and the proper percentage on the outlay.

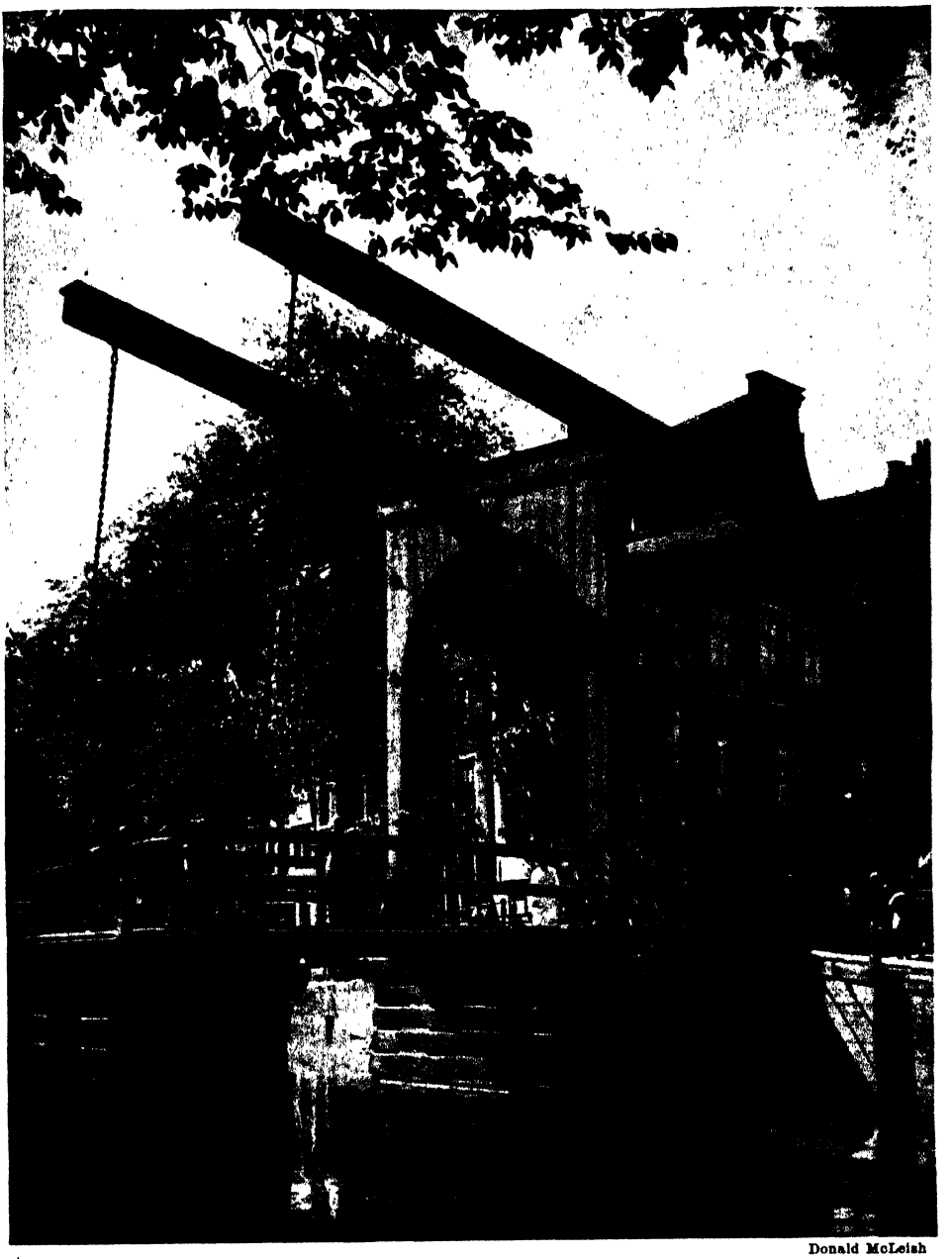
Tenants are by no means satisfied with the new-fangled "ideal" houses, and only take them on account of the house shortage. These occupants do not wish for high rooms and certain other details provided; and they argue that the comfort and taste of the individual are sacrificed to the academic notions of the multitude.

Granted that this sort of dwelling has its drawbacks, it has also its advantages, creating unity of exterior, and encouraging fresh and rising talent. For all architects who work for the council are obliged to consider not only the separate, but also the relative effect of each edifice, while independent designers did not mind what they put up provided it could be let. An example in London of the wisdom of "harmonious" architecture may be found in the fast disappearing old Regent Street, and in the handsome dwellings of the same period still standing farther north.

Lack of Parks and Playgrounds

The poorer and more congested districts of Amsterdam are still very sordid, although the authorities are working gradual improvements. Cleanliness, especially, is considered. All streets are thoroughly washed each day by a flush of water laid on to special pipes, these leaving the mains for drinking water undisturbed. Asphalting of the streets has also done much good. This asphalting and the laying and connecting of gas have been entrusted a good deal to English workmen, who are exceedingly popular and industrious. The canals, too, undergo their cleansing. By means of sluices, and in coincidence with the tides, they are flushed twice daily.

The poorest district of all is called "Jordaan," a corruption of the French "jardin." Anything less like a garden than this neighbourhood it would be difficult to imagine. Second in degree of poverty comes the Jewish

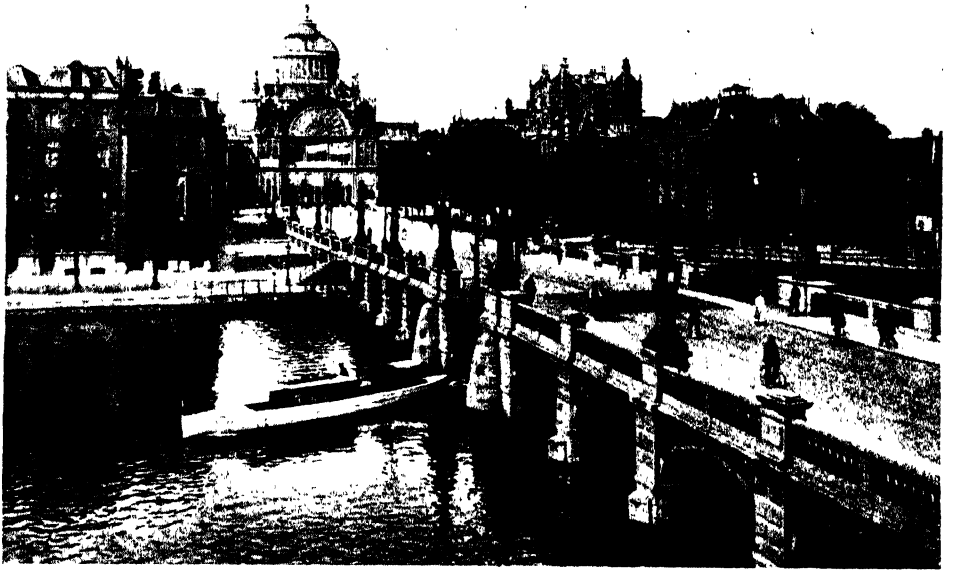


Donald McLeish

ANCIENT DRAWBRIDGE IN AN OLD QUARTER OF THE CITY

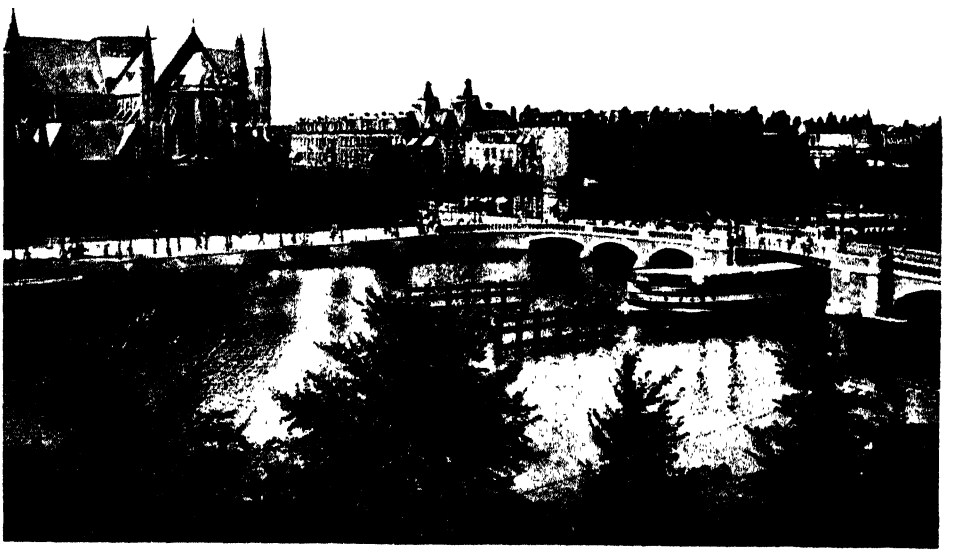
As a city that rose out of the sea, Amsterdam owes its stability to artificial measures, and has in consequence many quaint architectural features. The site being fen land, the houses have been built upon subterranean piles and the waterways have been converted into commercial thoroughfares. In olden times these canals formed part of the fortifications and served as fosses with drawbridges

quarter. Amsterdam has no less than 75,000 Israelites in her midst; the superior classes, numbering about 5,000, are Portuguese. Their forefathers had known bitter times, and came over for refuge when the main part of Europe persecuted them, and Holland—"a state inferior in illustrious deeds to none" (Southey)—gave sanctuary. The Jews are grateful for toleration and kindliness, and, "knowing the crack of the whip," as the Dutch say, they dread social upheavals, and form a stabilising element. In times of riot



HOOGE SLUIS, SHOWING THE PALEIS VAN VOLKSVLIJT

The handsome Hooge Sluis over the river Amstel leads on either side into the Sarphatistraat, at one end of which rises the Paleis van Volksvlijt, or Palace of National Industry, in the Frederiksplein, an attractive structure of glass and iron with a dome 190 feet high, surmounted by the figure of Victory The hall holds some 6,000 people, and is used for exhibition purposes



PASSENGER STEAMBOAT PASSING UNDER THE NEW AMSTEL BRIDGE

This bridge connects the Amstel Dijk and the Weesper-Zyde, and commands a beautiful view of the Amstel, which flows into the Y, an arm of the Zuider Zee. Though Amsterdam holds communication with the outer world only through a narrow channel, it is numbered among the great seaports in the world, and in it most of the commercial enterprise and wealth of the state is concentrated

and sedition, the government can always rely on their support. They are a hard-working people and, although through them Amsterdam is dubbed "the Jews' city," the town would lose a good deal of its influence and prosperity were the wishes of some folks realized, and they were driven away.

One great disadvantage of Amsterdam is the insufficiency of parks and open spaces. Apart from the famous Zoological Gardens, there is but one park, the Vondelpark, called after Holland's premier poet, and even this is kept up by private subscription. The soil here is very marshy, and gives no firm grip to the roots; so all trees above a certain size have to be cut down, or the wind would blow them over! This Vondelpark is the first and last of Amsterdam's parks; the authorities being too keen on building on any open space they can lay hands on—plantations, old cemeteries, squares. One sad result of this is that the street is the playground of the little boys, and that the Amsterdam street-boy is second in mischief, fiendishness, agility and diabolical ingenuity only to his contemporary in Madrid.

Children want room to play in. Stunted in natural outlets, Amsterdam's little creatures make a fine art of provocation. Young girls age themselves before their time by putting up their hair, because these boys tug their plaits and tresses; and a Chinese Ambassador was obliged to take the same precaution. Ladies in white gloves are liable to have their hands cordially shaken by the black paws of these little monsters. Countless other petty aggravations may be inflicted on the harmless wanderer. The authorities are more or less powerless. The miscreants are too young to be responsible before



E. N. A.

OLD MANSIONS OF DUTCH PATRICIAN FAMILIES

Near the Keizersgracht some of the finest old buildings in Amsterdam are to be seen. An old engraving, dated 1672, shows these actual houses; hardly the slightest alteration having been made in nearly three hundred years. Chimneys and other minor details show that some modernisation has occurred but in general the mansions remain as their first owners built them

a too lenient law; and all the police can do is to take them to the station, and keep them in durance till their anxious parents claim them. But the carrying out of this plan requires that the agile offender be caught.

The City's Artistic Masterpiece

It has been hinted that Amsterdam is rich in fine private dwellings, but poor in fine public buildings. This applies to number, not to quality, as anyone regarding some of her chief elevations will agree. Foremost, comes the Rijksmuseum, in old Dutch style, and containing a wonderful collection of Dutch masters though little that is significant from foreign artists. The gem of the collection is the "Nachtwacht" (Night Watch) by Rembrandt. Originally, this glorious work hung in the main hall of the Arquebusiers; soon it went to the town hall, having been cut down to fit over a mantelpiece. Then, when on third removal it had come into its own as the chef d'œuvre of the museum, it sustained another mutilation—a sailor "with a grievance" slashed it with a knife. However, the masterpiece has been cleverly restored.

In the same style as the Rijksmuseum, and built by the same architect (the late Dr. Cuypers), is the Central Station, which, with that at Frankfort, shares the reputation of being the finest Continental railway terminus.

Notable Public Buildings

Other buildings include the new Colonial Institute; the "Paleis van Volksvlijt" (Palace of National Industry), built of glass and iron like the Crystal Palace at Sydenham in England; the "Nieuwe kerk" (new church), where lie some of Holland's greatest dead (the famous Admiral de Ruyter, the poets Vondel and Hooft, etc); the Stedelyk museum, for modern pictures; the Exchange, in Romanesque style, gloomy of mien, but whose voice, in matters of stocks and shares, is heard all over Europe; a good stadium for sports; the medieval "Waag" (weigh-house), one of the most exquisite sights in old Amsterdam; and the impressive "Montelbaans Tower."

Sight-seeing foreigners need not hesitate to ask for information: the Amsterdammer is kindly disposed, and likes to put the stranger on the right path; and he likes also when so doing to show off his knowledge of languages. The average well-to-do townsman is proficient in three tongues besides his own.

The native of Amsterdam is not as a rule an early riser; members of most professions have their offices at home, and thus lose no time in long journeyings to business, as do the Londoners of the same class. Folks retire late in Amsterdam however. There are first-class concerts at the concert-hall, and numerous theatres, music-halls, restaurants and cafés to cater for merry-makers. One of the most notable of the cafés is the Krasnapolsky.

Amsterdam's Busiest Street

The restaurants and cafés close at 1 a.m., and conviviality is often continued at clubs and at home. It is said that no matter at what time one goes through the Kalverstraat—Amsterdam's busiest street, and one vying with the "Graben" in Vienna, for activity and beautiful shops—one will find other wanderers. In the day-time the citizens of Amsterdam work hard, and there is an atmosphere of order and punctuality everywhere; but in the evenings they relax, and love to linger over their meals, drinks and smokes, chatting with family and friends.

Statistics show the Dutch to be the greatest coffee consumers in the world, but coffee is not their favourite potation. Good and long dinners, both in private houses and restaurants, with quantities of fine wines and choice liqueurs—in spite of the sober statistics regarding coffee drinking—are proverbial in this city. When Brahms, the eminent composer, had visited the town, he said, on departure: "I have been in many cities, and have been well entertained; but when I want another really good dinner, I shall come back to Amsterdam."

ANATOLIA

Nature's Bridge Between Europe & Asia

by Sir William Ramsay, D.C.L., Litt. D.

Author of "The Historical Geography of Asia Minor," etc.

ANATOLIA, or Asia Minor, to use a common name invented only in modern times, is a peninsula stretching westwards from the main continent of Asia and nearly reaching Europe, but divided from it by the Aegean Sea or Archipelago. The singular salt water river of the Bosporus and Dardanelles, varying in breadth from half a mile to three miles and connecting the Black Sea with the Aegean, completes the division between Anatolia and Europe.

Melancholy Tone of the Landscape

The west coast is as broken and irregular as European Greece or Scotland. Long arms of the Aegean Sea stretch up into the land, alternating with those long mountain ridges which project from the central plateau far out into the sea. The sea offers often the shortest way between two places on the land.

Standing on a promontory of the west coast one can readily signal to the opposite side of the intervening gulf; but in order to reach the other side you may have to make a land journey of twenty to eighty miles, often over difficult mountain paths.

The conditions of life in those sea lands are not so easy as to be enervating. The land is naturally in great part either barren and rocky, or in need of great care and engineering skill to tame it to man's use. Everything encourages the spirit of freedom, boldness, work, enterprise. The climate of the south-western and western coasts is almost perfect. There is just enough of brief winter to refresh the human frame. The atmosphere of summer is fresh and stimulating.

On the other hand the mass of the peninsula consists of great level, gently undulating plains. The winters are long and severe; the summer is hot, the flowers of May and June are killed by the sun. There is a certain melancholy tone in the landscape, which takes an even stronger hold on the human mind than the bright and varied scenery of the west coasts.

The mass of Anatolia consists of a limestone plateau, in great part very level, but with a raised border on north, south, and even on the west, though towards the west the plateau breaks up and extends towards the Aegean Sea and Europe in four mountain ridges, separated by deep valleys sloping gently westwards. On the south the vast range of Taurus constitutes the rim of the plateau but is itself really an elevated plateau, 7,000 to 10,000 feet above the sea, deeply furrowed by rivers which flow through cañons to the Levant.

The Taurus and Its Rivers

Of those rivers only the Jihun (Pyramus) and the Sihun (Sarus) rise on the plateau; the others spring from the north front of Taurus, though several of them come from the plateau through channels (called duden) under the mountain and emerge on the south of the mountain barrier in great fountains. On the other sides, the mountain rim is less imposing than the Taurus, but everywhere, in ascending from the sea coast to the plateau, one traverses a belt of hill and mountain, crosses a higher rim, and descends on the plateau.

On the north side the hills and broken country, plentifully moistened from the Black Sea, are extremely fertile and rich in flora, crops and insect life;

the raised rim of the plateau is absolutely barren towards the dry central region, but presents a prospect of greenery and fertility the moment that the traveller, coming from the plateau, reaches the watershed.

Results of Volcanic Action

The central plateau was in geological time the level bottom of a great sea or lake, bounded by the higher rim of mountains. This great plain, generally about 3,300 feet above sea-level, has been much exposed to volcanic action, and many peaks and mountains, small and great, have been thrown up through the limestone plateau in recent geological time. The greatest of these is Argaeus-Dagh, now called Erjish, in Cappadocia, 12,650 feet, which even in historic times was still emitting flames through the cavities in its lower slopes, though the crater was extinct.

Some districts continue to present stretches of black volcanic rock and rivers of lava, still absolutely barren, as there has not been sufficient time for soil to form over the rock. In other places the upper limestone plateau has either sunk or been worn away to a level about 400 feet below the general surface; the edges of such depressions, so far as known, are very steep, and the plateau continues on the lower level in some places for many miles. There are also places where the depression is quite small, circular, about 800 yards in circumference, with a small lake or pond in the bottom.

Dreary Wilderness of Rock

Karaja-Dagh is a long mountain ridge extending from south-west to north-east, its southern end being about eighty miles east of Konieh. It is the middle of a long line of volcanic outburst, consisting of a black peak on the south-east, rising some 5,000 feet; next, Kara-Dagh, a large oval mountain group, 7,500 feet; a line of little cones, each in the middle of a depressed crater-like bowl sunk in the desert, ending to the north in a great group of black lava country, a dreary wilderness of rock.

Here the outburst divides to north-west and to north-east. The latter continues in the long line of Karaja-Dagh, 6,600 feet, and Arisama-Dagh, a conical peak, 5,600 feet, with two smaller cones at each side forming a very curiously shaped triple summit.

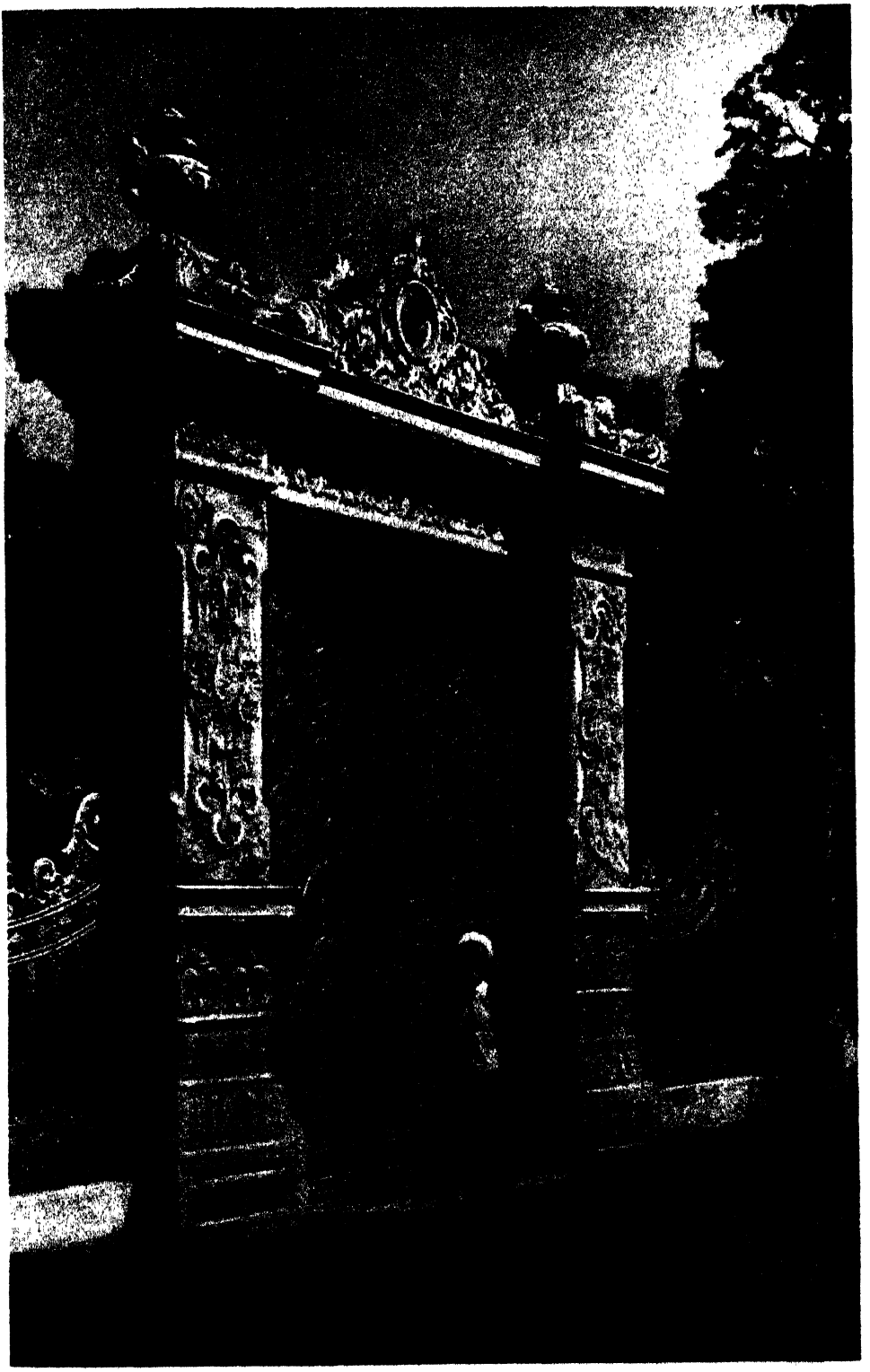
The north-west branch of the outburst runs up from Kara-Punar to the Boz-Dagh. Between the two branches is the greatest depression of the plateau, generally about twenty to twenty-five miles across from west to east, the western side being 400 feet below the plateau level, the eastern side being the Karaja-Dagh. The plateau of Anatolia is naturally divided into two regions, widely differing in character, climate, rainfall, crops and flora.

Variety of Climate and Products

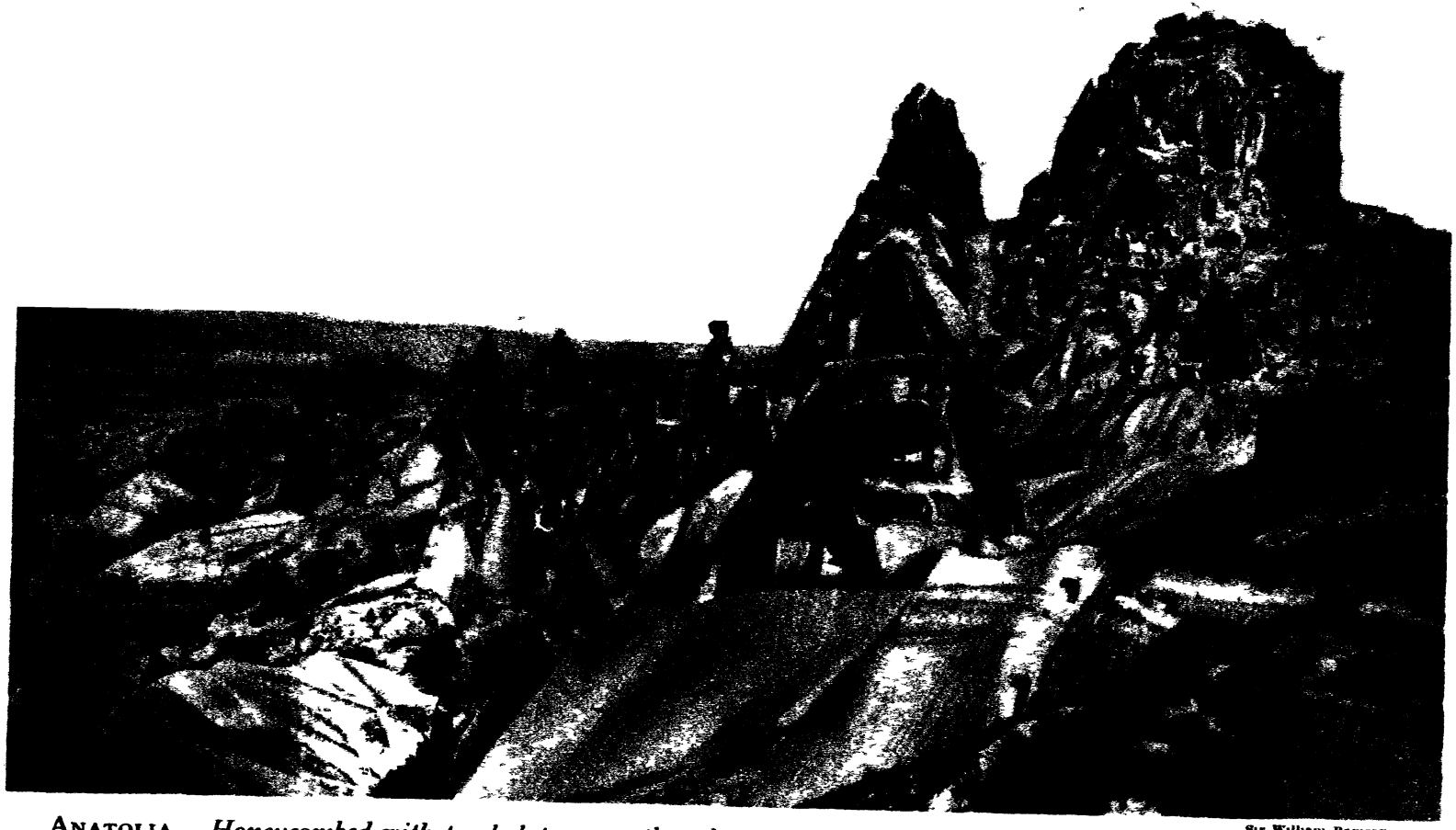
Along the sea, both on north and south, there is generally a strip of fertile plain under the hills, broad and very rich in Cilicia and part of Pamphylia, narrow in places where the rocky hills approach nearer the water, while at some points there is not even room for a road along the coast, as the rocks rise sheer out of the water. The river valleys on the south are in their lower reaches extremely fertile, almost subtropical, hot with a moist, steamy heat and trying to the traveller.

The variety of climate is very great, and so is the variety of products according to the elevation and the relation to the sea and the slope northwards or southwards. Animals and birds also vary from the same cause. While the same vultures soar far overhead in all regions, at the top of Kara-Dagh the eggs and nest of the common English blackbird have been found, unknown at a lower elevation; in the same mountain has also been found the skull of a badger (now extinct, so far as information goes, on the plateau).

The lion must formerly have lived on the plateau, for it is extremely common



ANATOLIA. *Gateway of the Imperial Kiosk of Anatoli Hissar at the mouth of the ancient Aretas, or Sweet Waters of Asia*



Sir William Ramsay

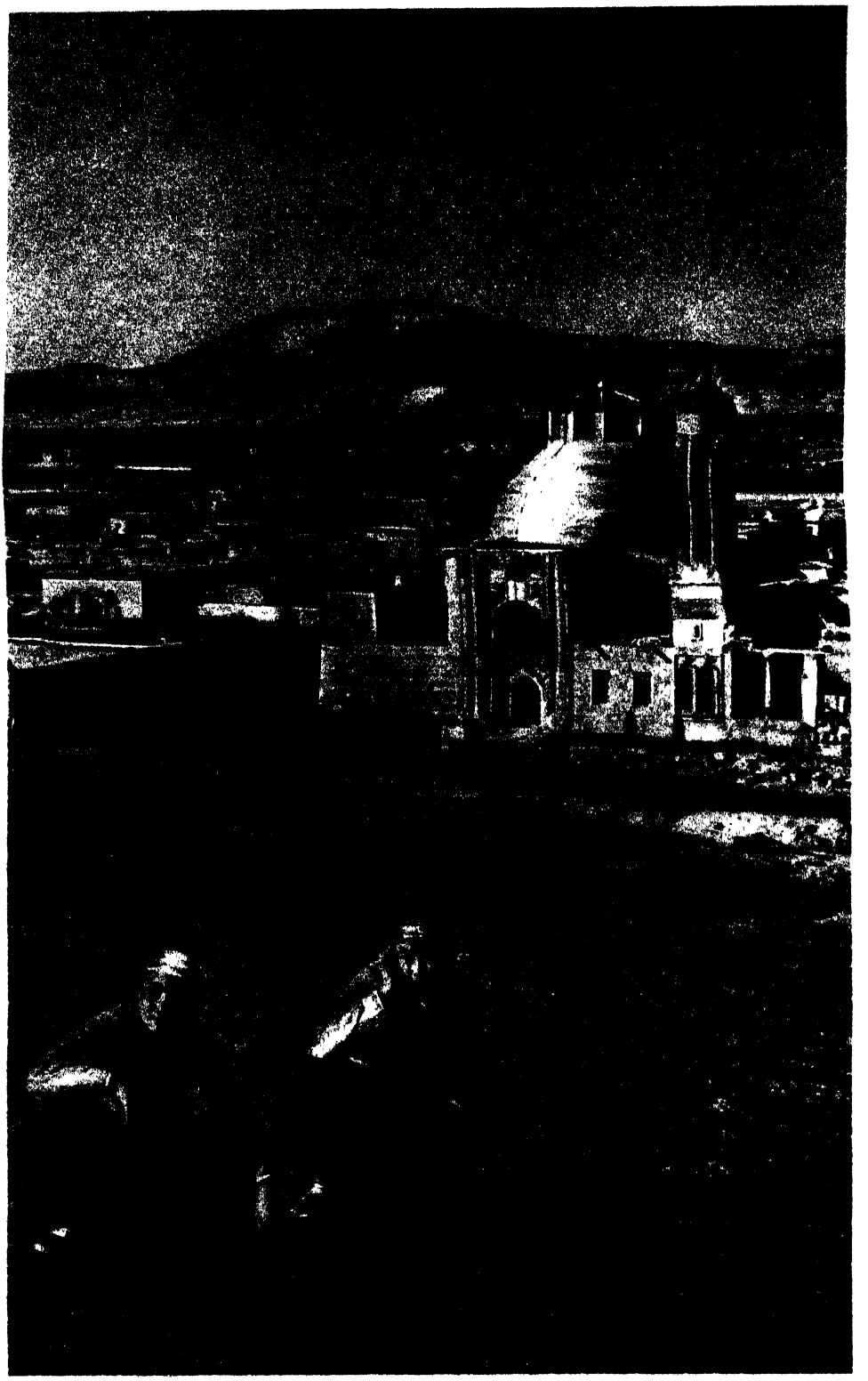
ANATOLIA. *Honeycombed with troglodyte caves, these lava cones near Mount Argaeus, eroded by wind and water, are all that remain of a plateau the original level of which corresponded approximately with their summits*



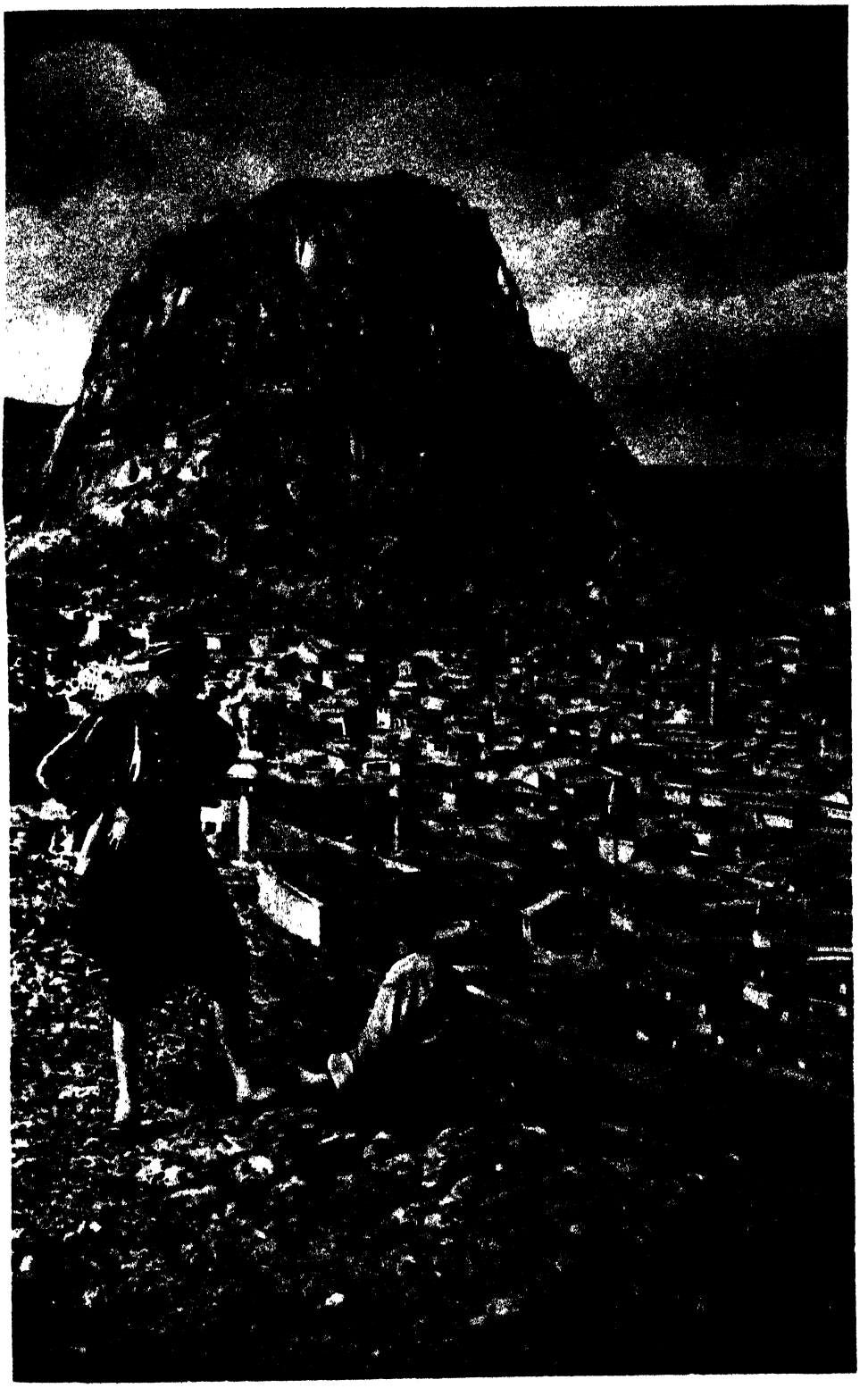
ANATOLIA. *Near Smyrna is a Roman waterway, the Aqueduct of Paradise, all fretted by time and its arches blurred by weeds*



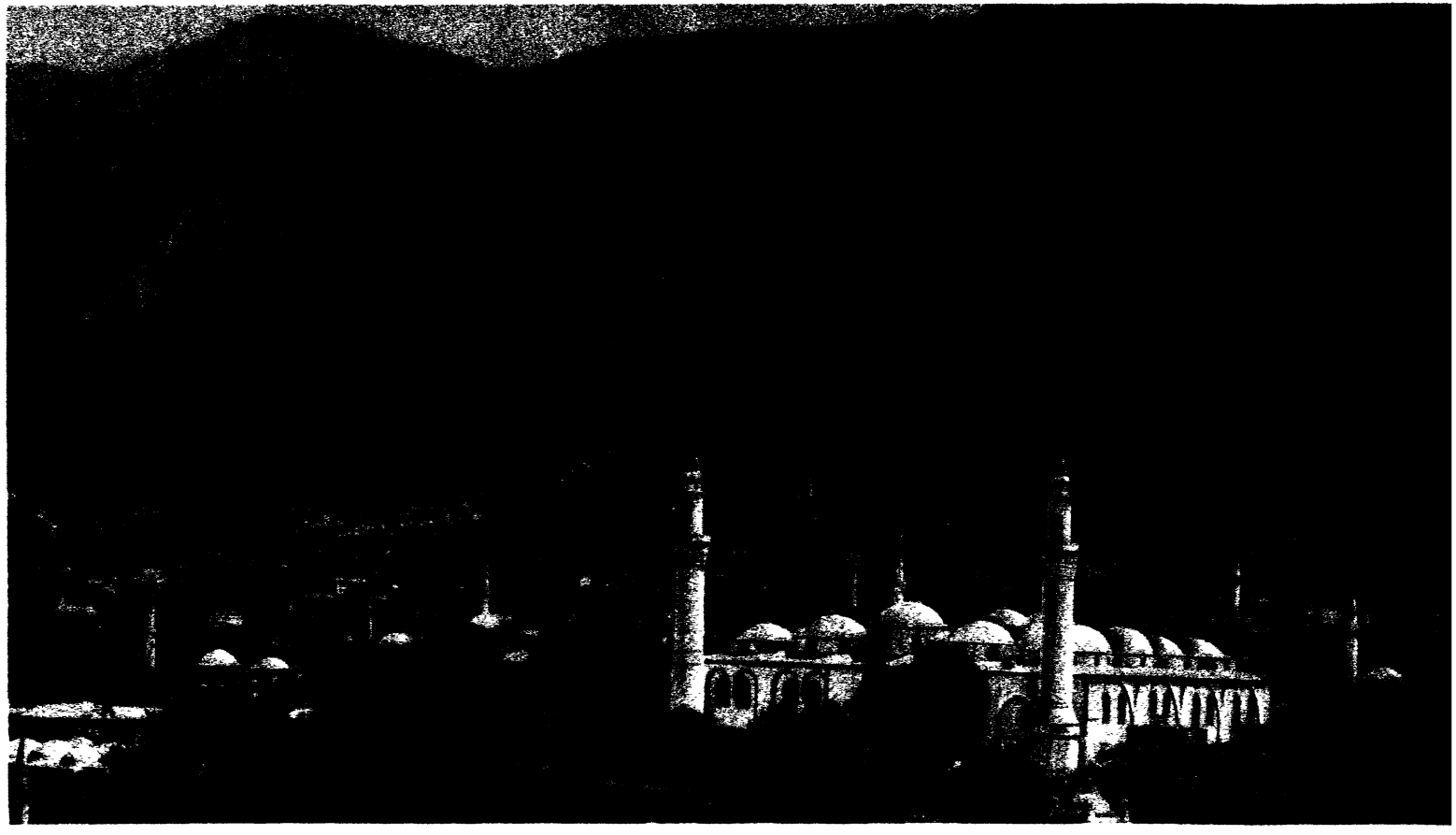
ANATOLIA. *Adjacent to the Imperial Kiosk at Anatoli Hissar and its promenade is this beautifully arabesqued fountain of white marble*



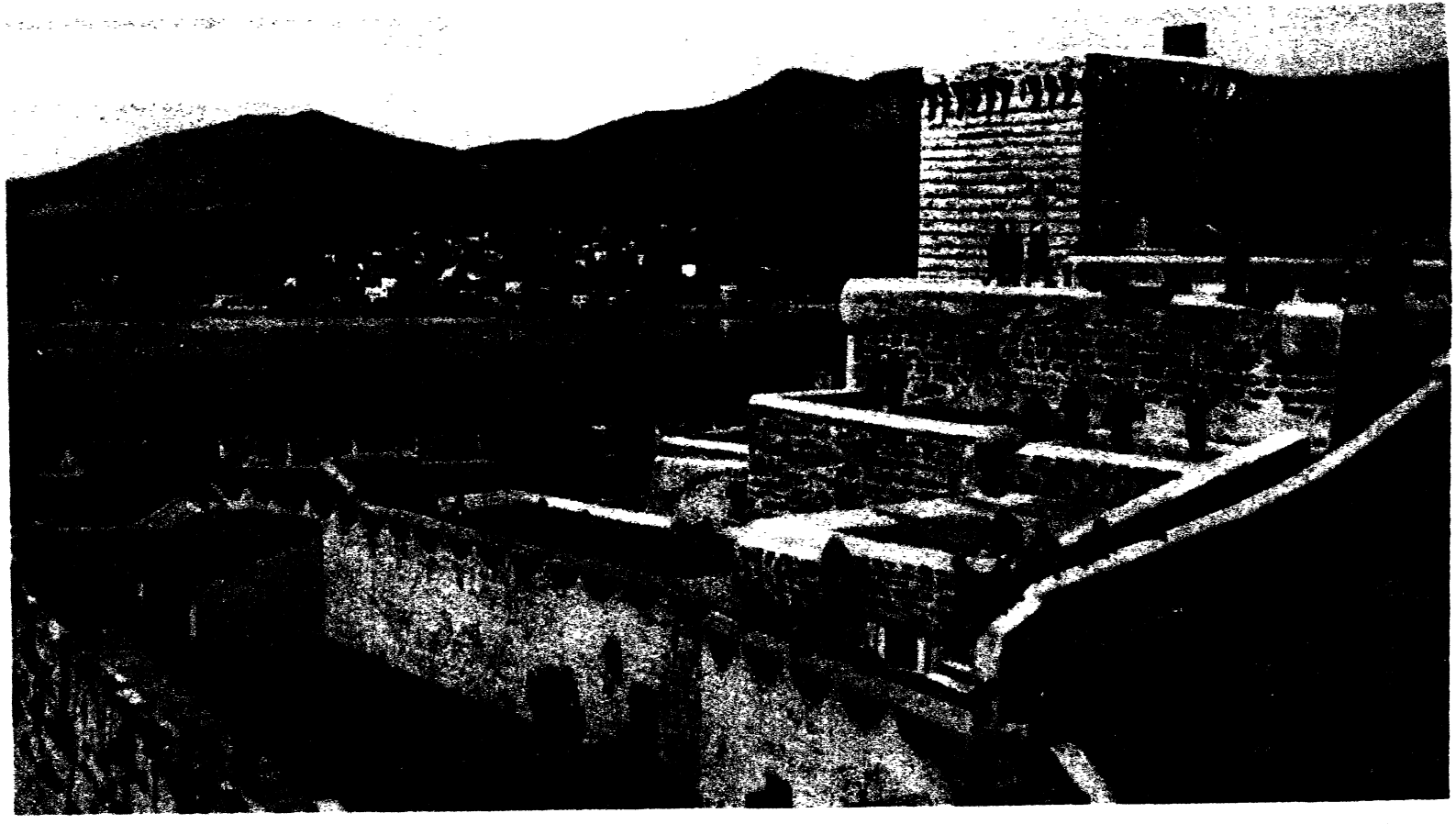
ANATOLIA. *Amid the orchards and streams of ancient Konieh is the ruin of the mosque of the Indje Minaret, blasted by lightning in* 1901



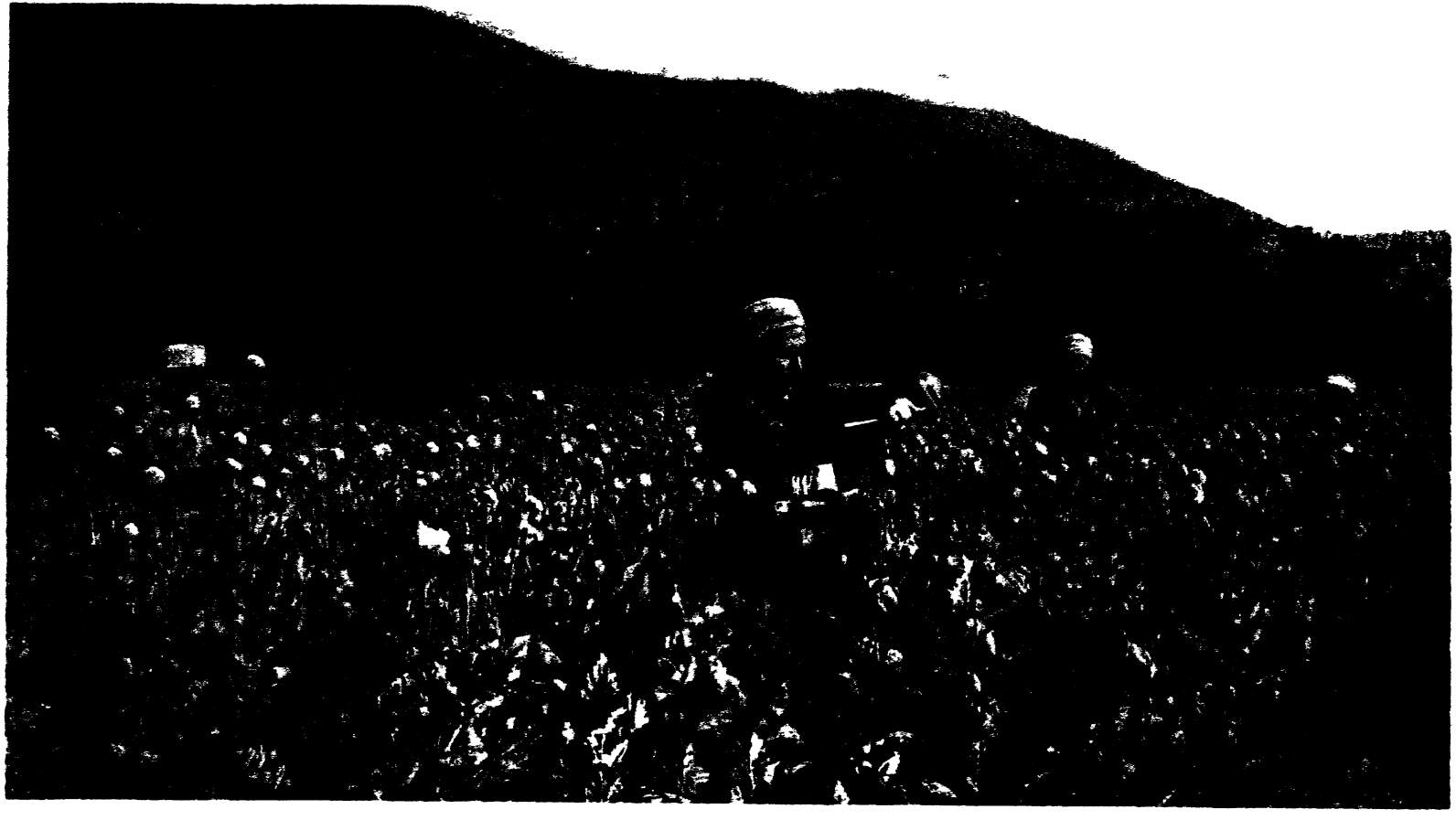
ANATOLIA. *Medieval fortifications crown this height which towers* 800 *feet above Afium Kara Hissar, in the centre of the opium district*



ANATOLIA. *Panorama of minarets, roofs, and tree-tops where Brusa lies in its fertile plain beneath Mount Olympus, one of a number of mountains of that name. Brusa is some sixty miles south-east from Constantinople*



ANATOLIA. *On the coast of the Gulf of Cos, south of Smyrna, is Budrum with its pleasant bay where are the ruins of Halicarnassus. This view is from the tower added by English knights to the Castle of S. Peter*



ANATOLIA. *When the purple and white of the poppy fields has turned to green by the falling of the petals and the exposure of the pods, these are slit with knives. Next morning the opium or exuded juice is scraped off*

on Hittite monuments, but became extinct in recent ages. The bear, leopard, and panther are found, although rare in hilly regions; wolves are not very common in the hills. On the level plains of the plateau wild animals hardly occur. Occasionally one hears jackals howling at night, but they are never seen by day.

On the broad bridge of the central plateau, with its elevated rim to north and south, some very important developments in society and civilization were achieved several thousands of years B.C. Here, probably, the sheep, goat, pig, etc., were domesticated and made serviceable to mankind.

The central plateau is deficient in water-supply. The soil is in great part very fertile, very often a reddish loam, six feet or more deep, free from stones; but the melted snows of winter and the rains of spring run off rapidly wherever there is a slope, even gentle, and much more so on mountain sides, doing more harm than good, as they cut deep channels on the slopes and bring down from the mountains masses of gravel.

Lake Crossed by Artificial Roadway

The wheat is of excellent quality, and the small quantity available for export commands a higher price than the best Manitoba hard wheat. Forests are now very rare, and fires have done great damage. The hills are generally bare of trees. Great flocks, usually mixed, of sheep and goats are herded on the plains, and the goats destroy all young trees unless they are protected till they attain a certain height.

In parts of the central regions the underground water is brackish, and the wells supply water which only sheep and goats can use; yet near a brackish well there is usually a well of potable water, drawn presumably from a different stratum where salts are not present in the soil. In the regions of brackish water salt lakes are found. Near the central point of Anatolia is the large Lake Tuz (salt lake, ancient Tatta), whose water is even more salt than that of the Dead Sea. The lake is very shallow, so that it is possible for one to ride far into it, and there is even an artificial roadway across the centre from east to west.

The largest fresh water lake is Lake Kirili (Beyshehr), ancient Karalis, not indeed in superficial extent, for in that respect Tatta covers more ground, but in the body of water which it holds. It discharges through a river into the lake of Sogla (Trogitis), which is partly supplied from Kirili, partly fed by hidden springs.

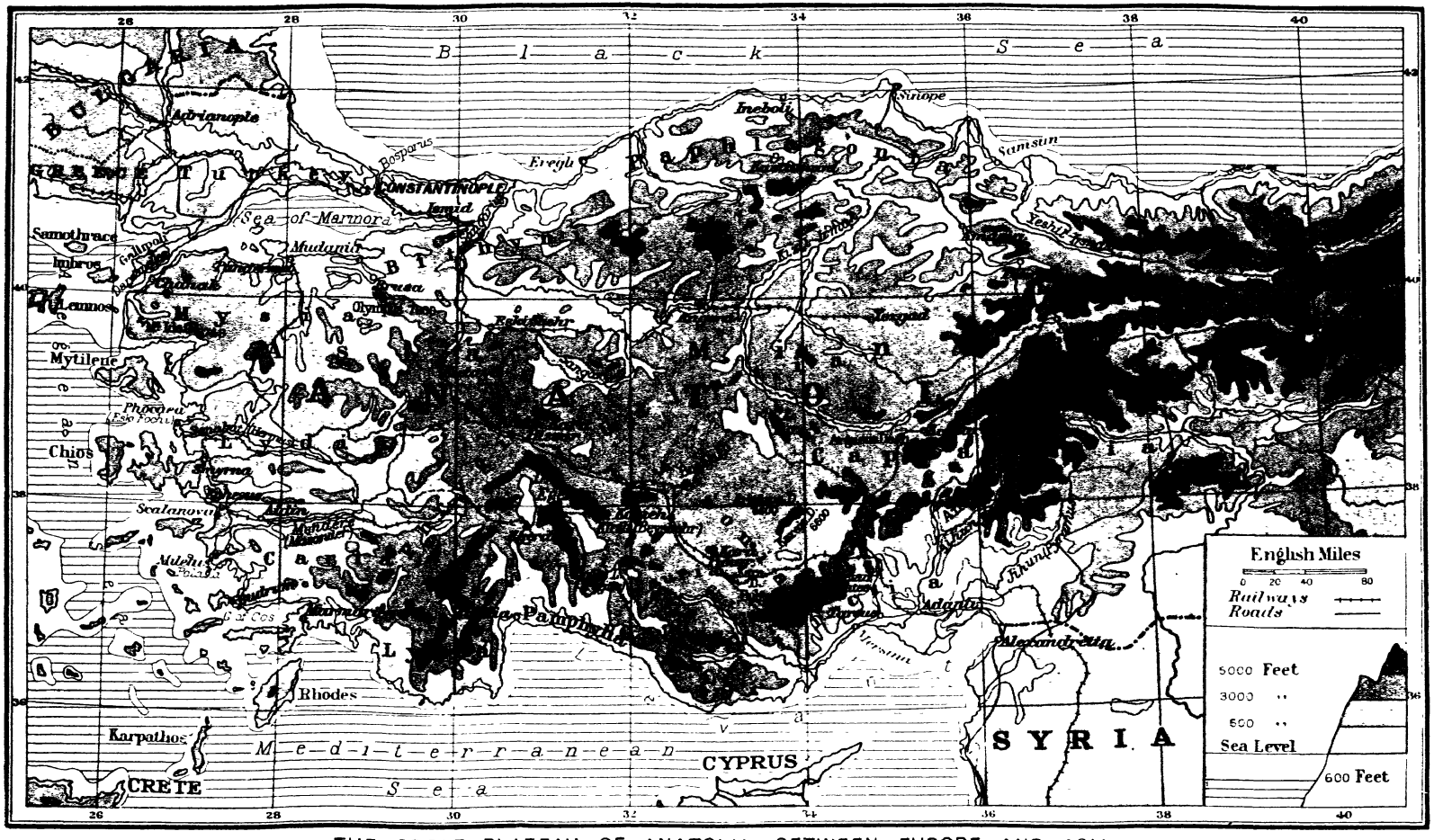
Fate of Great Irrigation Scheme

A deep cañon runs through the mountains eastward to the plain of Konieh, and through this cañon, called Aulon in ancient times, the water of Sogla formerly flowed into that eastern plain; the bottom of the cañon, however, was raised by accumulation of soil, and the flow ceased. In 1882 Said Pasha, governor of Konieh Province (vilayet), discussed the possibility of re-opening the channel.

This scheme was revived in the latter part of Abd-ul-Hamid's reign, and was carried out by a German financial group for the Turkish Government. The return from the rent of the water given out to the farmers was to pay the cost and profit on the contract; and, after all the expenses were paid, the canal was to pass to the Turkish State. The work was completed and the water was flowing and in process of distribution by irrigation channels in the plain before 1913; but some trouble was caused by the cultivators, who were willing to use the water but unwilling to pay for what to the Moslem mind was the gift of God. Then came the Great War, and the present state of this great and beneficent undertaking is unknown.

Trade and Administrative Routes

The road system of Anatolia has always been a most important feature in its history. During the Greek and Roman period, it provided a means of



THE GREAT PLATEAU OF ANATOLIA, BETWEEN EUROPE AND ASIA

access to the sea and to sea-communication with Greece and Italy.

When Constantinople, called at first New Rome, was founded in 330, a new direction was given to the road system, which now tended towards the imperial city on the Bosporus. These roads were rather administrative than trading routes, but the trade with the west was now dwindling along with the break-up of the old Roman Empire, and hence the tradeways across Anatolia towards the western harbours lost their importance, while the official routes of war



Sir W. Ramsay

SQUALOR AND DECAY IN A TURKISH MOUNTAIN DISTRICT

The towns and villages scattered about the highlands of Anatolia are commonly in a pitiable state of decay. The houses are built of stone and plaster, for timber is scarce in many of the valleys, while the hilly tracts that divide them are usually covered with grass. A khan, or inn, is found in most towns, while villages have a guest-house for the accommodation of the traveller

and policy, of government and of strategy, became of supreme importance.

On the plateau the friend of man in summer is the north wind, which brings the coolness of the north to the sun-baked plains, and makes them pleasant. Although it blows across the Black Sea, it has always dropped in rain on the coast regions all the moisture which it gathers from the Black Sea, and brings no rain to the central plateau. Moreover, there is not very great evaporation from the Black Sea, which is often shrouded in mist.

A south wind, or sirocco, occasionally blows, bringing the relaxing air of the Levant and the north African deserts. As a rule it does not bring rain to the plateau, but drops it on the sea-slope of the mountain rim, the Taurus.

On the west coast the wind from the west blows up the long river valleys almost every afternoon in summer; it is cool, but laden with moisture from the strong evaporation that is always rising off the Aegean Sea. On the Aegean coasts there blows in summer almost every morning a wind from the colder north; this dies down in the afternoon; at sunset there is a dead calm, followed, as night falls, by a gentle southerly breeze.

These changes can be calculated on, and in early times they made the problem of navigation an easy one for ships. The period, lasting all summer, when these winds were practically certain, was called the season of full

navigation. In the winter season navigation was avoided, though by no means completely.

The winds from the Levant carry sufficient moisture to make the southern districts of Anatolia very productive. Much labour, however, has to be expended in bringing them into that condition. The low grounds are frequently marshy; there is an oversupply of water. The great level central plateau is arid; for, though abundant rain falls, it must be stored. The sloping grounds and hillsides are generally swept clear of soil by too abundant rains at certain seasons, which run down and stagnate in the marshes of the low lands. It is necessary, therefore, to conserve and distribute the water supply, and these processes involve a large degree of engineering skill.

Where "Smyrna Figs" Come From

The vine, the olive, the fig, the valonia oak, and in recent times the mulberry to a smaller degree are the most important trees in Anatolia; the date palm grows, but does not produce fruit except in the warm moist climate of Cilicia, and there it hardly counts. The vine is discouraged by Moslems, and is rarely cultivated on the plateau, where the general conditions would necessitate great care; yet even in apparently unsuitable situations and among a purely Turkish population, vineyards are found occasionally, and the fruit is used for eating or for making a much-prized kind of sweetmeat, called "pekmez."

On the north coasts and the slopes from the high plateau rim on that side the vine is grown extensively in certain districts and the market-places are full of grapes in the season. They are there mostly plucked before they are fully ripe, and one can see a large open market filled with beautiful grapes in appearance, but not one really ripe berry is found among the whole.

The fig is much grown in the Mendere (Maeander) valley for export, being now entirely shipped from Smyrna; the Smyrna figs, as they are called in the European market, are not grown at Smyrna, but brought there by rail. The fig grows well in the sheltered valley of Smyrna, but is unsuited for export to other countries.

The mulberry has spread along with the cultivation of silk. Brusa is the greatest seat of the Anatolian silk culture.

Hazel Nuts and Milk Chocolate

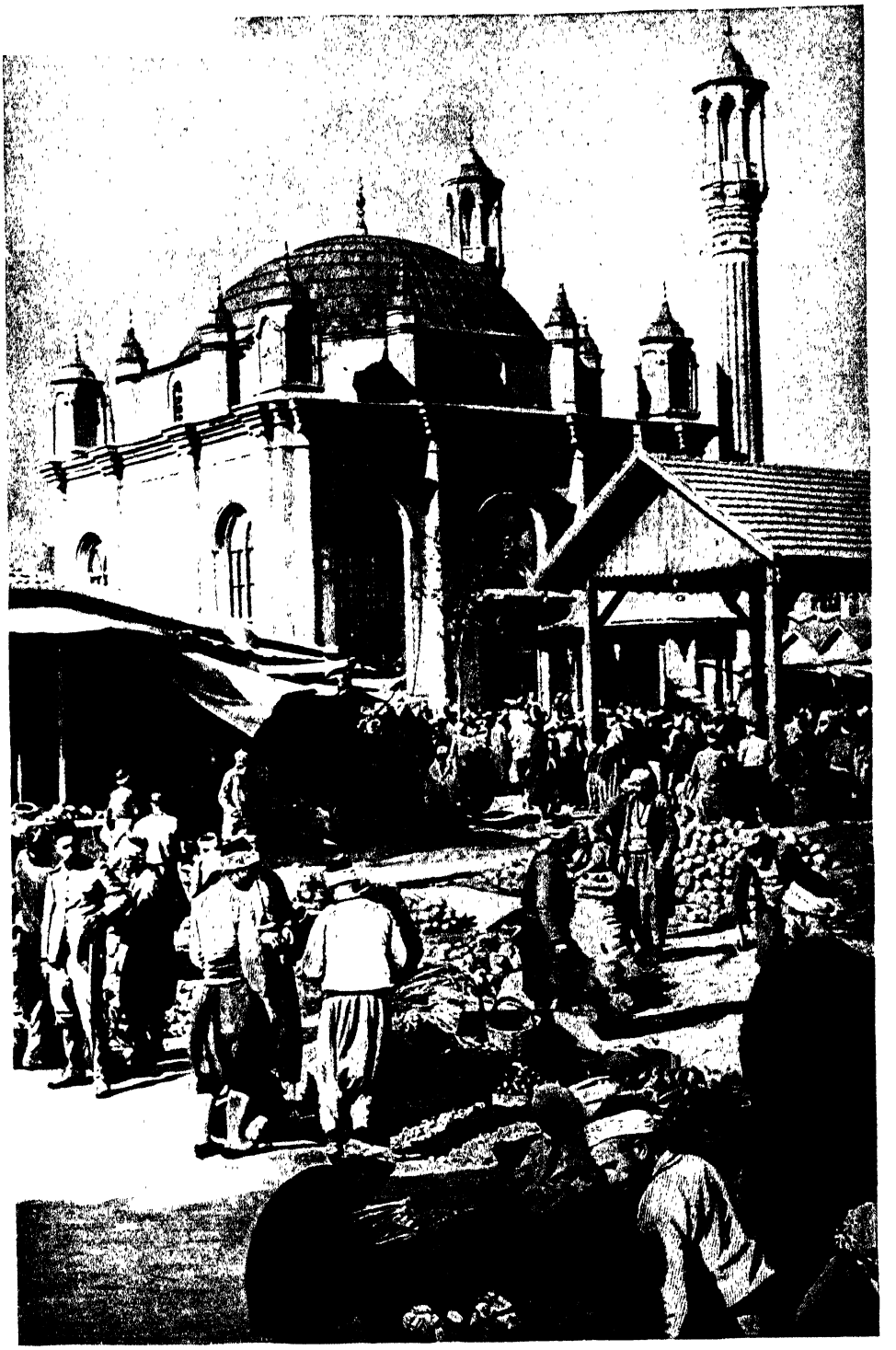
The olive is grown most in the Mendere valley and the coast-lands south from the Mendere. Cotton is a comparatively recent introduction into Anatolia, and is grown most in the lower Sanabat (Hermus) valley, north from Smyrna, and in Cilicia, partly for cotton partly for oil.

Hazel nuts grow in wonderful abundance on the eastern slopes and lowlands by the Black Sea, and form an export. This trade was greatly increased by the demand for milk-chocolate and chocolate-creams, the milk or cream in which consists of fine-ground hazel nuts.

The root of the liquorice plant (glycyrrhiza glabra) is largely used in manufacturing tobacco. A century ago this plant was only a noxious weed in the Mendere valley, where its roots spread rapidly and ruined agriculture. A British company, which dealt in the root, opened up this source of supply, and established factories, where it bought the root from peasants, compressed it, and exported it first by Scalanova, then, after the Ottoman Railway was built, by way of Smyrna.

Lost Gulf and Vanished Port

In ancient times there were several large ports on the west coast. Miletus or Palatia, on the coast south from the mouth of the river Mendere, was the greatest of all about 900-600 B.C.; but gradually its harbour was blocked by the silt carried down by the river, and at the present day the gulf into which the Mendere used to discharge its waters has entirely disappeared.



CONTRASTS OF MOSQUE AND MART IN MODERN KONIEH

Konieh, or Konia, the ancient Iconium, the centre of a fertile district, carries on an extensive trade in agricultural produce and local manufactures. Iconium was a noted city before it became the capital of the Seljuk Turks, and was also the scene of S. Paul's missionary operations. The present city, with some 45,000 inhabitants, has several fine old mosques and a monastery of the " Dancing " Dervishes



Sir W. Ramsay

BOULDER-STREWN WAGON-WAY ACROSS THE ANATOLIAN HILLS

Most of the roads of the peninsula are in urgent need of complete repair. They are principally a series of ups and downs, and the deep holes and huge boulders which scar their surface are an insurmountable impediment to comfortable travel. The araba, or native wagon, is the usual vehicle, and can make its way over very rough ground. Special araba-roads exist between certain centres

The same thing has happened at Ephesus, where a long struggle was maintained by ancient engineers to keep open a channel giving access from the sea to the port. Now both those harbours are reedy marshes, and five miles of dry land separates them from the coast line. Smyrna and Phocaea (Eski Focha) have preserved their harbours, but Phocaea being far from the railway, always difficult of access by land, and needing much work to make its harbour useful to modern trade, offers no advantage to commerce.

Scalanova, on the coast south of Ephesus, was formerly able to compete with Smyrna for the trade entering the Mendere valley. It was easy of access and offered great advantage as a shipping place, whereas Smyrna was distant, though the harbour was much better. When the railway connecting Smyrna with the Mendere valley was built about 1870, the influence of Smyrna was used to prevent a branch being constructed to Scalanova; the latter was isolated, and all trade passed it by and was carried to Smyrna, where the loaded wagons could unload direct into the ships from the railway pier.

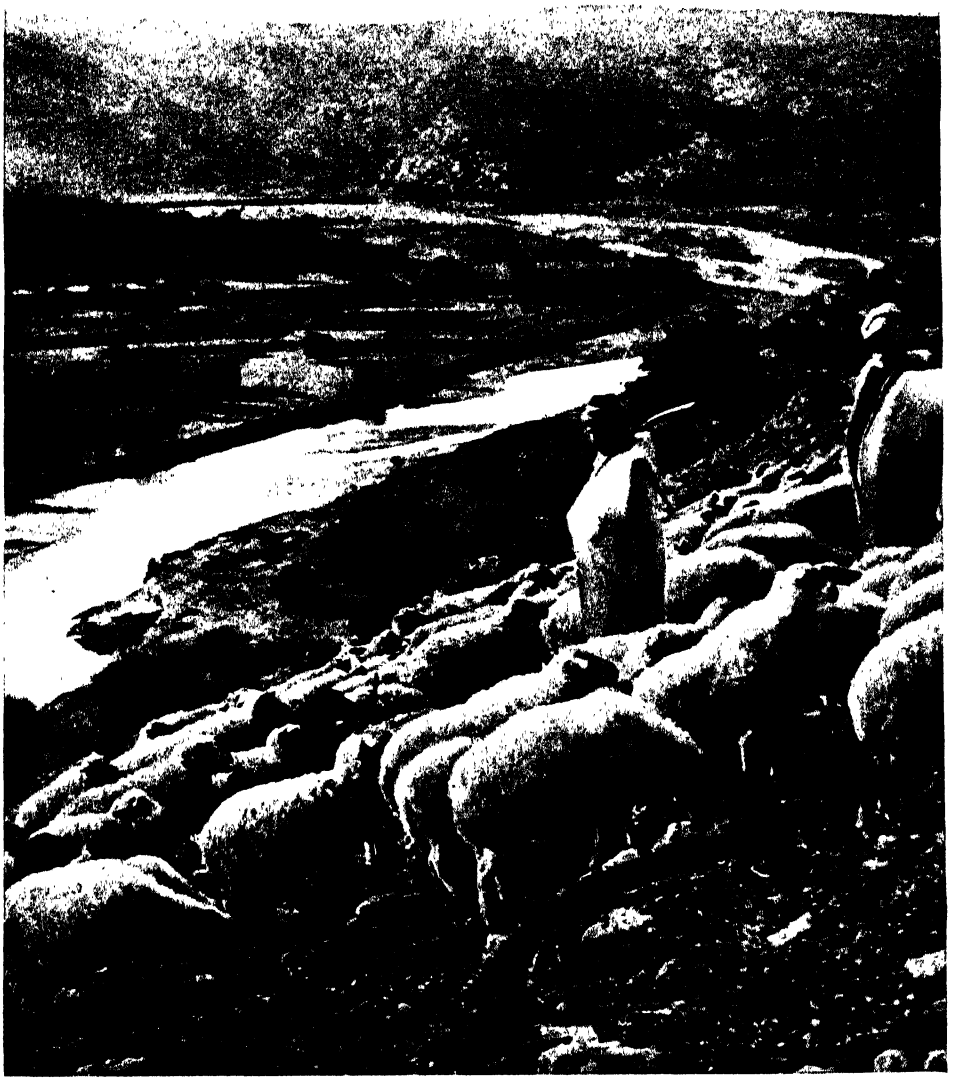
Smyrna, since it became the chief harbour of the west coast, has been the most important trading city of Anatolia. When its ruin began with the Greek occupation in 1919, its population numbered 400,000; its trade dwindled, and finally it was recaptured by 3,000 Turkish cavalry, far too few to guard and patrol such a large city. Disorders arose, and fire destroyed one-third of it.

The other principal towns were all comparatively small. In the Mendere valley, Aidin-Guzel-Hissar, the Beautiful

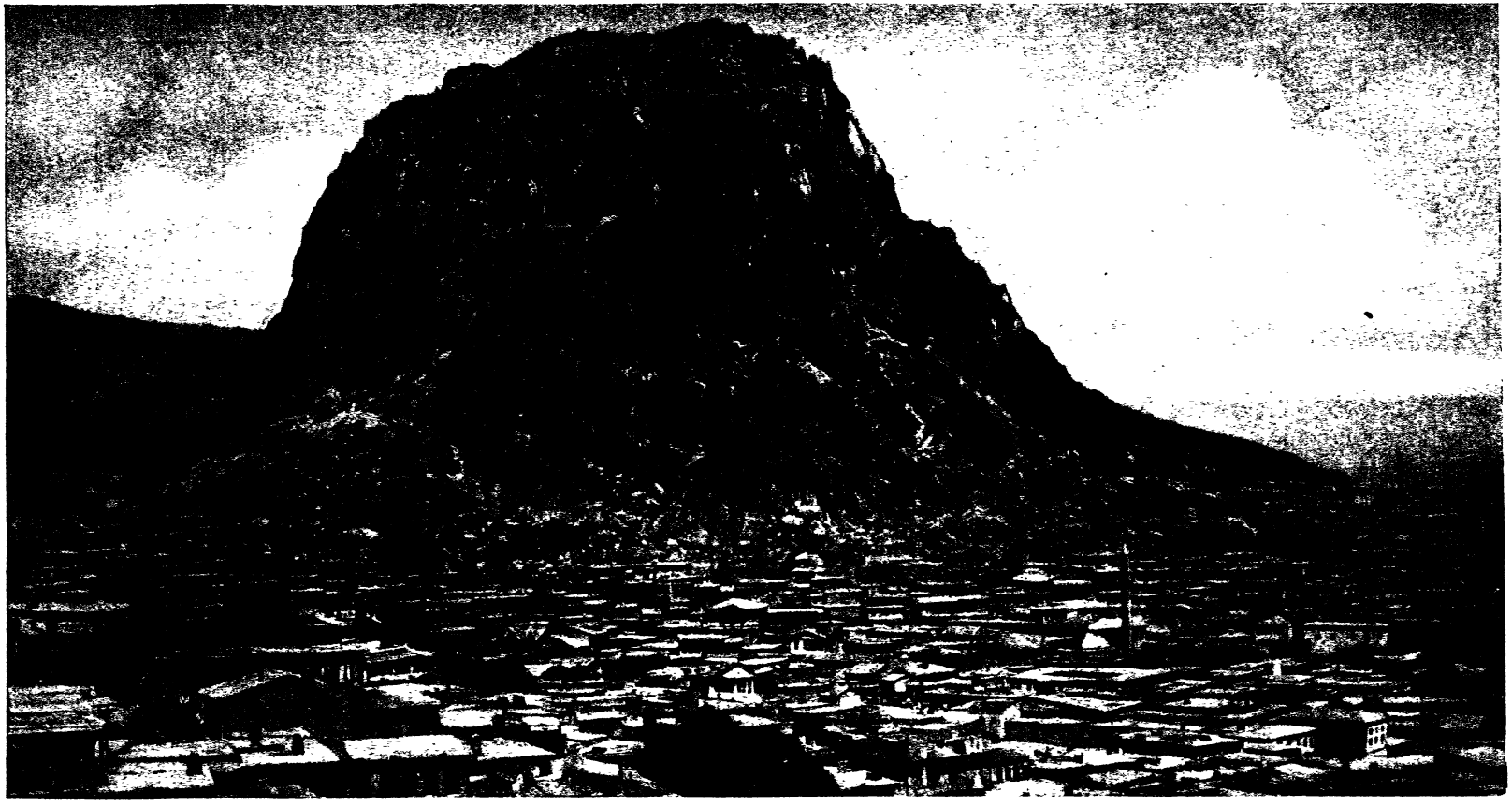
Castle of Aidin, marks its chief city, eighty miles from Smyrna by rail. On the eastern side of Anatolia, Kaisariyeh, the ancient Caesarea, was formerly considered to have bazaars second only to those of Constantinople, but it lies far from the railway lines.

Angora, the present capital, has always been a secondary place even in Turkey, but it occupies a strong situation on a sloping hill, and commands the most important of the three historic routes that lead across the Anatolian bridge from west to east. Also it was the centre of the trade in mohair, made from the glossy white hair of the Angora goat, the only survivor among many triumphs in skilful breeding, which formerly contributed to the wealth of Anatolia.

Sivas (Sebasteia), further east on the same route, was a greater city than



PASTORAL SCENE ON THE SCAMANDER RIVER OF HOMERIC FAME
Through the ancient Mysia, separated from Europe by the long narrow Dardanelles, the Scamander, the modern Mendere, winds its way from the heights of Mount Ida to the shore of Besika Bay. Through imposing scenery and over many legendary sites it passes, watering the Troad, that "most sacred ground of ancient minstrelsy" which contained the Homeric city of Troy



FORTRESS ROCK THAT DOMINATES THE PLAIN ABOVE AFIUM KARA HISSAR

The name Afium Kara Hissar means in Turkish the Black Castle of Opium, the town being the centre of the opium (afium) district. This important town, whose market is one of the largest and best supplied in Anatolia, stands at the junction of the Smyrna and Anatolian railways and is dominated by its extraordinary citadel, a mighty rock rising 800 feet out of the plain, first mentioned in history in the eighth century as the Byzantine fortress of Acroenus. The medieval Turkish fortifications on its summit command a magnificent view of the town, the remarkable rock formation near it, the poppy fields, and the distant Phrygian Mountains

GRAND PANORAMIC EFFECT OF THE ELEVATED TAURUS PLATEAU, PHOTOGRAPHED FROM A FRENCH AEROPLANE

The lofty range of Mount Taurus is seen in its grandest and most desolate aspect from the air. An immeasurable monotony of rugged landscape stretches on all sides—high, bare ground, twisting and undulating in fantastic contortions, scarred by rocky ridges and snowy summits, here and there dotted with forests; and sterile plateaux cut across by deep cañons and ravines. These mountains run almost parallel with the coast of South and South-Eastern Asia Minor. The Metdesis, northwest of Adana, is about 11,500 feet high, and the Cilician Gates, through which marched the armies of Cyrus and Alexander the Great, is the chief pass



MODERN BUILDINGS AMID THE RUINS OF ANCIENT ANGORA, ANATOLIA'S CAPITAL CITY

Standing some 3,100 feet above sea-level, Angora is imposingly situated on the rocky slopes of a hill which is crowned by the ruins of the citadel. As the ancient Ancyra the town flourished under the Persians and Romans, and was the scene of one of Tamerlane's victories over the Turks. It has always enjoyed considerable commercial importance, and, as a terminus of a branch of the Anatolian railway, has still an extensive trade. Its chief industrial product is mohair, which, produced from the wool of the long-haired breed of Asiatic goat, is exported to an annual value of some £200,000

Angora, and contained far more beautiful buildings. Konieh (Iconium) was considered more splendid than any city in Europe, except Constantinople, about 1200-1400, and has many half-ruined buildings of that period. After the Chemin de Fer Ottomane d'Anatolie reached it about 1895, it revived and greatly increased in size.

Eski-Shehr (Old Town, ancient Dorylaion) was a tiny village of 200 inhabitants in 1883; but since the advent of the Anatolian railway, about 1892, it has grown with great rapidity to a city of 60,000, and is the chief seat of the railway workshops. Situated at the meeting of the lines to Konieh, Angora and Constantinople, it is at present the true strategic centre of Anatolia, and commands the gate and road to Constantinople from the plateau.

Although Anatolia has a very marked unity, alike historically and geographically, it never belonged to one people until the Turks under Selim I., 1512-1519, conquered Cilicia, which had been held by the Mamelukes of Egypt. There is no national permanence in its history, and yet its history is always the same, a history of marches and countermarches, of flow backwards and forwards. Probably every race which came into Anatolia affected the population.

There has therefore never been any distinct people of the country, and there has never been any single name for the country. At the present day, under the surface unity of Turkish rule, there are not merely Turks, there are Turcoman, Kurd, Avshahr, Yuruk, Tcherkess (Circassians), Takhtaji, etc., all Moslem in religion, yet practically never intermarrying, though dwelling side by side in extraordinary intermixture; not to mention the Christians of various churches and races, and strange sects like Yezidi (devil-worshippers).

Tribes of Avshahr and Yuruks (literally Gangers, Walkers) were, and probably still are, roaming the land. It has been the policy of centralised government in Turkey to settle the nomads in permanent villages.

It is pathetic to observe occasionally the unhappiness and discomfort of a forcibly settled village of nomads; changing their old life, which was a perpetual holiday, tempered by abundance of hardship, but always in the open air and in kindly sympathetic association with their goats and camels and other animals, for the new life, spent in mud hovels, dirty and ill-kept, and in the drudgery of tilling the ground, which the nomads dislike and do not understand.

In the primitive religion of Anatolia elementary cleanliness was made part of the religious ritual, and was thus enforced. The laws of sanitation were constituted a part of idolatrous ceremonial, and this fact has in some cases been offensive to zealous and well-intentioned missionaries; the ceremonial usages, bad and good alike, have been abolished and banned, and the result has been a lower sanitary condition and greater liability to disease.

ANATOLIA: GEOGRAPHICAL SUMMARY

Natural Divisions. Plateau rimmed by the Taurus and anti-Taurus mountains, a connexion between the Balkan mountains and the Himalayan outliers. Narrow coastal sill with broken coastline and ria-harbours, cf. S.W. Ireland and N.W. Spain. Limestone with karst conditions and basins of internal drainage.

Climate and Vegetation. Arid and rainless, with extreme temperatures on the plateau; winter rains on the Mediterranean coast. Scrub vegetation on the plateau; cereal cultivation in irrigable areas. Mediterranean fruits, e.g. Smyrna figs. Regular winds are favourable to coastal navigation.

Chief Industries. Tillage, relatively little rearing of animals. Figs, olives, valonia bark, mulberry trees, raw silk, and liquorice root are valuable products.

Outlook. Primitive peasantry, isolated and aloof from the world, with little capacity or incentive to apply improved methods of tillage and irrigation, must progress before they can successfully compete as producers with their more advanced neighbours in Rumania, the Ukraine, etc.



EVA

SHIPPING ON THE GUADALQUIVIR BACKED BY THE GOLDEN TOWER AND THE CATHEDRAL A VISTA OF SEVILLE

Seville is about fifty miles from the Atlantic coast and within the limits of the Guadalquivir's tidal waters which often cause parts of the city to be flooded It exports cork, wine and fruits, though Cadiz has taken away its ancient precedence as a port The photograph taken from the Triana suburb, shows the Torre del Oro, or Golden Tower, where Pedro the Cruel hid his treasure and behind, the magnificent Cathedral, with its flying buttresses and pinnacles The climate here, save in summer, when the heat is trying, is the most equable of any city in Spain

ANDALUSIA

Scenes and Cities of Southern Spain

by Henry Leach

Author of "Spanish Sketches," etc.

ANDALUSIA, with its lingering sense of the East, the lightness, carelessness, and fair contentment of its life, is plainly different from the rest of Spain. The change is whispered quickly to the instinct of the wanderer in the peninsula; he knows and feels this Andalusia when he may not define it exactly in the geographical way. He senses life and a rare brilliance at Seville, romance of the mountains at Ronda, a soft solemnity in deep tones of a glorious past that earth and stones seem still to mourn at Granada.

Land of Crimson and Golden Yellows

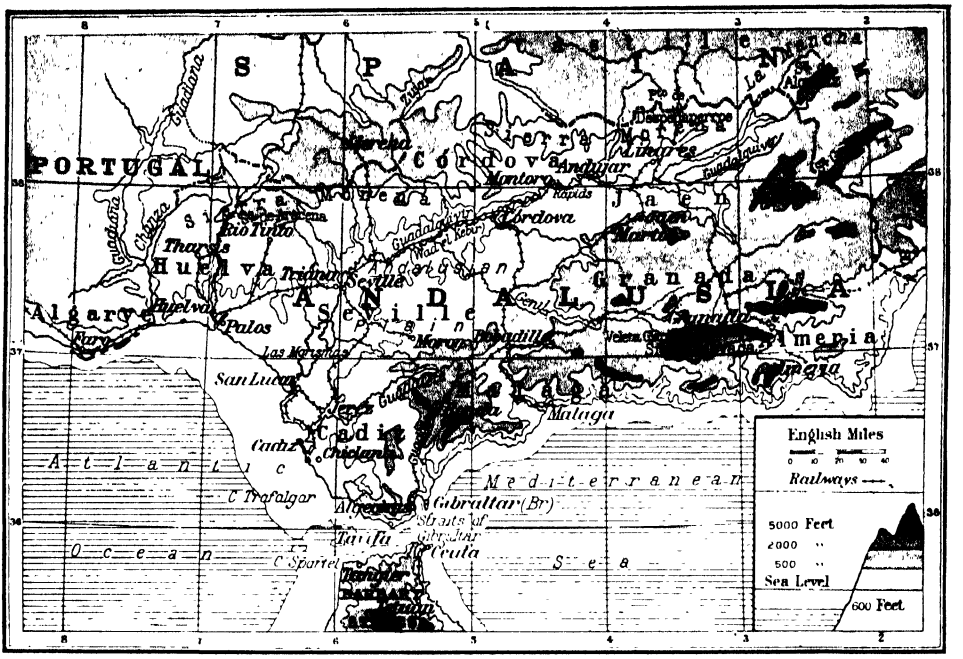
The people of this part, romantic in nature, disposed to individual adventure, were never gathered and formulated, after the time of the Moors—who for more than seven centuries covered and controlled this country—into any sort of separate kingdom, like Aragon and Castile. What we call Andalusia (derived, perhaps, from "Vandal," but more likely from the Moorish "El Andaluz") was by instinct and assumption, through the character of its land, its climate and its people, considered as a country of itself with peculiarities belonging to no other part.

From being one great province of southern Spain it became divided politically in 1833 into eight smaller provinces—Almeria, Cadiz, Córdova, Huelva, Seville, Málaga, Granada, and Jaén—and now Andalusia, as a separate and finite entity, has only a military captaincy-general to mark or cover it. Yet it is at least as distinctive, acute and brilliant in character as Castile, Catalonia or Galicia; travellers more pleasantly attracted by lightness and colour than by the severities may think it more so. They are happily not concerned with military sections, and to them Andalusia is what it was of old, a land of crimsons and golden yellows that its modern artists patch gloriously on their pictures of orchards with laughing beauties in them, colour that rives through one's northern phlegm. With the memory fresh of modern exhibitions of pictures in cold tones telling of the harsh struggle for existence in parts like the Asturias and Galicia, we are already at a glance given a bookful of knowledge of Spain without the utterance or printing of a word. But Andalusia also has its struggles. The people of other parts of Spain, the Castilians, the Catalans, the Galicians, themselves regard their Andalusia as a pretty fairyland, to be petted and, if need be, spoiled, and the dreamiest, truest descriptive music of the spell of this land was composed by a Catalan.

As to the extent of the territory, real Andalusia is, in effect, all deep, southern Spain below the mountains of the Sierra Morena. Beginning at the Portuguese frontier it fades away east of the Sierra Nevada heights, and over in Murcia, though there the Moorish mark, human and otherwise, is still most vivid, at Elche with its palms, Alicante with even blacker wine than that of any part of Andalusia, and Cartagena with its bustling naval port, the sounds are no longer in the air, the scent of Andalusia lingers no more.

Fragment of Africa Left in Europe

Certain geographical features tend to separate it into two main sections, the River Guadalquivir in the west with its rich, fertile valley, to which Seville itself belongs, and the snow-covered peaks of the Sierra Nevada with the great vega of Granada and its bustling



MAP OF ANDALUSIA SHOWING THE GREAT BASIN OF THE GUADALQUIVIR

streams, the Genil and the Darro, below, with much of variety in between. The Guadalquivir, which was the Wad al Kebir, the "Great River" of the Moors, is dull in looks, but history and legend hang upon it. It was venerated in ages past when, for example, Ibu Said, a Sevillian poet at the court of Almansur, remembering, while in Egypt, the glory and pleasures of life at home, sang and sighed that:

La soberana pompa del soberano Nilo
Se eclipsa ante la gloria del gran Guadalquivir.

This extensive and fertile valley plain was at the bottom of the sea when the high tableland of inner Spain stood clear; then in a distant age nature, in a great convulsion, heaved it up, but what we call Andalusia was then joined to North Africa until nature again cut the passage through the Strait of Gibraltar and left Andalusia to sigh alone in the Europe with which she seemed to have less affinity than for the more southern land, at which in course of time the Moors arrived, pervading it with Eastern flavour.

This is a cardinal point for recognition when we try to make Andalusia and its people properly intelligible to ourselves. These people are less Spanish than they are their special selves, with their evident Moorish affinities. They enjoy a climate of many advantages, with little to be set against it. Sunny always, it is mild in winter, delightful in spring and autumn, hot in the months of summer—a climate that men like and agriculture should thrive upon. It is in general a peaceful country, although there are agitators in Seville and round about, syndicalists and strikers, and occasionally a spark of terrorism, blown from Catalonia, causes a sudden wonder which quickly fades.

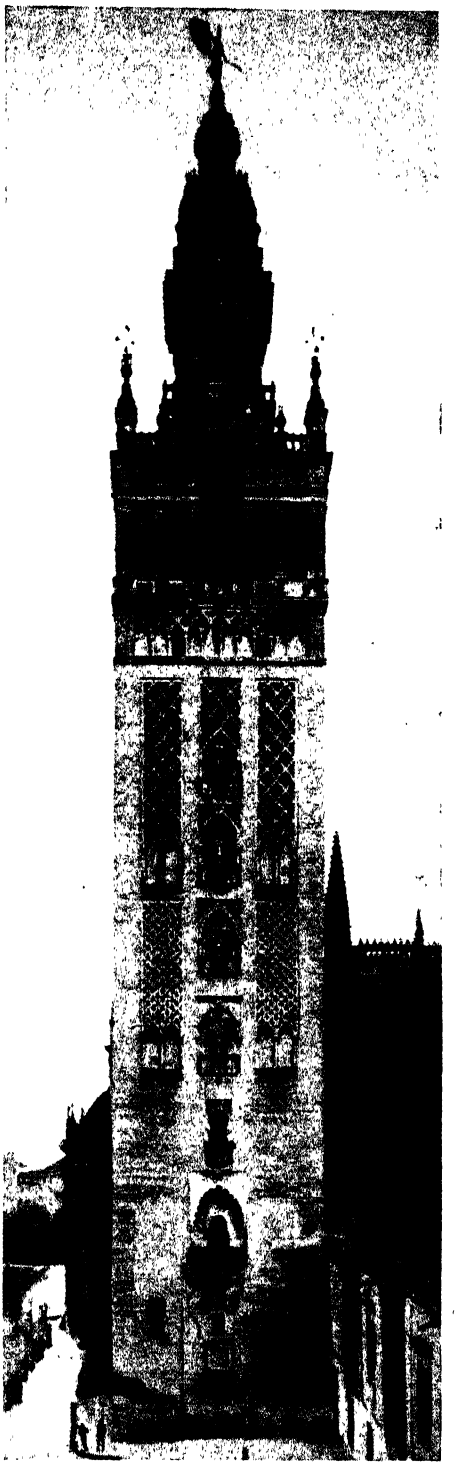
The Andalusians like to live as easily and happily as they can; they seem to hesitate in these days ere setting out upon campaigns of discontent. While other parts of Spain continually agitate for forms of separate self-control, this one, though as distinctive as Catalonia, leader in such agitation, seems rather to admit the idea as being interesting, passing then to its indifference and its pleasures. Yet in past periods of revolution and discontent Andalusia has been keen. Political control is exercised in the

usual way through the ayuntamientos or municipal councils and the provincial diputaciones. In recent times the quality of this management has been much and very justly condemned, but again the Andalusian is more indifferent than others, and, according to the old saying of the country, with a peseta in his pocket he has enough for himself and his contentment, and is little inclined to bother about the rest.

South and east of the province of Seville are minor sierras, lines of jagged hills hedging in the valley. They approach the coast at Algeciras and the Mediterranean strip, adding an asperity to what are smooth and suave surroundings. Away in the east is the long line of the lofty Sierra Nevada, with many peaks of over eleven thousand feet, yielding their melted snow to the Guadalquivir in summer and thus affecting the Andalusian plain, while at the same time this imposing range in its lofty grandeur proclaims the origin and meaning of Andalusia, for geographers declare that it is just a far-flung and detached item of the Atlas Mountains in Africa.

In ancient times, they say, an orographic system connected Andalusia with North Africa, and the only communication between Atlantic and Mediterranean, a slight one, was at a narrow strait elsewhere, long since dry. Then early man roamed from north to south along marked tracks, and from the Pyrenees a number of routes converged like the staves of a fan upon the central parts of the Castilian tableland, after which, united, they led the way along through La Mancha, past the Sierra Morena and into the valley of the Guadalquivir.

It seems that a continuation of this same route remains on the African side, from Tangier on to Fez, where it bifurcates, one section leading then towards Oran in Algeria, the other passing to the Atlas Mountains and over them and dreaming on to the Sahara. By this reflection we understand the geographer who says that " Spain is an



UNSPOILT GEM OF MOORISH WORK
The Cathedral Tower, called the Giralda from the weather-vane or giralda, a bronze figure representing Faith on its pinnacle, is probably the finest structure in Seville, and was in the twelfth century the prayer tower of a Moorish mosque

African peninsula united to Europe," the suggestion being signalled in Andalusia as nowhere else. A new perception is afforded to casual students of international politics who may have wondered why Spain so tenaciously pressed her claims to Tangier, calling history and geography to her support, and why, in spite of much disaster and little gain, she clings to Spanish Morocco when, as some would say, it were better to " throw away the worser part of it, And live the purer with the other half." There are Moors in Tetuan and elsewhere possessing big keys as family heirlooms, brought down through many generations, who say that they opened the doors of their old homes in Andalusia and shall again fulfil their duty.

A Valley Once Below the Sea

The soil in this sunny valley is mostly fertile. On the higher levels are areas of rocky desert, and in parts waste lands strongly impregnated with salt, with brackish lakes among them, a circumstance to support the theory of Andalusia having been below the sea. Another type of soil and country is found in the hills and gorges of the south and east such as those, wildly picturesque, through which one passes when travelling from Gibraltar on to Ronda, a little town of the mountains fantastically formed about a chasm. But in the main we think of Andalusia as the fertile plain, with occasional lapses, such as is traversed for many miles in approaching and leaving Seville and in the vega of Granada.

Climate of the Song Writers

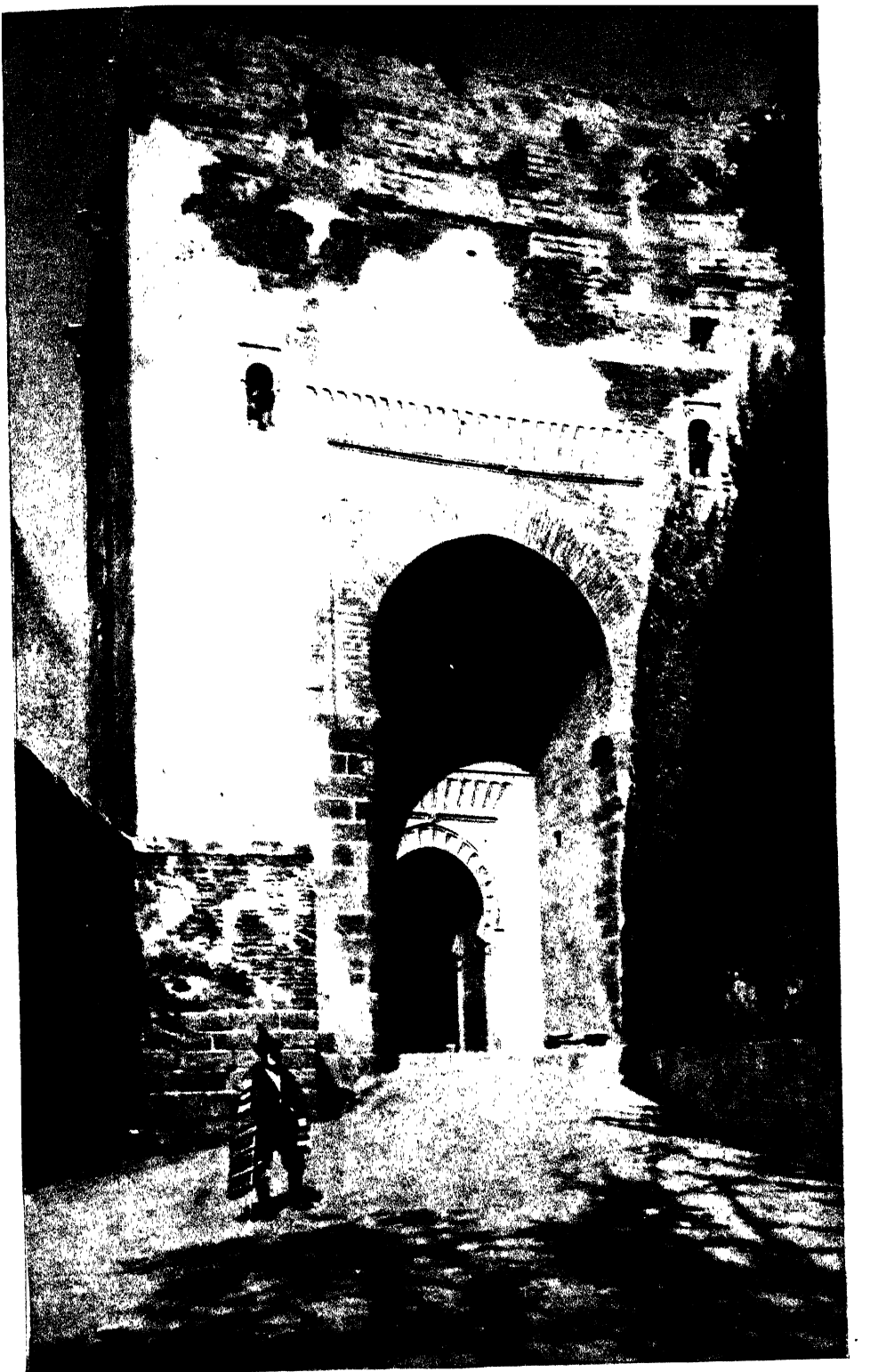
Songs in number have been sung in praise of the Andalusian climate, the ceaseless glitter of its sun, the undimmed azure of its skies. The climate may be worth the songs, but they are apt to set the imagination of the stranger working so that Andalusia is praised too much for what it may not entirely possess. In general, for seven months of the year, it is, from a British point of view, fair to splendid in its gentle variations. The summer months are those omitted, because from the end of May to September the temperature, especially in the inner and low-lying parts like Córdova, is very hot, sometimes marking 115 ° F., and it is difficult to keep the mercury below 90 ° F. even in the cooler chambers where the blinds have been drawn.

The case is worse when the most prevalent wind of summer, the Levante from the east, blows and much excites the average nervous system, provoking irritability and a disposition to extravagance and excess. San Lucar by the sea, Granada and Ronda are pleasant then. Cadiz and its neighbouring parts being on the Atlantic coast are cooler than elsewhere; the temperature rises higher on the strip of Mediterranean shore, and steadily higher as the farther inland the marking is observed.

When the Guadalquivir Mounts its Banks

But the winter climate of Andalusia is pleasanter than almost anywhere in southern Europe, and in the early spring it is delightful. Frost and snow are very rare, but in full winter it may be chilly, really cold, in Seville itself. Mostly, however, the sun shines, roses bloom through the darkest months, and the flowers of spring peep forth at the beginning of the year. March and April are charming months, pleasantly warm in the daytime, and not cold, but low enough in temperature to call for caution in the evening. Early May is best of all.

The rains are sometimes heavy, and after a spell of them the Guadalquivir will mount its banks, flood the surrounding country, and do much damage in the region of Seville and other parts. Drizzles, occasionally something fiercer, will happen for a few days at a time in mid-winter, totalling in parts not more than fifteen inches, and then there may be an end of rain, but I have known a very wet and strangely clouded March, and in Seville have seen a day in May when such a deluge, changing to giant hailstones, suddenly fell for half an



John Bushby

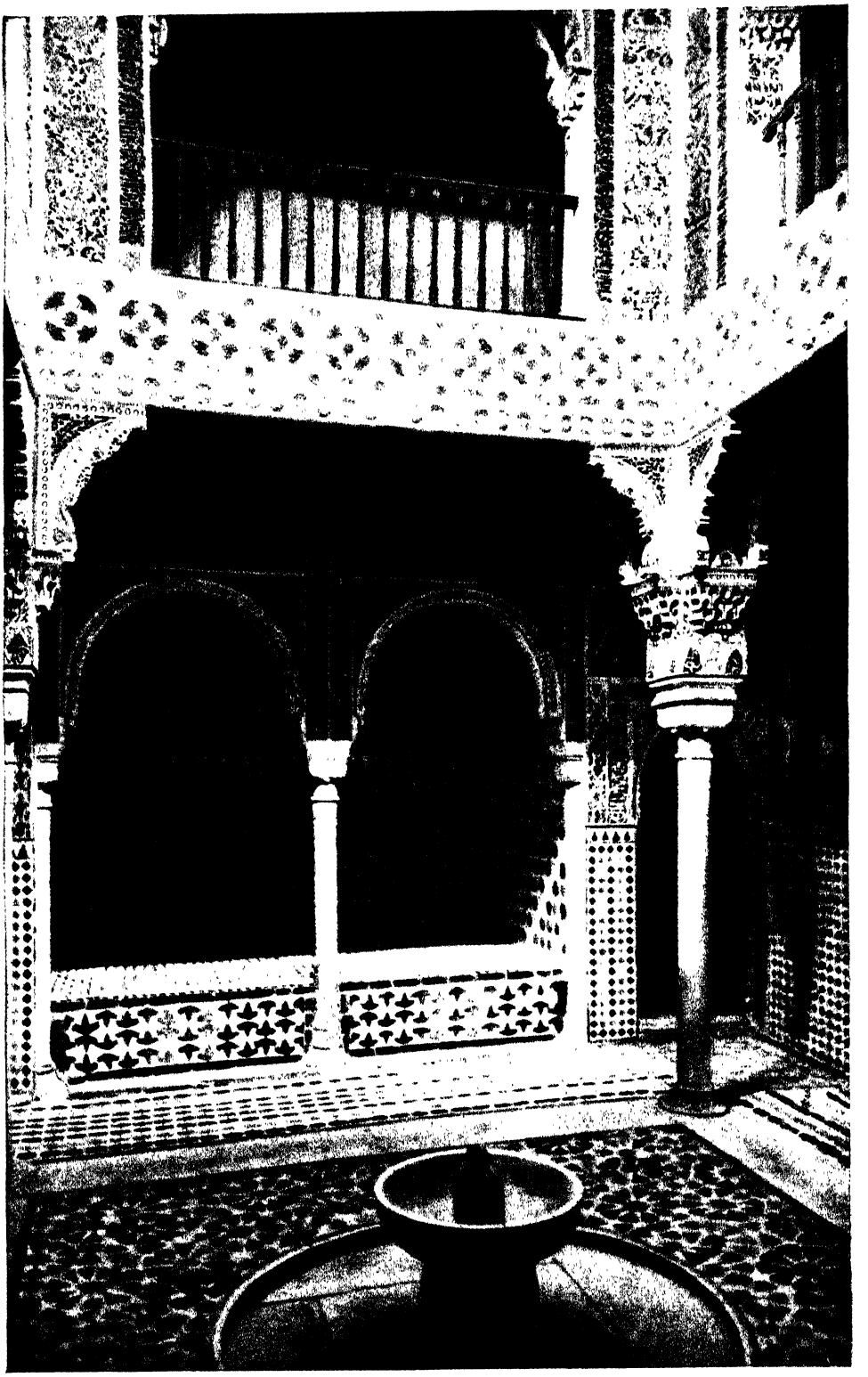
ANDALUSIA. *Within this portal of the Alhambra the Moorish kings dealt out justice to their subjects, hence the name "Gate of Justice"*



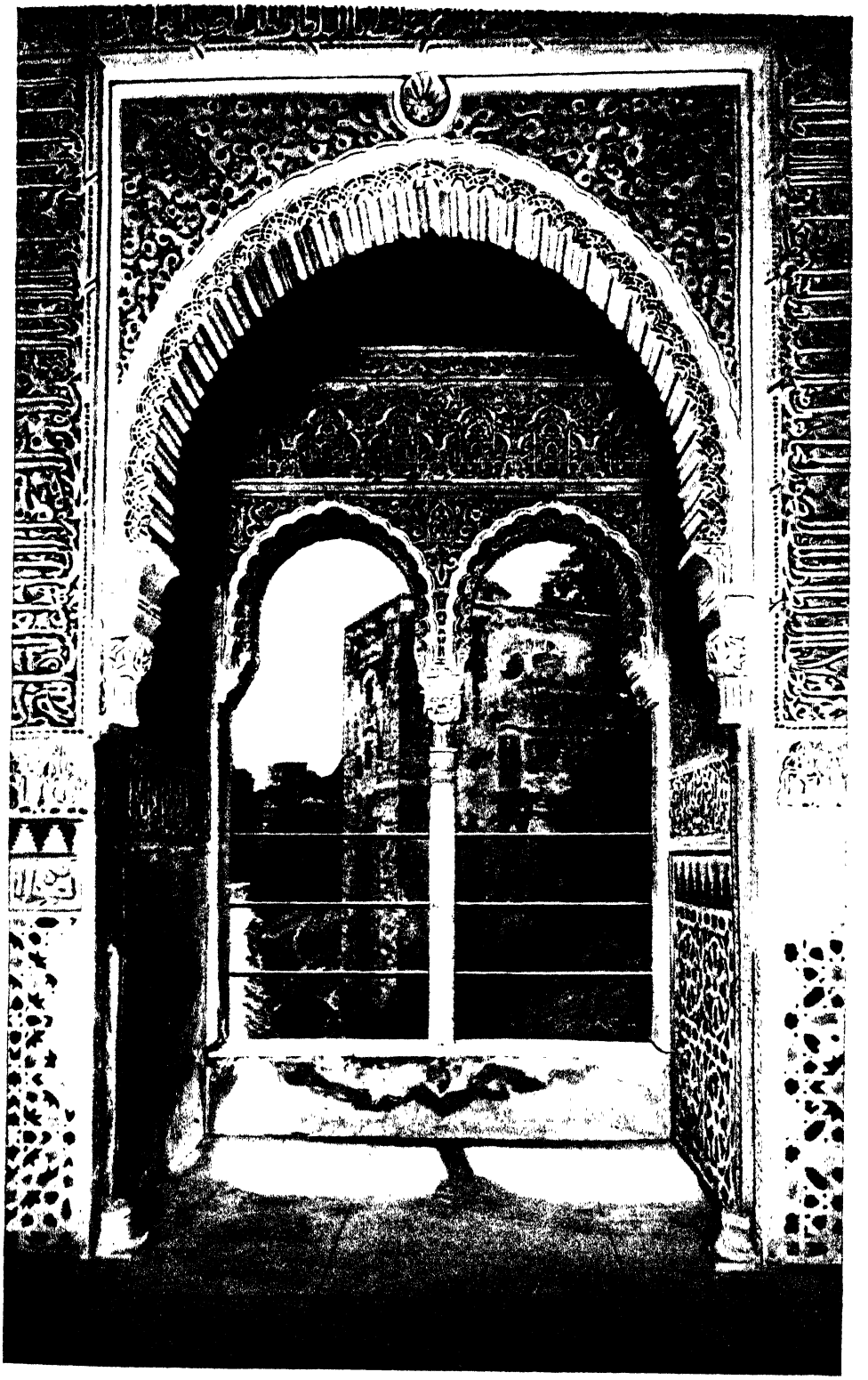
ANDALUSIA. *Granada's fairyland is the Alhambra, whose "Court of Lions" is cloistered with a veritable forest of exquisite columns*



ANDALUSIA. *Under the Moors the myriad columned cathedral of Cordova enjoyed a repute second only to that of the Kaaba of Mecca*



ANDALUSIA. *Tiles, mosaics, intricate tracery and Moslem inscriptions colour the Sala de Reposo of the Royal Baths in the Alhambra*



ANDALUSIA. *Through these ornate Alhambra windows we look upon the Captive's Tower, reputed prison of a Moor's slave-girl queen*



John Buchby

ANDALUSIA. *Beneath the Tolox and Estepona hills Ronda lies on a lofty plateau rent in twain by the awesome chasm of the Guadalevin*



NDALUSIA. *Winding step-streets twist through quaint Albaicin, e old quarter of Granada, last seat of Spain's Moslem rulers*



ANDALUSIA. *Málaga is famous for wine of special quality; sunlit vineyards are scenes of luxuriant beauty in the vintage season*

hour, swamped the patios and injured many things.

But one may reckon fairly upon an average winter temperature in many places of round about 55° F., upon an average winter daily variation of say fifteen, with a total of not more than fifty or sixty rainy days, and a fewer number when the sky is overcast. On more than half the days of the year the sun shines from morn to night; and for weeks in April and May scarcely a cirrus or cumulus may float amid the blue.

Evidently we must on a sum of points class the climate of Andalusia, with its variations from place to place, inland and shore, Atlantic and Mediterranean, as quite one of the most agreeable of southern Europe. That of the region of Seville is spoken of as an "exciting" climate, sharpening the nerves, sometimes sharpening them to discomfort.

Springtime in Seville

Cadiz on the sea is much less like that. Again the heat and glare of summer react upon the energies, physical and mental, and carry over some effects to later months. The Sevillians are notoriously easy workers, given to languorous contentment. But the germinal months are enormously stimulating in this country; of this I have found the most convincing evidence in personal experience in the springtime in Seville, when endurance for work seems prolonged and the pleasure of it is enhanced. But it is noticeable that what in the general way we call intellectual work conspicuously fails to hold the Andalusian people, despite brilliant traditions of the Moorish period.

The open air, simple festivals culminating in the brilliant feria in the spring, the corrida, football of the Association kind, which becomes very popular in Seville, flowers and light, the guitars, the simple songs they call "Sevillanas," the evening promenades in the Delicias, lovers' dalliance at the barred windows, the attachment to the mystic—these are main affairs of Andalusia and Seville, emotional, not intellectual.

The home of Velazquez and Murillo needs no advertisement of its painting; formal honour has been done to both in handsome statues in cool green squares of Seville; but though there are fine Murillos in the small art gallery one may search vainly in this city for a picture by Velazquez, which is strange, and stranger still is it that nobody seems to be concerned.

The theatres are not much used; they have brief and slender seasons, and in the country of "Carmen" (French remember; the Sevillians would urgently, and perhaps with a little asperity, insist on this if it were necessary) opera is rare.

Migration of Andalusian Genius

Some of the most eminent of the makers of modern Spanish literature are Andalusians, like the brothers Quintero, remarkable dramatic collaborators, who arose from the outskirts of Seville, and Pedro Muñoz Seca, of great fecundity, who belongs to the region of Cadiz, and others. But such genius, when conscious of itself, migrates immediately northwards, chiefly to the capital, returning thereafter only for holidays and rest. Blood and climate are the cause of this.

Nature's Fecundity and Man's Neglect

It has been said that in Andalusia there is such variety of circumstance that most of the vegetation of the northern half of the world from the Equator to the Arctic Circle is encouraged and much of it represented. The cactus and prickly pear, much utilised for hedgemaking, seem with the olives and the cork trees to be leading features. Vast tracts of Andalusia are left untouched and wild, and here nature has her fling, producing the palmito, with whose leaves brooms and mats are made, the liquorice plant, the lentisk or the mastic tree, the cistus or rock rose.

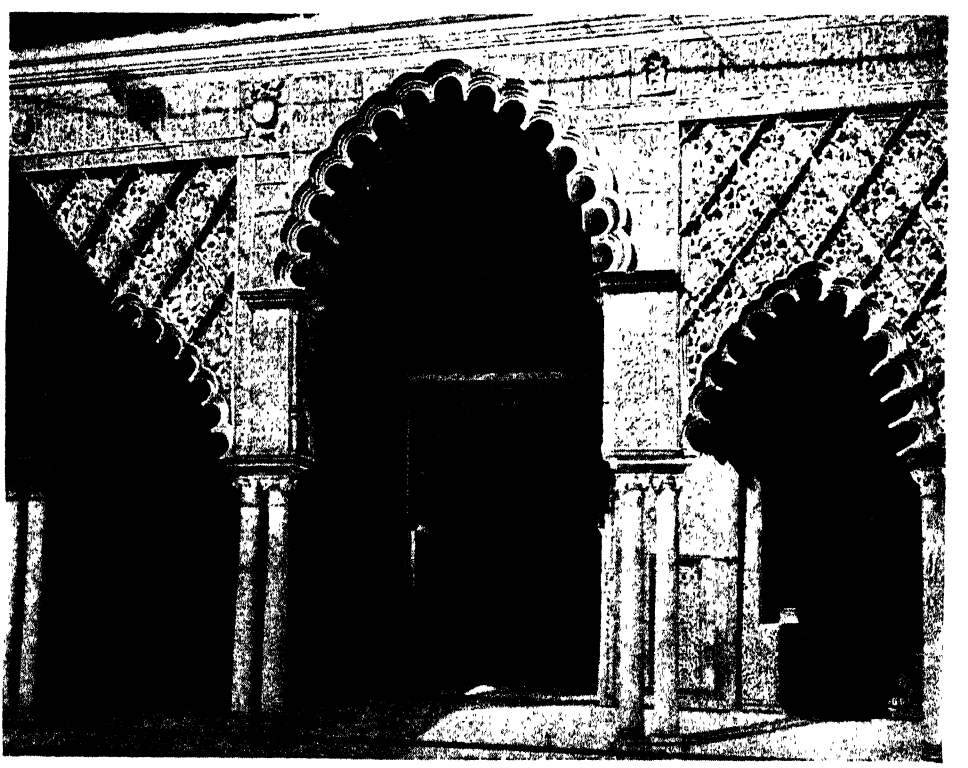
Between Algeciras and Ronda there are great cork woods. Wild olives and aloes are found. On the great cultivated spaces wheat, maize, and rye are grown

extensively, but too much land is utterly neglected and wasted, so that this potentially rich granary needs supplement from the Argentina for the people's bread. This long, sad neglect has been the conspicuous feature of Andalusian lands since the time of the Moors, and neither governments nor lesser controls have done anything to mend it.

The natural conditions of Andalusia would permit of a population of from 200 to 250 to the square mile. Climate and soil are much better than those of the east coast of Spain, where, in the region of Barcelona, there are 380 to the square mile, in Alicante 225, and in Valencia 210, while in the province of Seville there are only 108, in Córdova 92, and in Jaén 75. Lack of irrigation has been a leading trouble, this thirsty soil needing so much of it, while Andalusia, like the rest of Spain, has been pitifully slow in its adoption of agricultural machinery, with which it at first had disappointments, implements designed to cut through soft, damp soils scarcely succeeding with the baked and chalky kind.

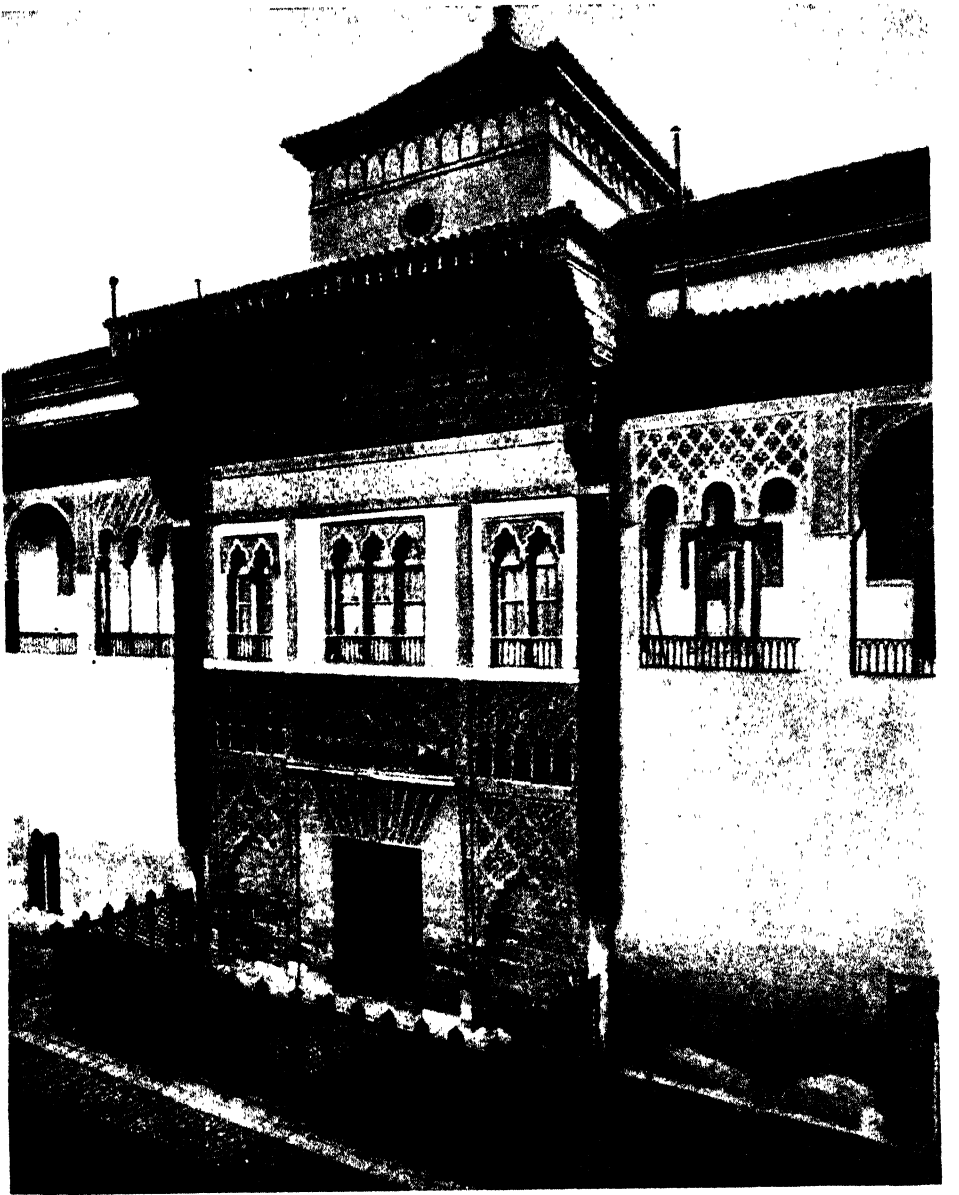
The simplicity and Easternism of the Andalusian influences him always to cling to old and obsolete methods, and in the matter of husbandry the ways of Bible times were until lately favoured. In recent years, however, the need for advance has been understood, and modern American machinery has been brought to the estates of rich and more enterprising landowners. There is a movement towards the cultivation of cotton and also of tobacco.

In the region of Granada the production of beetroot sugar has become an important industry under the influence and assistance of the chief landowner, the Duke de San Pedro, well known also as the Conde de Benalua, a title given to the family by Ferdinand and Isabella when the Moors were



SLEEPING-CHAMBERS OF MOORISH KINGS IN THE ALCAZAR, SEVILLE

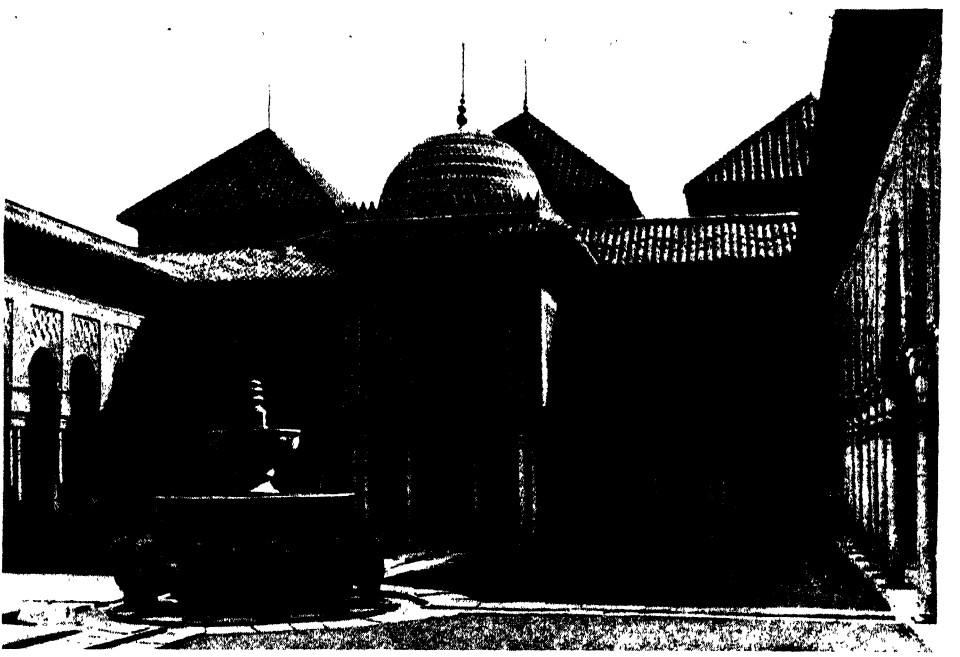
This shadowy archway is the entrance to that part of the Alcázar known as the "Alcobas de los Reyes Moros," or sleeping quarters of the Moorish kings. It adjoins the beauteous Court of the Maidens and, though it belongs to the Christian era, it has a number of Arabic inscriptions, the work having been performed by Moorish builders



FACADE OF THE ALCAZAR PALACE AT SEVILLE.
Though it has suffered much at the hands of incompetant restorers, the Alcázar still suggests the ancient beauty that prevailed in the days of the Moorish kings. It stands between its own beautiful gardens and the Cathedral. The minute detail of the carving that has almost become tracery is very pronounced over this doorway. The present palace was begun in the fourteenth century

driven from Granada. The duke, an enlightened and enterprising man, aiming at the rescue of Granada from its isolation and the development of its great potentialities has constructed hotels, established resorts on the slopes of the Sierra Nevada which yield mountaineering sport and adventure like that of Switzerland, and has caused grain, vegetables, and sugar to grow in the plains. Once at Granada he explained to me the points of his effort, influenced by his great belief in Spain in general and in Granada specially. He told me of the progress Granada had made in recent years, dating from the time when he started the first beetroot sugar factory in all Spain. It was fitted with the newest machinery, was a success from the start, and set an example

which has been much followed. About the same time a movement for the improvement and intensification of the agricultural industry of Granada was also started. "Previously," said the Duke de San Pedro, "the agriculture hereabouts was conducted as the Moors had conducted it. The farmers had no knowledge of chemical manures, and possessed no machinery, but now pesetas an acre, and the prospects are improving." Yet Granada, though only fifty miles from the sea, suffers from the amazing deficiency of having no direct railway to it. Goods and persons to reach the coast from here must either go half-way back to Seville and then down from Bobadilla to Málaga, or more northwards for a spell and then on to Almeria, more than twice the



John Bushby

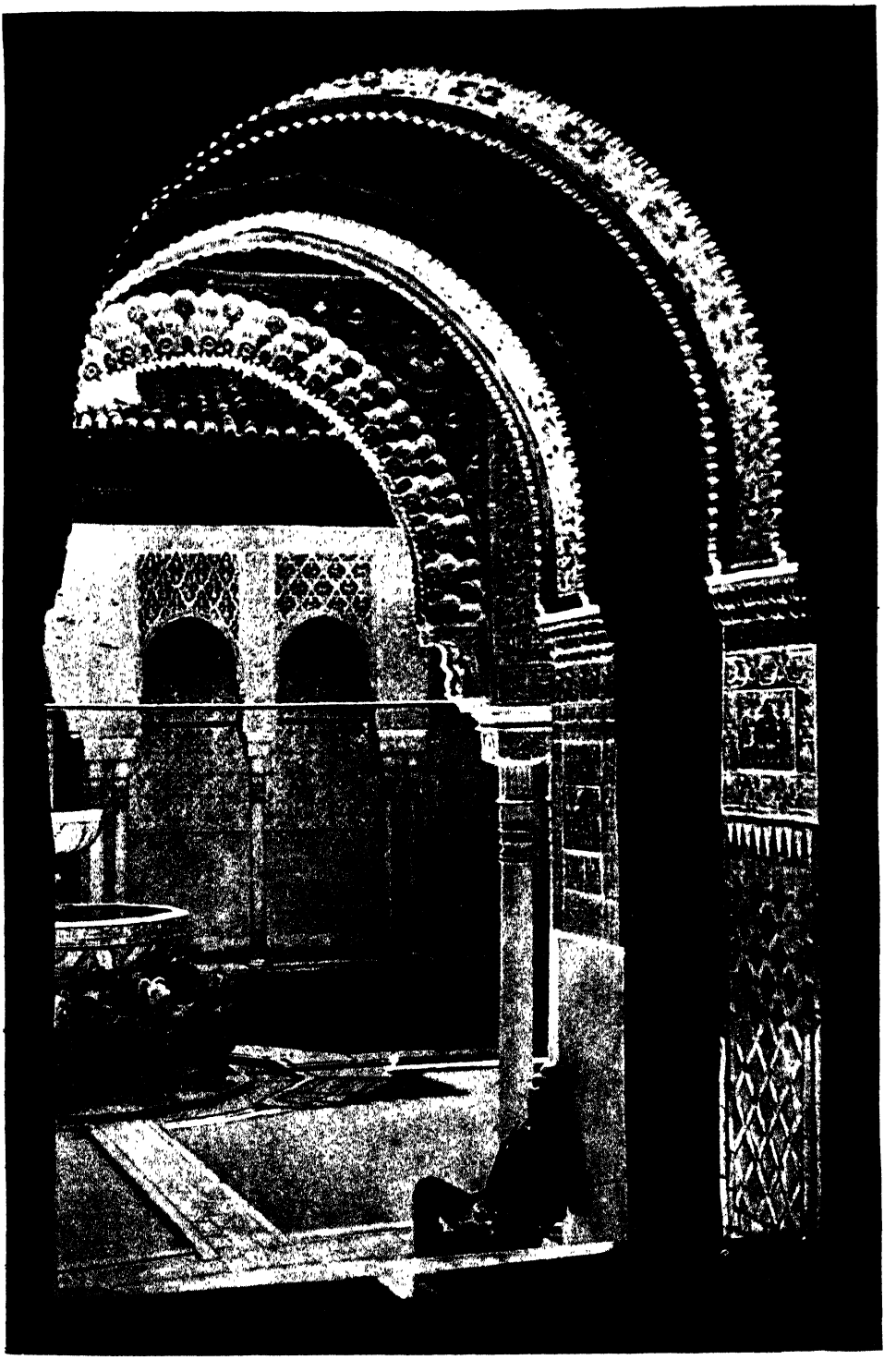
CISTERN OF ALABASTER WITHIN THE MAGNIFICENT ALHAMBRA

Twelve beasts, more of sculptural than leonine significance, support the fountain in this gorgeous patio, the Court of the Lions. Around the sides is a colonnade paved with white marble, and the tiles seen half-way up the walls are in yellow and blue. It will be noticed that the arches on either side the central pavilion are of unequal width. All round the cistern runs a band of inscriptions

Valencia and Granada are the foremost provinces in all Spain for intensive culture. We have in use everywhere the most up-to-date machinery, largely American but some French and a little Spanish. I have made it my business to introduce the newest models, and when this has been done the example has been quickly followed by others. In the valley at the present time we grow corn, potatoes, and everything in rich abundance, and the crops are continually improving. Because of all this we find that while, in 1888, the land in these parts was worth only 1,125 pesetas an acre it is now valued at 9,000 straight distance from Granada to the sea in either case.

Andalusia is not the chief orange-growing region, but the golden fruit is nearly everywhere; some of the finest, sweetest oranges I have tasted in all Spain have ripened in the country round about Cadiz. Vegetables in abundance come to the markets from the country gardens; splendid among them is the artichoke.

However the surface riches may be rated, the mineral wealth of Andalusia is definitely very great and varied. There is coal in the Córdova district, iron in Huelva and Seville, lead in Jaén,



FAMOUS ARCHED PORTAL TO THE COURT OF THE LIONS

One of the chief beauties of the Alhambra is the alternation of light and shade. The principal courts are open to the sun, and are joined by covered galleries and smaller rooms. The elaborate filigree of the walls and arches is thrown into sharp relief by bright sunshine or dark shadow. The name Alhambra means in Arabic " the red," perhaps commemorating the fact that much of it was built by torchlight

sulphur and phosphorus in Huelva, and even platinum has been found near Ronda. But, above all, the copper found from Córdova to the south-west is the envy of the world.

The Rio Tinto mines, which have Huelva for their port of shipment, and are mainly British controlled, worked in the distant past by Phoenicians and Romans, cover more than twelve square miles, a dark-stained region. They yield in a year two million tons of ore consisting of iron pyrites with 48 per cent. of sulphur and 2 per cent. of copper, and between 30,000 and 40,000 tons of copper result in a year when work is brisk and strikes do not interfere. The total copper production of Spain is over 2,000,000 metric tons annually, and this corner of Andalusia does it. Yet again the Andalusians have been slow to appreciate the riches underground and enterprise has been largely left to foreign initiative. Agriculture, with the growing of the olive and the making of its oil, cattle breeding, and mining being the chief industries, the secondaries do not bulk largely, excepting the sherry wines and brandies made at Jerez, a few miles from Cadiz. Hereabouts are more than 150,000 acres of vineyards and the bodegas of Pedro Domecq and Gonzalez Byass are known everywhere. In the region of Seville the white manzanilla wines are made.

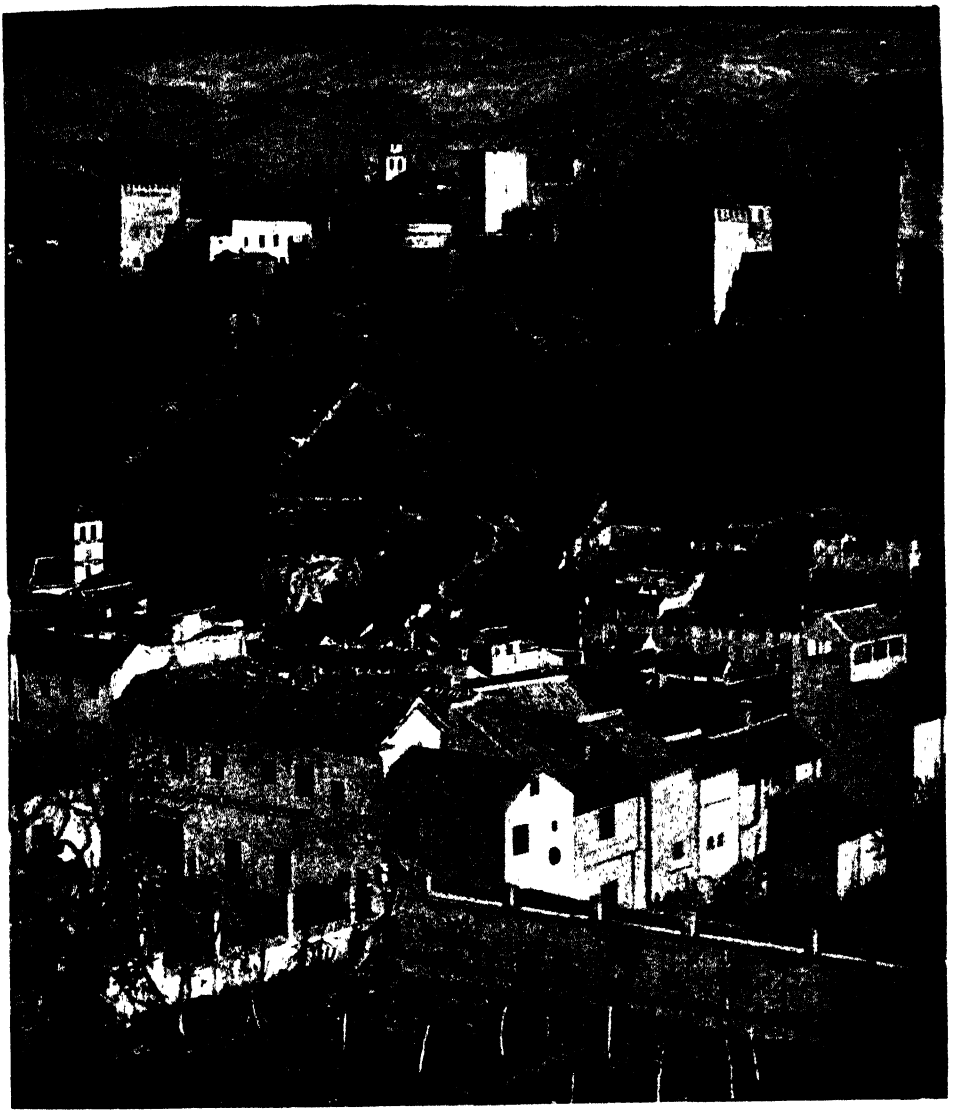
Much tunny and sardine fishing and packing are done on the Atlantic coast, and in recent times a successful whaling station has been established by a Norwegian company west of Algeciras. Manufactures are slight. Tiles and ceramic ware are made with originality and taste on the Triana side of the Guadalquivir at Seville ; the picturesque silk-worked shawls, the "mantones de Manila," come mainly from the same region and are supposed to emanate from convents ; there is work done in leather goods, chiefly substantial.



John Bushby

GALLERY OUTSIDE THE COURT OF JUSTICE IN THE ALHAMBRA

Moorish architecture never reached a higher pitch of exquisite artistry than that displayed in the courts and galleries of the Alhambra Palace. The arches seen above are fine examples of the stalactite vaulting that was so much in favour with Moorish artists. The walls are decorated with mosaics and inscriptions while everywhere are vistas of delicate pillars and variegated tiling



WHITE TOWERS OF THE ALHAMBRA, GRANADA'S BEAUTEOUS PALACE
Of all the beautiful buildings of the world, few, if any, can compare, in their interiors, with that of the far-famed Moresco-Spanish palace, the Alhambra. This view shows its towers and battlements, where they stand upon a steep hill overlooking Granada town and the river Darro. Behind, the grim crags of the Sierra Nevada tower dimly in the distance

But one finds the dominating reflection upon the production and industries of Andalusia is that the people do no more than they are obliged. Business systems have been bad, but under the strong influence of new and international banking organizations at Seville and elsewhere, and the period of maritime development of that port which has set in strongly, they are much improving.

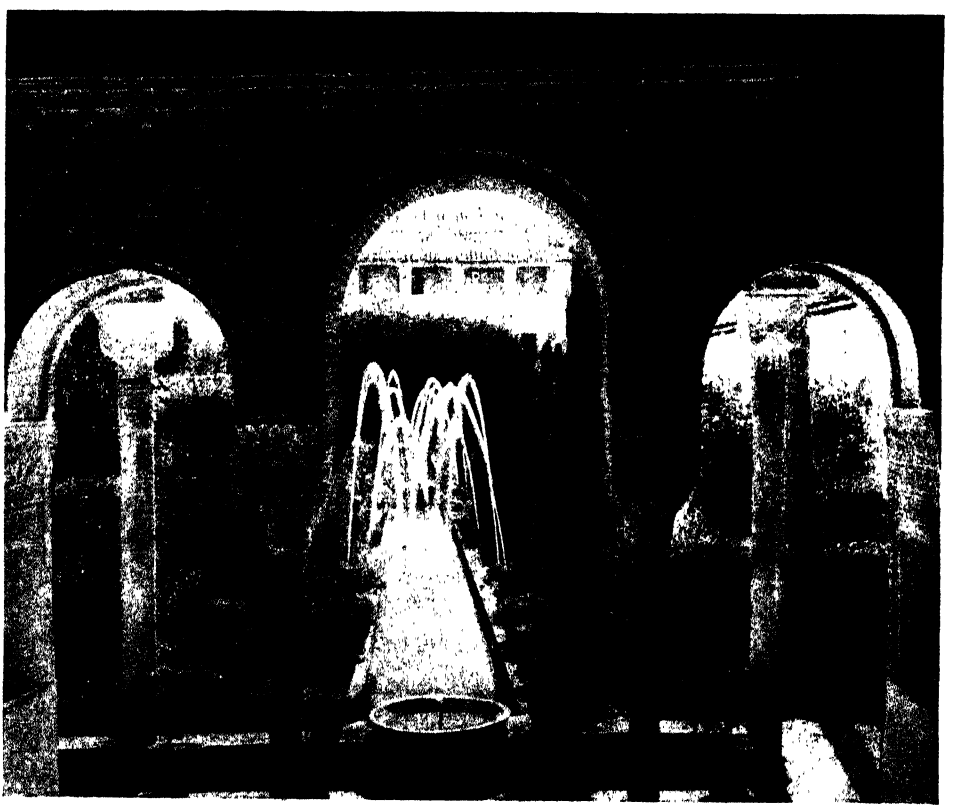
Communications, as to which I have already hinted something, are in harmony with the disposition of the people; they are, without qualification, bad. The railways are insufficient, all are single-track, involving at times long waits even by the "express" trains, and some of the most important places are unconnected. Thus Cadiz is joined directly only to Seville, and a long circuit inland must be made when travelling thence eastward and to the Mediterranean ports. To go from Algeciras or Gibraltar to Málaga also

one must wander up the country to the exchange station of Bobadilla. The roads are not good, but they are better comparatively than the railways, and on the main routes motorists need not be unduly apprehensive. For trading purposes the coasting steamers are largely employed.

The possibilities of aviation are being explored with some intelligence. Seville, already established as a chief air base of the future, was early in touch with Morocco, and then turned its attention to the later chances with South America. Motor transport and passenger services are established in places; but they are very insufficient. Perhaps Andalusia is on the eve of developments in communications which may have a great effect upon the country.

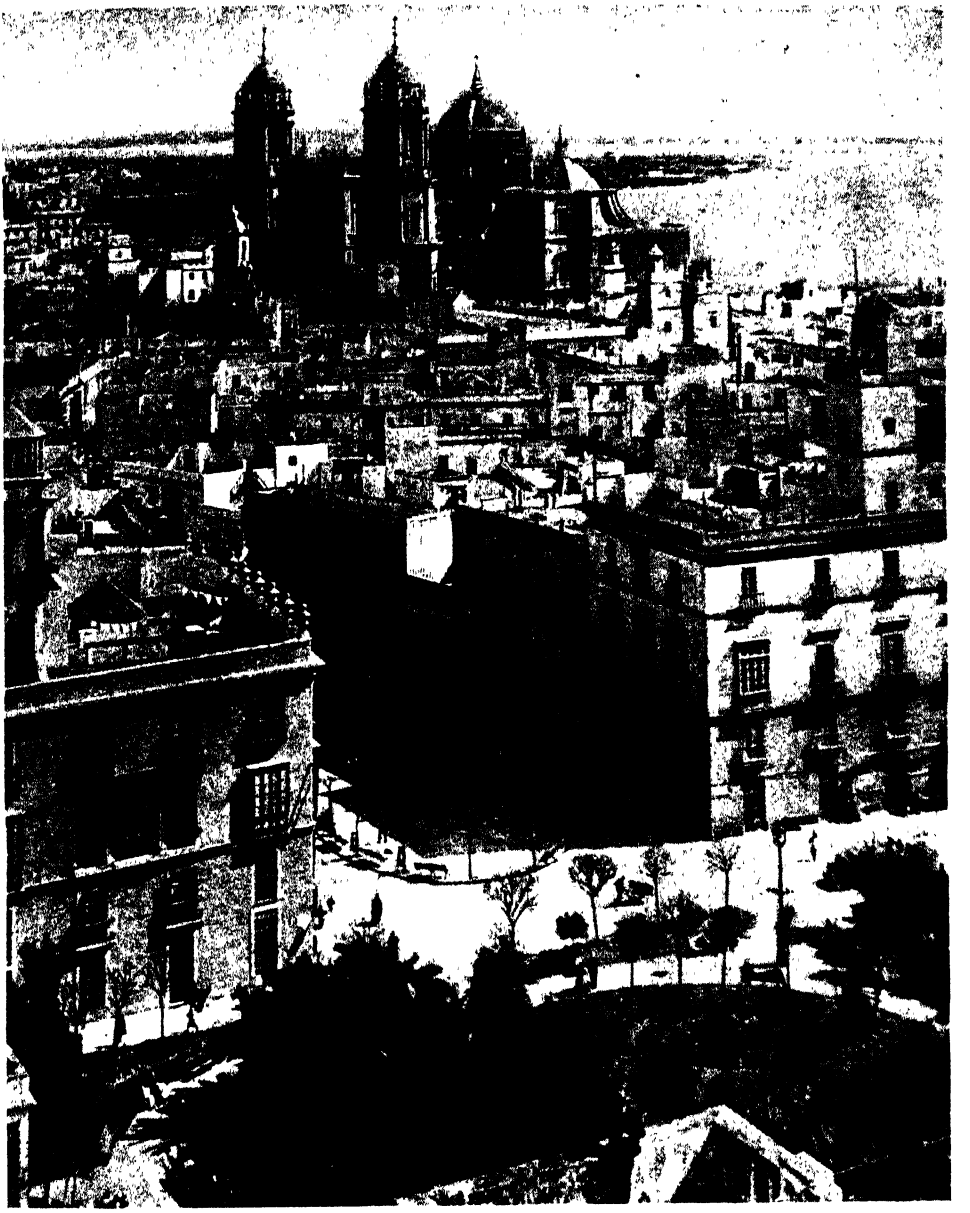
The city of Seville stands for Andalusia; it is the capital, the centre, the influence. It is a city with a character all its own; there is none like it. Its exceeding charm arises from the aroma of its Moorish history, from the magnificence of some of its monuments dominated by the glorious Cathedral whose interior floods the mind of even the emotionless, indifferent to architectural grandeur, with a sense of immensity and a vague twitching of the meaning of eternity.

From the summit of its famous tower, the Giralda, the stranger may gaze upon a great expanse of whitened roofs, the azoteas, upon which the Sevillians, with flowers about them and some music from guitars, pass evening hours. He may see the snake-like winding of the Guadalquivir and the artificial cut lately made across a long sharp bend, and far beyond, over the plain, the distant hills. He will pick out the two big bull-rings, Seville being the natural home



MOORISH GARDEN IN THE PALACE OF GENERALIFE, NEAR THE ALHAMBRA

On a hill opposite the Alhambra is another palace called the Generalife or Garden of the Architect. It is hardly surpassed in beauty by the Alhambra itself. This garden, with its flowers and cypress trees and the rainbow spray of falling water, was once the pleasaunce of the Moorish princes of Granada. It was laid out at about the close of the thirteenth century



CATHEDRALS OF CADIZ SEEN FROM THE TORRE DEL VIGIA

Though one of the oldest towns in Europe, said to have been founded by the Phoenicians in 1100 B.C., Cadiz looks one of the newest and cleanest, for the wear and tear of the centuries has been carefully disguised. This Andalusian seaport has many notable buildings, including an old and a new cathedral, erected side by side, dating from the thirteenth and eighteenth centuries

of the toreadores, who live mostly on the Triana or gypsy side of the river.

If he looks upon this scene in the soft blue dusk, owls and hawks wheeling around, the lights of the city beginning to sparkle and a sense conveyed to him of a people awaking after siesta to the pleasures of evening, he will feel something of Andalusia not known to him before. The Alcazar, or royal palace, still used as such, ranking in Moorish quality and interest next to the Alhambra, with its delightful old gardens, and the Casa Lonja, once the merchants' exchange, are among the attractions, but the cathedral crushes all the rest.

A great charm of Seville lies in the narrow streets, the plazas, the promenades,



E. N. A.

MOORISH CASTLE OVERLOOKING MARTOS

Martos, an ancient town in the province of Jaén, some forty miles from Granada, stands on a castle-crowned hill, and has a flourishing trade in wine, oil and fruit. In its vicinity are sulphur springs and baths

the Delicias, the delightful Maria Luisa park, where one sometimes thinks all the roses in the world have been brought for the spring. Near by is one of the most splendid of all Spanish monuments to the great "mañana," buildings solidly made of stone for the Hispano-American exhibition, which were erected years ago while the much-postponed exhibition was yet far off.

The streets, with the enchanting cool green patios, with flowers and palms, and perhaps a fountain, to be peeped at through the doorways, are delightful to wander in. Chief of them, the heart of the city, is the old Sierpes, with shops and clubs and historical associations. The flower stalls, the street and itinerant venders, a nag perhaps being led through by the bridle while tickets for its raffling for charity are being sold, the cafés, the appearance in spring of the Andalusian dandies, the strolling under chaperonage of Sevillian señoritas, black-eyed, tiny-footed, decked with the mantilla oftener than any other girls of Spain, invariably a rose or carnation in their hair, the children clacking the castañuelas which make a hum in the city in the evening—all these are of the Sierpes, which is Seville. In the many shady public squares are sculpture, palms and flowers.

The Sevillians are supposed not to work, but to love to idle life away with just a peseta in the pocket for immediate contingencies. It is easier to reproach them from London than in Seville, to which the gift of careless happiness has been vouchsafed, a touch of which is in sympathy imparted to the traveller. One may argue with the Sevillians against their easy ways and their neglect, and they fling back the retort, "But we are happy!" and there is no answer.

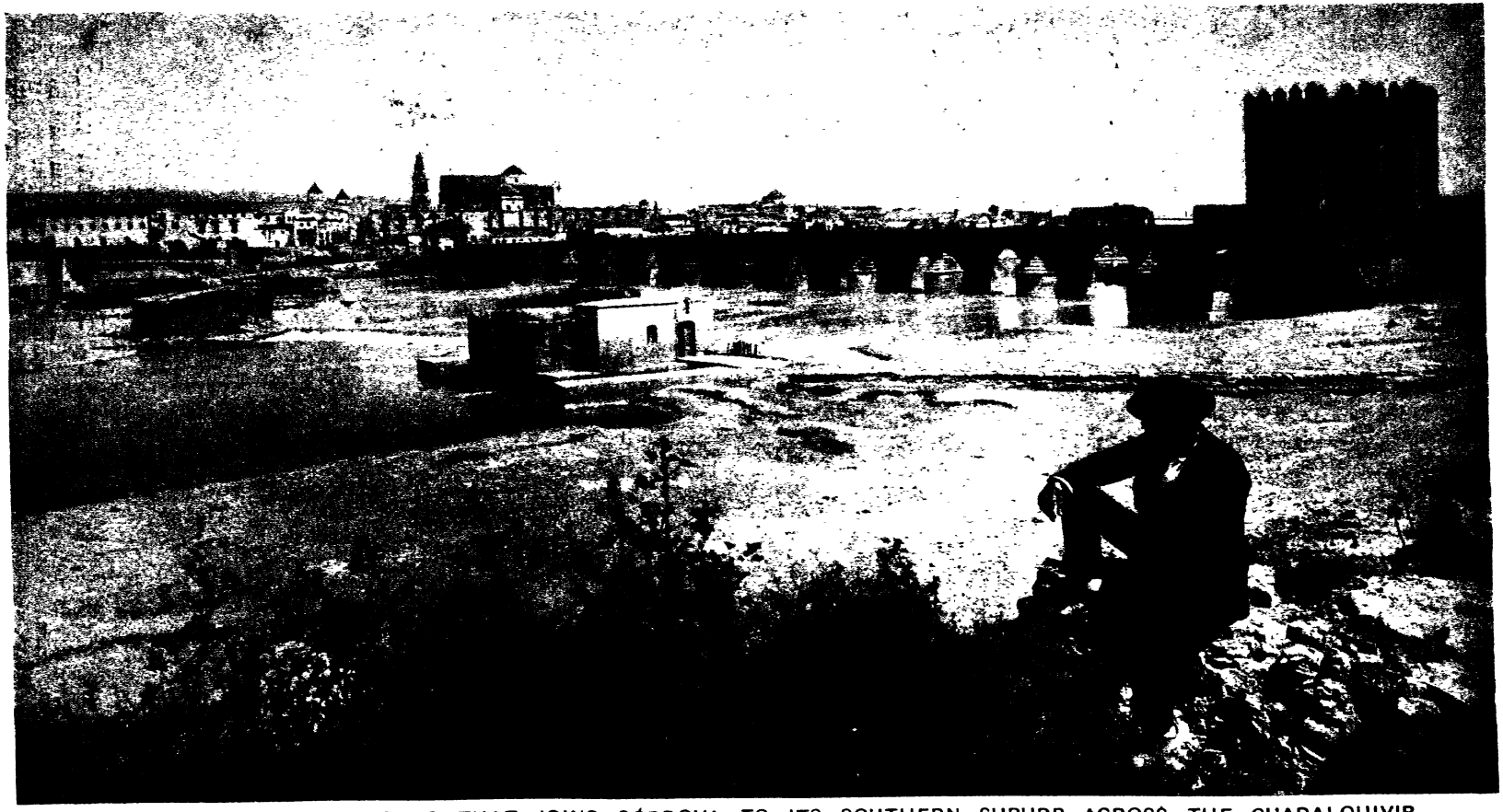
The charm of the place is often missed by travellers through short rush visits, and for want of sympathetic preparation.



E. N. A.

GLIMPSE OF THE SIERRA NEVADA BETWEEN TIME-WORN WALLS

A small, insignificant little town on the right bank of the Genil river, Guejar can boast no special industry except the rearing of silkworms, and no attractive feature save its picturesque position. Above it tower the lofty pinnacles, eternally covered with snow, of the Sierra Nevada, a mountain range rife with rich treasure alike for the botanist, the geologist and the artist



BRIDGE OF SIXTEEN ARCHES THAT JOINS CÓRDOVA TO ITS SOUTHERN SUBURB ACROSS THE GUADALQUIVIR

Córdova, capital of a province of the same name in northern Andalusia, is built beside the river Guadalquivir, and lies east-north-east of Seville, from which city it is eighty-two miles distant by rail. The bridge is part Roman and part Moorish in construction, and is defended at either end by a gateway. The principal industries are the manufacture of textiles, silver filigree and paper, but the export of the famous Córdova leather has declined. Most of the houses in the town are whitewashed

The sombre mysticism of the festival of the Semana Santa, which attracts most visitors, is not the fairest representation of Seville; much better is the feria that follows soon afterwards when the people occupy the pretty casetas in a gaily-decked avenue, and in a charming simplicity set themselves and their children, in full Sevillian costume, to dance to the guitar while the castañuelas clack and the elders sit around and entertain their friends who walk in as they please through the open front. And though bull-fighting be bad, an impression of Seville on a big day of the corrida is not one to be forgotten.

I have sometimes thought that a visitor to Andalusia would do well to steep himself in advance in the dreamy, starry, nightlike music of one of the Spanish dances composed by the late Enrique Granados, a great musician who sank with the torpedoed Sussex in the English Channel during the Great War when returning from New York to Spain.

From Seville to Granada

It is numbered the fifth in his series, and is known as "Andalusia" though not so named. With the witchery of this music in one's spirit, and the story of the Moors in the memory, one may come to Seville and wander in Andalusia with a fair appreciation, and new pleasures at each thought and turn. It is after all not every traveller's country.

Granada is the perfect complement of Seville. These are like sister cities, princesses, of Andalusia, and as a pair they are superb. It needs half a day longer to travel from Seville to Granada than it should, and one has often lost the patience to enjoy in the gloaming—or it may have become night by this—the roughening scenery of the last stage. This journey makes a tiring day, but oh, how it is worth it! I have felt in Granada that I would have walked barefooted from Seville rather than miss the ecstasy of emotion one can gather there, yet not on the first day or the second, but later when the Alhambra has been fully seen, likewise the remaining "sights," and one may settle to absorption of the exquisite solemnity of this place, so different from any other in the world, a difference made by the departed Moors. But ninety and five per cent. of the visitors lose a delightful exercise upon their sensibility through their habit of allowing only two or three days to Granada.

Superb Charm of the Alhambra

They view the Alhambra, the Cathedral, and the other minor attractions as when in La Cartuja they see pictures of Carthusian martyrs having their heads chopped off in wicked England; and, being then convinced and supported by guides that there is nothing else to know, away they go, a little disappointed, possibly, because the Alhambra covers fewer acres than was supposed.

The superb Alhambra, which turns us to ask ourselves again what is the meaning of our modern "progress," only begins to reveal its charm on the third day when guides and books have been discarded, and one sits and thinks and looks from balconies and through windows from which lovely princesses gazed and sighed. Then we will linger by the pool in the delicious Court of Myrtles and soliloquize in the grand Hall of the Ambassadors where the Moorish chieftains dolefully agreed they must yield their city for ever and for ever to Ferdinand waiting at the gates.

Spell of the Departed Moors

We may try to recognize the repetitions on the walls and elsewhere of the same inscription in Arabic characters that is on the inlaid steelwork we buy in Spain, making the words "Wa la Ghaliba illa Allah," meaning "There is no conqueror but Allah," which was said by Ibn al-Ahmar when he returned from Seville and was saluted as the conqueror thereof. We shall meditate in the Court of the Lions, and learn that the long inscription on the splendid basin, full like the others of delicate poetic feeling, of Eastern



E. R. W. Lincoln

LOWER BRIDGE AT ROCK-BOUND RONDA, AN ERSTWHILE FAVOURITE STRONGHOLD OF THE MOORS

The old town of Ronda was built by the Moors; the new one was founded by the Catholic kings after the surprise siege of 1485, when Ronda was captured from the Arab conquerors. The Moorish town is divided from the new quarter by an immense rocky gorge, some 350 feet deep and 200 feet wide, and is only accessible by a straight and difficult ascent from the south, guarded by a fort. The River Guadalevin, spanned by three bridges, encircles the city, which is renowned for the salubrity of its air, and, in addition to some Roman and Moorish relics, contains one of the finest bull-rings in Spain

aroma, includes such lines as these: "Behold this solid mass of pearl glistening all about, and spreading through the air its showers of prismatic bubbles, which fall within a circle of silvery foam and flow amidst other jewels, surpassing all in beauty, nay, exceeding the marble itself in whiteness and transparency. Gazing upon the basin one might fancy it is made of solid ice, and that the water melts from it, yet it is impossible to say which of the two is really flowing. Seest thou not how the water from above flows upon the surface, even though the current underneath strives to oppose its progress; like a lover whose eyelids are big with tears, but yet holds them for fear of an informer? For truly what else is this fountain but a beneficent cloud pouring out its abundant supplies over the lions underneath, like the hands of the Caliph when he arises in the morning to distribute abundant rewards among his soldiers, the Lions of War?" Thousands of lines like these are on the walls and everywhere for all to read in Arabic.

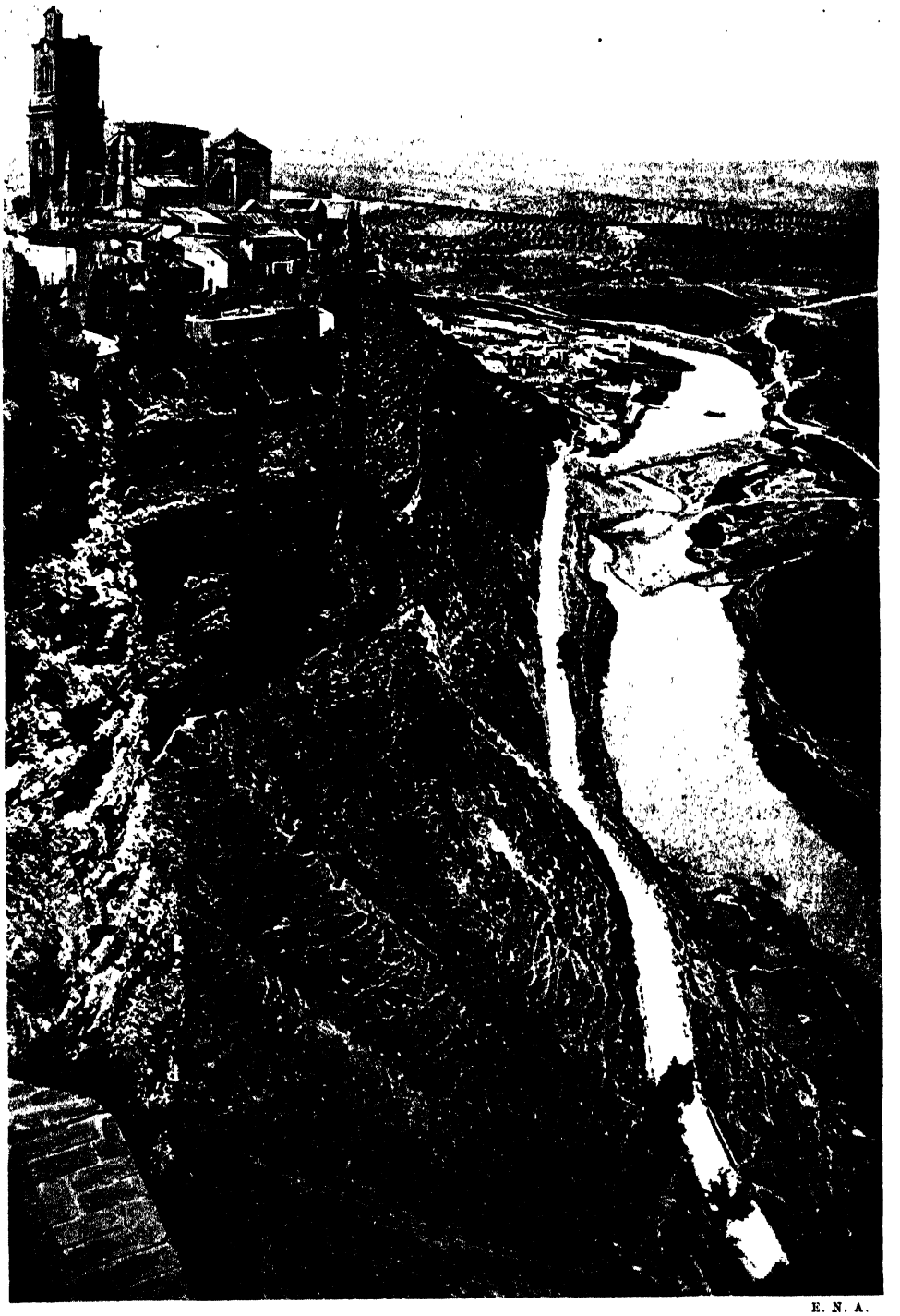


John Bushby

WEATHERED BELFRY IN OLD RONDA

Ronda, on the railway between Bobadilla and Algeciras, stands in an amphitheatre of hills upon a plateau at whose foot foams the river Guadalevin. The chief industries are fruit-growing, flour-milling, and vine culture

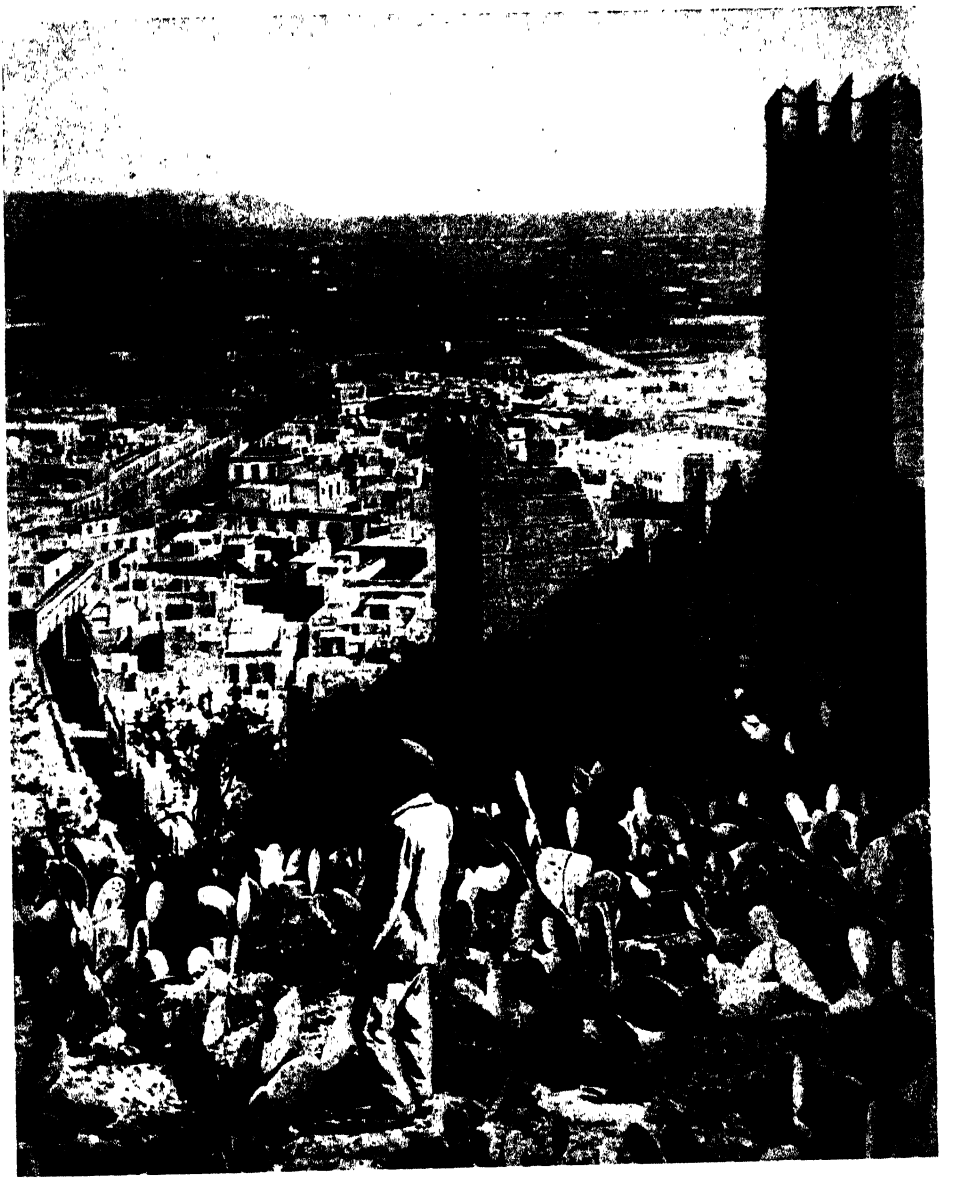
By this the enchantment of Granada has fallen upon us. We shall have felt the mysterious spiritual atmosphere that still lingers on this place, something different from any other part of Spain or other country, a Moorish spell that seems to be cast over the region. We may sit on a balcony on the heights overlooking the light-speckled city on a blue-black starry night and listen to sounds plaintive, almost weird, of the ringing of one bell in a tower here and a mournful response from another over there, one in the treble and another in the bass, calling and answering, slowly and so sadly, all night long as it seems, and always so mournfully, like one long strung-out lament for the departed Moors and the glories that have gone. This is not excess of imagination; it is real. What an overwhelming misery must have been the parting of the Moors from this dear scene of theirs, and how we imagine the miserable Boabdil, last king, sighing in his sadness at the turn of the hill as he looked back for the last time upon Granada, while Ayesha, his mother, shrewishly exclaimed, "Well may you sigh like a woman for that you could not keep like a man!"



E. N. A.

NATURAL FORTRESS OF ARCOS DE LA FRONTERA

This Andalusian town lies on a rocky bluff rising over the Guadalete at two points, the one crowned by a convent, the other by a tower. It was once a Roman colony and played a prominent part in the struggle against the Moors. This steep, wild place commands superb views of the surrounding country, whose fertile plains watered by the river produce abundant crops and fruits



VIEW OF ALMERIA FROM THE ALCAZABA, THE OLD MOORISH FORT

Founded by the Phoenicians, Almeria later became an important emporium under the Moors, who were finally driven from the city in 1489. Beautifully situated in the Gulf of Almeria, it is one of the chief Mediterranean ports. Luxuriant vegetation surrounds it, as the fruits, cacti, maize and sugar-canes testify; among its exports are the noted white grapes, and esparto grass for paper-mills

But Granada abounds in interest, apart from the Alhambra. Its delights are not all described in books, and guides do not tell of them, so it is best for the new lover of this place, as often in Spain, to heed not, to take a short cut of a sort—which may prove no short cut at all—and get lost. Then will beauties be revealed. Down by the Carrera de Genil and the Carrera de Darro, riverside ways, are paradises for artists; the wide steep streets of a roughish kind that lead up the Alhambra Hill, the cuestas, are excellent, and in the working parts of the town, along the alleys, one is able to peer into workshops through giant doors—gloomy workshops of cathedral

loftiness sometimes—all in a peculiar harmony with the prevailing atmosphere. In the Cathedral where are many treasures one ruminates upon the greatness of that remarkable pair of "Catholic kings" Ferdinand and Isabella, whose tomb is here; one can look down into the gloom where all that is left of them is cased in lead. And very specially here does one come by an understanding of the importance of that great artist Alonso Cano.

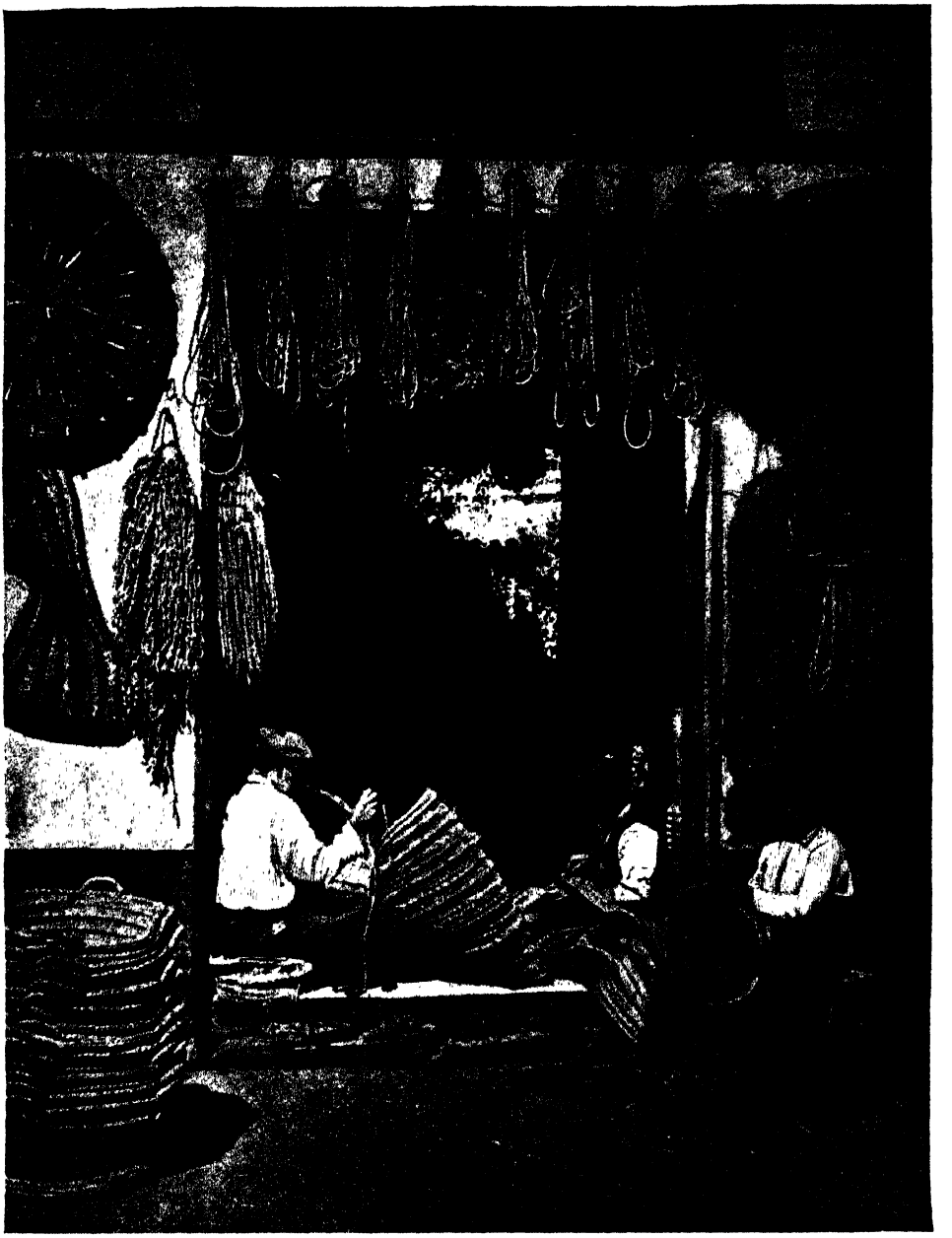
The people of Granada are harmoniously slow and solemn; they are a little dull. The place seems away from Spain; only second-class bull-fights are held once or twice a year. But a new movement stirs in these parts. New streets, with fine shops, even department stores, have arisen. The new Gran Via is now the chief thoroughfare. Fine buildings for banks and public institutions in the style of the Spanish Renaissance have appeared. The electric trams that crunch through the place are remembered afterwards as being the biggest cars, like huge pantechnicons, that the traveller has ever seen.

Other cities of this country may be left with smaller consideration. Málaga,



SCRAPING THE CORK BARK IN PREPARATION FOR MARKET

The beautiful woods of the evergreen cork tree, a species of oak, in the vicinity of San Roque, supply the best qualities of commercial cork. The thick bark is cut into slabs which are placed in boiling water or steamed to dissolve tannin and other substances and reduce bulk. After the scraping process, during which the cork loses considerably in weight, it is pressed flat for the market



WORKMEN OF SEVILLE MAKING BASKETS OF ESPARTO GRASS

The perennial, rush-like esparto grass flourishes in the sandy soil of northern Africa and southern Spain. As a crop it yields about ten tons per acre, is extremely tough and wiry, and used extensively in the manufacture of ropes, mats and baskets. A durable kind of paper is also made from it, and many thousand tons of the grass are annually imported into Great Britain for this purpose

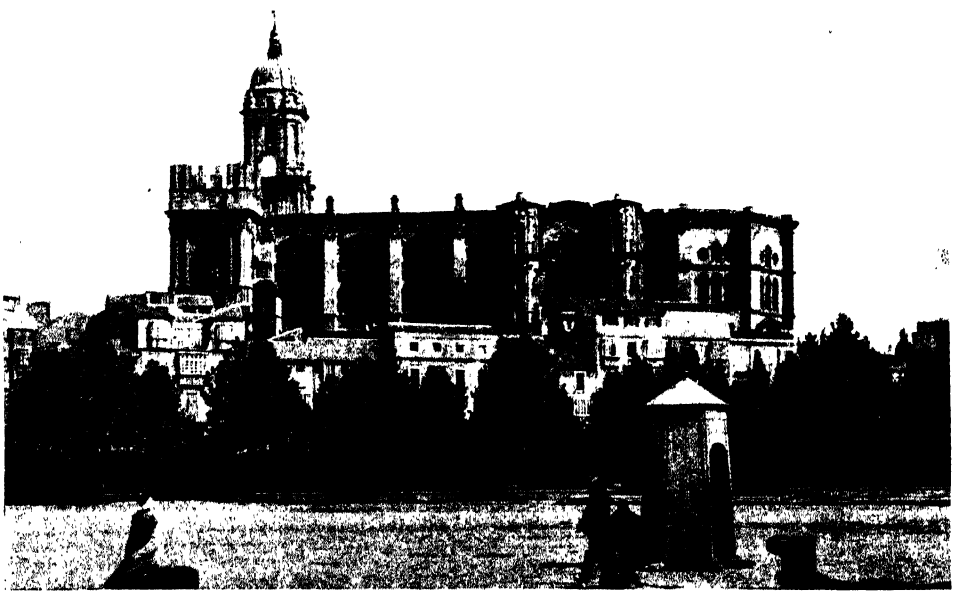
though fifth in point of size in all Spain, with a population of over 150,000, a busy port and scene of industry, with a plain at its back filled with the vine, the olive, the sugar-cane, and all the fruits, and young women, whom here we call Malagueñas (say Malagwayneas), of a dark and bewitching beauty, lacks the special interests of the scenes we have described. It is famous for a climate extraordinary in its sunny dryness. Almeria, farther eastward on the coast, grows fruit plentifully and exports it from a fine good harbour.

Córdova has the glory of its Cathedral, the amazing Mezquita of the Moors, a



FROM THE SPANISH SHORE: GIBRALTAR, SENTINEL OF THE MEDITERRANEAN

This photograph shows the south-western part of the rock with its harbour, from the Spanish side of Gibraltar Bay. The rock itself forms the end of a peninsula whose landward and northern end is an isthmus between the Mediterranean and the Bay of Gibraltar. It contains a belt of neutral territory between the Spanish and British lines



UNFINISHED CATHEDRAL OF MALAGA, AN ANDALUSIAN SEAPORT

Málaga's cathedral was begun in 1538. A lofty, spacious edifice of stylised Corinthian architecture with motley decorations, its chief ornaments are the magnificently carved choir-stalls, with the fifty-eight statues of saints with their emblems sculptured by Pedro de Mena. Its west front is surmounted by two towers, the one crowned with a dome, some 280 feet high, the other still unfinished

forest of pillars and arches in red and cream, but the rest need hinder none in haste for more than a single day. Cadiz is too often missed because it lies not on any traveller's route but needs a special journey there and back from Seville—with Jerez on the way—or by daily motor bus from Algeciras, but it is quite unique for Spain.

It might seem an incongruity to hold in the mind a thought of New York when main attention was possessed by any town of Spain, yet I think not unreasonably of New York when I call on Cadiz. It stands on a tongue of land, its small space is strictly limited by the surrounding water, and so it builds upward as it cannot widen out. Its streets are very straight and long, and they are bright and clean ; it possesses a certain smartness of its own ; it has good shops, pleasant squares, many remembrances, such as magnificent doors, of former riches, and, somewhat isolated, it gives the impression of a city that looks across the Atlantic from which it gained everything in the past, and hopes to gain in future times. From the sea Cadiz is a lovely sight, likened to a great alabaster pyramid, and Trafalgar is round the corner.

Colour and character abound in the smaller towns. They have commonly their central plaza where the children play and the elders lounge. This and the church are the main features. If they are old, they are generally fairly tended, and they are much cleaner than supposed. Some, like Tarifa of the Moors and Chiclana, between Algeciras and Cadiz, are most curious. But sanitary arrangements are often primitive, interiors dirty, accommodation for the poor and moderately poor is small, and the inmates are huddled together. There are country parts where detached items of Andalusian humanity live in huts made of earth and sticks and straw, just as natives over the water in Morocco live.

As to the people the men are mostly tall fellows, finely made, who have thriven well on a simple diet of bread, vegetables and wine, with little meat. The sun and air and freedom of spirit have done the rest. The women bear a famous grace and charm. Even poor children are often noticeable for their chubbiness, their strong legs and their well-fed and often well-clothed appearance. Native costumes are fast disappearing, but the men will always need the conspicuous wide-brimmed felt hats.

All the people in varying degree are romantics. Something of the East is in them. They are mystically inclined. Andalusian imagination darts through all the realms of impossibility. They are easily excited to anger, but it rapidly subsides. Friendly and sociable, they will assist you when they can.

The country fellow, meandering homewards with his ass at eventide, murmurs " Buenas noches ! " to you, stranger, as you pass by, and you feel no worse for that, nor set it against Andalusia—La Tierra de Maria Santisima, the Tarshish of far-distant times, to which Solomon sent ships for silver and gold and many nations exploited after him.

ANDALUSIA : GEOGRAPHICAL SUMMARY

Natural Divisions. The Andalusian plain, the valley of the Guadalquivir. Mountains to the north, Sierra Morena, to the south, Sierra Nevada. An African outpost in Europe.

Climate and Vegetation. Mediterranean climate and fruits, oranges, olives, etc. Hot, cloudless summers with an east wind, the Levante, and infrequent rainstorms. Winter rains and cool, but not frosty, temperatures ; westerly winds.

Rivers. Guadalquivir and its tributaries.

Industries. Farming, fruit growing, and mining. Irrigable and irrigated lowlands yield wheat, maize, and rye, and are capable of great development. Sugar, cotton and tobacco are important potential crops. The mountain rim is one of the two great mineral areas of Spain : copper (Rio Tinto), coal (Córdova), lead (Jaén), iron (Huelva). Vineyards, sherry from Jerez.

Natural Outlets. Routes naturally converge on the Atlantic coast, via Seville or Cadiz.

Outlook. A land of great possibilities, requiring a people stimulated to engage in world trade ; the organizing type of people are lacking.



F. Beale

ONE OF THE STRANGE SIGHTS THAT MEET THE GAZE OF THE TRAVELLER IN ANGOLA

When an Angola chief dies the elaborate ritual attending his interment affords interesting parallels to the burial customs of the ancient Egyptians. The body of the deceased is swathed in as many yards of cloth as can be afforded—if circumstances be prosperous the number may be two hundred. Then, for the use of the departed in the world of shadows, the grave is covered with his personal effects or as many odds and ends as possible—china, powder-tins, umbrellas, hats, bottles, and other items of "trade goods," all which are ceremonially "killed" before being placed in position

ANGOLA

Tropic Riches of Portuguese West Africa

by Colonel Statham, C.M.G., C.B.E.

Author of "Through Angola," etc.

PORTUGAL owes Angola, her largest African colony, to the inspiration of one of her greatest princes, Henry the Navigator, and the skill of her adventurous sailor, Diego Câo, who made a treaty with the King of the Congo and Angola in 1485. A record of this voyage inscribed on a rock has been discovered but lately in North Angola where it lay hidden in the forest for four hundred years. In these four centuries Portugal has held Angola despite numerous native rebellions and European wars, relinquishing her conquest to the Dutch for but ten years of the long occupation.

With the exception of a fragment of territory to the north of the river Congo called Cabinda, which is akin in climate and physical features to the Belgian Congo, Angola lies to the south of this river. It is bounded on the north and north-east by the Belgian Congo, on the east by Rhodesia, while its southern border marches with that of South-West Africa Protectorate; separated for nearly half the distance by a river, the Kubango, or Okavango, mighty but unnavigable, as I know to my cost, from a canoe voyage of over 500 miles. To the west is the Atlantic Ocean.

Amazing Natural Rampart

Within these boundaries lies a country nearly 455 square miles in area, four times the size of the British Isles, ranging between thirteen degrees of latitude from the fifth to the eighteenth degree south, and divided into fourteen districts with a population of but 20,000 Europeans and some four million negroes.

Like most of Africa, Angola is mainly a plateau rising by terraced hills to moderate altitudes of 1,500 to 2,000 feet in the north, more rapidly in the centre, and abruptly to 6,000 feet in the south, where the Shella range stands out sheer, and so crowned with crag and crest of bare rock that one stands amazed at this rampart of nature, if delighted with its beauty.

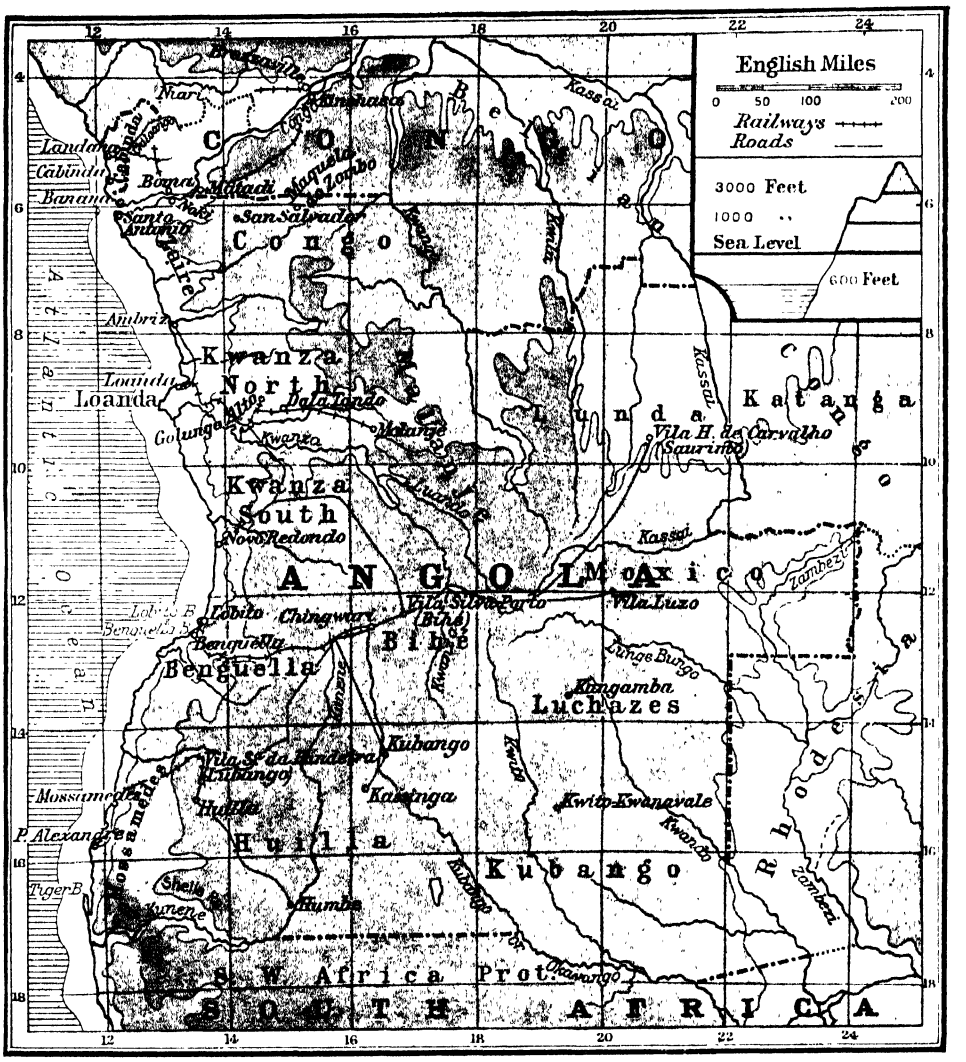
Climatic Contrasts of the Colony

The hills are near the sea except in the south, where a sandy desert forms an increasingly wide and arid coastal lowland, from north of Mossamedes to the southern border. From the crest of these terraced hills or mountain ramparts commences a plateau of open forest broken by hill or glade, river or stream, but stretching for hundreds of miles to the eastern border of Angola and beyond this across Africa.

This Angolan plateau includes the watershed between the Congo and Zambezi systems of rivers, others between the Congo and Kwanza, and the latter and the Kunene and Kubango, which while they may be termed lesser rivers in Africa are each not far from 1,000 miles long.

This plateau of 3,000 to 5,000 feet falls abruptly to the west, very gradually to the east, a configuration deciding the character and navigability of its rivers; the Kwanza and Kunene flowing rapidly westwards to the Atlantic, the Kubango, Lunge Bungo, and Kwando comparatively slowly to the east.

In the highlands of Central Angola the Kwanza, Kunene, and Kubango rise within a few miles of each other, a very large farm might hold their sources, yet the first two flow into the Atlantic, seven hundred miles apart, while the third is connected with the Zambezi, which



ANGOLA, PORTUGAL'S GREAT COLONY IN SOUTH-WEST AFRICA

enters the Indian Ocean. The coast-belt is narrow, alluvial and more fertile to the north, barren, sandy and wide to the south. Beyond it rises the plateau, better wooded in the lower slopes, grass covered in the higher uplands, with a soil that lies rich where the streams have fertilised the valleys, poor on the hillsides where the annual fires of the natives have burnt away nitrogen contents of plant life which should have enriched the soil, leaving their mineral ash alone.

The advent of the European is tending to arrest soil impoverishment, and while the numberless valleys of this well-watered colony are there to be used in the immediate present, grazing and culture as well as protection from fire will bring back its richness to the soil of the Angolan uplands.

Though wholly within the tropics, there are two factors which determine a subtropical climate in central and south Angola: the altitude of its plateau, and a cold Antarctic current which sweeps round its coast, cooling the sea till north of Benguella, bringing even cold morning mists and chilliness to sea-ports like Mossamedes, when at similar latitudes and seasons, on the opposite coast of Africa there is great heat.

Part of central and south Angola might be described from the point of view of climate if not geography as

subtropical rather than tropical, and a northerly extension of South Africa, rather than the southern limit of the West African coast, and this summary may be expanded to the statement that the climate is temperate to subtropical in parts of the southern coast and higher central and south plateaux, and subtropical to tropical in the central and northern coast lands and plateaux of lower altitude.

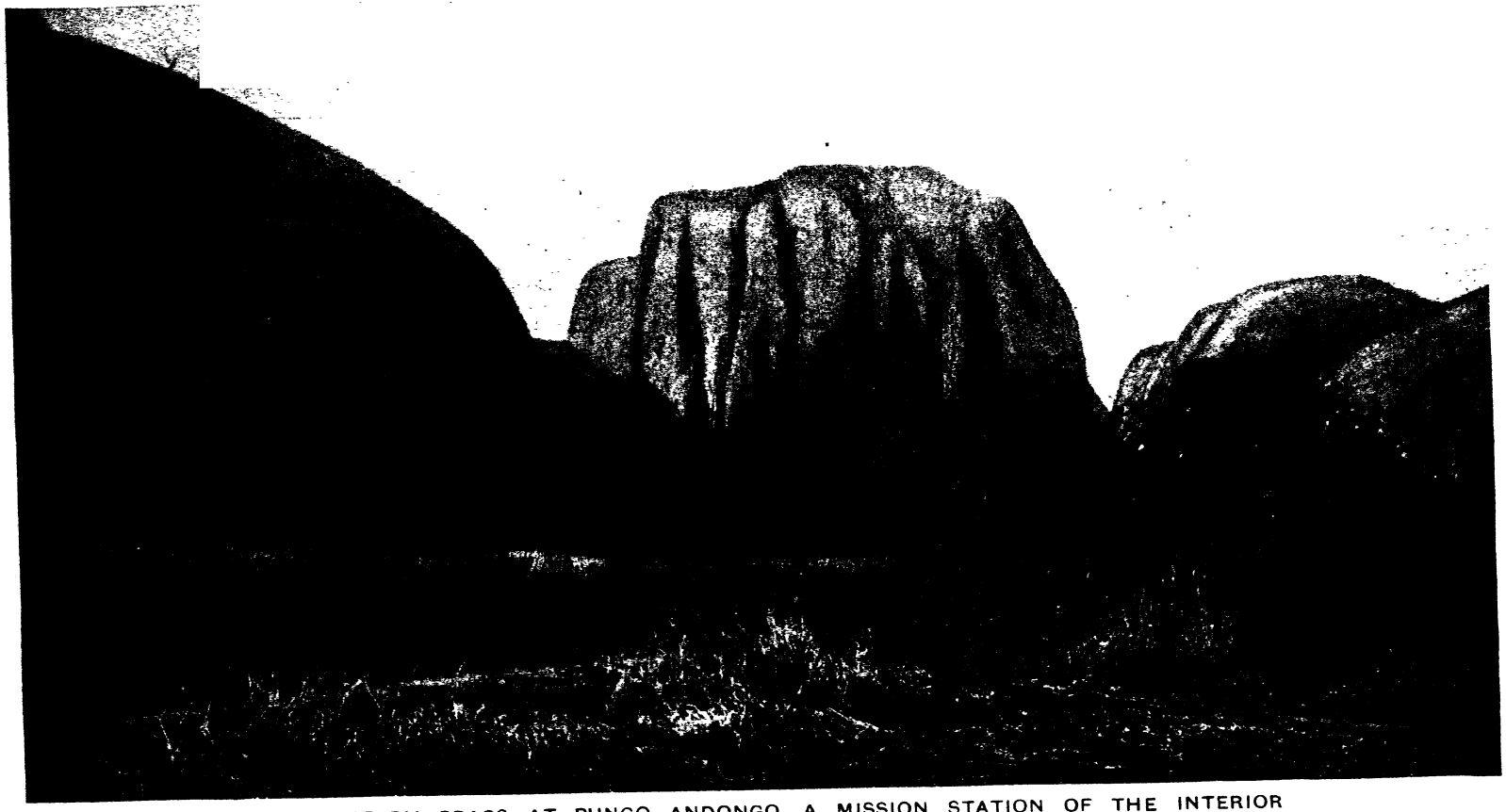
Important factors to the disadvantage of the climate are the sharp contrasts between the dry season, from April to October, and the hot rainy months of the rest of the year, and the still sharper differences between the temperature by day and night, which may vary 50° F.



F. Beale

SUSPENSION BRIDGE OF FOREST VINES OVER AN ANGOLA RIVER

When, in Angola, the natives encounter a stream either too deep to ford or too swift for one of their comparatively unstable dug-out canoes, they make an ingenious bridge out of a creeping plant called the forest vine. The structure is swung between two stout tree trunks, the treadway and supporting cables being bound together in the manner shown above



SEDIMENTARY CRAGS AT PUNGO ANDONGO, A MISSION STATION OF THE INTERIOR

Pungo Andongo or Ndongo is a small town and mission station about one hundred and eighty miles east by south of Loanda and some eight miles north of the Kwanza river, which flows across the southern part of Angola and eventually reaches the sea at a point thirty miles south of the capital. Sedimentary rocks are characteristic of the geological formation of the country and this is a fine example of the effects of "weathering" on this type of rock, the friable portions having completely disappeared, owing to erosion, leaving the harder core isolated

on the high plateau, in the dry, cold months, when I have often been forced to halt at midday by a temperature of nearly 90° F., and yet experienced frost the very same night.

In the warm, rainy season, and on the lower plateau and coast belt, the daily variations may not exceed 10° F. The mean annual temperature varies from 70° F. to 85° F. in the north coastland and low plateau, 65° F. to 80° F. in the central coastland and moderate elevations, and 55° F. to 80° F. on the highest uplands. A detailed record of the temperature and other facts relating to the climate are given in my work, "Through Angola."

The statement that the rainfall of most of the country is from 40 to 60 inches, about twice that of England, and of the south and some of the coast as much, or even less, will not convey to the English reader a true picture of its rainy season; for the Angolan rainfall is confined to less than half the year, between November and April, which, it is needless to say, constitutes the summer season south of the Equator.

Areas Unsuitable for White Labour

In these few months the rainfall is heavy, accompanied usually by thunder and lightning, and six inches may fall in a day. There are parts of Angola, however, such as the south coastal belt, where the rainfall is very small and in some places practically absent. Between the storms, which appear to come on more frequently in the afternoons, there will be bright sunshine.

Away from the neighbourhood of the coast the prevailing wind is an easterly one, and much of the rainfall of Angola is actually derived from the east coast, as the western sea breezes cooled by the cold Antarctic current cannot retain enough moisture to bring much rain. In the dry winter months, from April to October, the days are continuously cloudless. In a range of climate like this the European, and especially the southern European, can live in such parts of the country as the cooler central and southern highlands. The configuration of the coastal zone (except in the south where it is arid or desert) is one of lesser elevation, separating river valleys bordered by plains (often marshy). It includes the western portions of the districts of Zaire, Congo, North and South Kwanza and Northern Benguella, and is adapted for large schemes of agricultural enterprise, with irrigation, and for the cultivation of sugar, cotton, rice, oil palms, rubber, coffee and tropical fruits in the north, and cereals to the south. In this zone the white man must remain a director of labour and not a worker.

Uplands Favourable to Europeans

The coast zone of the Southern Benguella and Mossamedes districts is arid. The zone which succeeds that of the coast and comprises part of the interior of the districts just mentioned averages 2,500 feet in height. It is covered with forests of greater luxuriance and a soil where palms, coffee, and cocoa, and in that order from north to south do well. This area is suitable for small as well as large plantation schemes.

The third zone, that of grass uplands, still farther inland and of higher elevation than the first two, is suitable for stock raising, as well as cereal culture, as it is practically free of tsetse fly, and in the south and centre has little malaria. This region is suitable for European colonisation, and it is here that most of the European farmers live.

Fauna of the Forests

The forest zone of the far interior includes the large but little known districts of (from N. to S.) Lunda, Moxico, and Kubango.

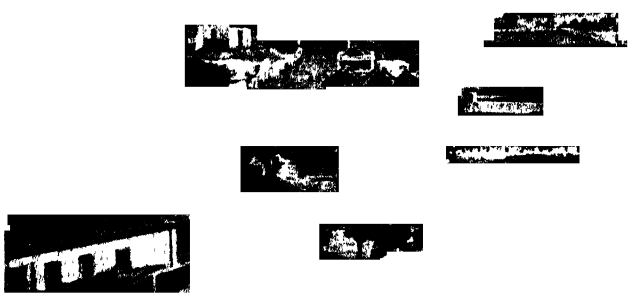
This plateau zone, 3,000 to 4,000 feet high, is covered with light open forest, except where it is dense along the river valleys and interspersed with grass land. The climate is tropical in the north, subtropical in the south, and the European here must also remain a director of labour and not a worker.

Within this zone are large areas like the valleys of the Upper Kubango, and its tributary streams where there are possibilities of ranching, agriculture (especially by irrigation) and plantations of tropical produce. The paucity of the native population (only a few hundred thousand in each of these immense districts), want of means of transport and the long distances to the coast are drawbacks, and if most of the area is free of tsetse fly, all of it is more or less malarious.

The second zone of better forests yields some timber of the richer equatorial woods like mahogany, ebony, etc., but in the zone of the far interior the forests are of little value, and towards the south the Berlinea, Burkea, and Mopane tree belts, which extend across Angola in that order from north to south, provide little good timber.

In these forests and grass plains there once roamed a magnificent fauna, which the rinderpest reduced and human persecution has diminished everywhere and driven from the grassy uplands where Europeans, especially Boers, have settled. Of the greater animals the elephant and hippopotamus are widely distributed, though becoming scarce. The equatorial type of buffalo (bush cow) is found in the north, and the Cape buffalo, rhinoceros and zebra to the south of Angola.

Of the larger antelope, the eland, kudu, roan, sitatunga, reed buck, duiker and oribi are widely distributed though more numerous perhaps in the south where alone the oryx, spring buck, hartebeeste and tsessebe are met with. The lechwe is confined to certain rivers in the centre and south and the newly discovered giant sable, possibly the finest of all African antelopes, is limited to a small area between the Kwanza and Luando rivers. The usual African carnivora are present and more numerous to the south.



OVERLOOKING LOANDA, ANGOLA'S SEAPORT CAPITAL

About two hundred miles south of the Congo estuary is the old town of Loanda, settled by the Portuguese about the year 1580. It has an export trade in coconuts, coffee and rubber, and factories for tobacco and sugar. An important railway from the interior has its terminus, and the governor-general of Angola his residence, in this town



HOW GROUND-NUTS ARE STORED AT AN ANGOLA VILLAGE

Known in England as the monkey-nut and in the United States as the pea-nut, the ground-nut is extensively cultivated in Angola, and stored in bulk on bare tree trunks as shown in the photograph. It needs a rich soil, and is sown about November, before the rainy season, and by April the nut becomes fit for eating. If the oil only is required the nut is left in the ground till August

The four zones of which we have spoken in dealing with the plants may be used when dealing with the general geological features of the country, for the lowlands of the coast are formed of alluvium and sand over cretaceous deposits. Inland to this coastal formation the primary rocks outcrop continuously, and what are called the richer forest and grass zones are also zones of such rock as gneiss, schist, quartzite and granite (the Swazi system of South African rocks). Beyond this, in what we have called the interior plateau, is the Kalahari formation of sand over sandstone, possibly the floor of a once great inland sea.

Mining is in the developmental stage. Copper has been located or worked in the Congo, Kwanza and Benguella districts, and is widespread in that of Mossamedes. Gold, iron and manganese are present in the Kwanza districts, and gold in the Kassinga mines in the Huilla district. The minerals which have been most successfully explored are the diamonds of the Kassai river, where it forms the north-east boundary of Angola. Diamonds were first found in the Belgian Congo near the river, later on the Angolan side, and many hundred thousand carats of stones, small, but of good water, have been recovered from agglomerate and alluvial detritus. Angola, however, is a land of many vast spaces and great possibilities, as yet undeveloped; the majority of its inhabitants are still engaged in the primary occupations of growing their food and this applies to many of the Europeans as well.

Fishing has become a European industry as it has always been a native one, and the Antarctic current has also helped Angola in this respect by bringing to its southern coast great numbers of South Sea fish; at Mossamedes vast quantities are caught, to be salted, dried and sent off to many parts of the colony—even to Portugal.

Farming and stock-raising by natives and Europeans have hopeful futures, the former in both the lowlands and uplands, while in the grassy highlands both Europeans and natives are raising good stock, the product of local cattle crossed with imported bulls. Companies have taken up large tracts of land and Angola has been referred to by its partisans as the African Argentine.

The natives, except labourers, domestic servants and carriers, are engaged on the soil; the Europeans, apart from the few hundred farmers, who are nearly all Portuguese, when not officials, are middle men, such as transport workers, agents and bankers, who deal with the produce of the country and its finance, and shopmen who provide the towns and country. Nearly all the other Europeans are officials, from the High Commissioner with his council, to the subordinates of the services of the army, navy, police, public works, health, customs, native affairs and transportation.

There are also a few hundred Boer farmers who live in the district of Huilla, the survivors of a famous trek which took place nearly half a century ago from South Africa.

A company with a large proportion of English directors and capital runs the Central (Benguella) Railway, others have taken up land and mining concessions, while American companies have vast concessions for oil and minerals.

There is one class of European in Angola that is not represented in other African colonies; this is the Portuguese convict, serving life or long sentences. These convicts have been sent from Portugal, where there is no death penalty, to Angola, and are placed on



FOLIAGE OF LOCUSTS COVERS THE SKELETON THAT WAS A TREE

Driven by stress of hunger from place to place myriads of these migratory pests, which much resemble large grasshoppers, devastate miles of country. The swarms, when they consist of mature insects which are able to fly, may be so great that they darken the sky and sometimes cover an area sixty miles long by twenty wide. Wherever they have settled a desert is left in their wake

manual work until they can be trusted on ticket-of-leave, and allowed to settle in the country.

To enable these twenty thousand Europeans and four million natives to move about the country there are three lines of railway. One in the north is a metre gauge line, starting from Loanda, the capital, and ending at Malanje in the uplands of the Kwanza district from where it is hoped to prolong it to the Belgian frontier.

The second and at present most important line of Angola starts at the harbour of Lobito Bay, and passing the old town of Benguella crosses the Benguella highlands to Chingwari 500 miles in the interior. This line, which was built to tap the wealth of the Katanga region of the Belgian Congo, is to be met at the Congo border by a Belgian line from Katanga. The Belgians, however, are building an alternative line through their own territory to the Congo river, and Rhodesia still carries and hopes to retain the Katanga copper traffic as long as she possibly can.



F. Beale

FIERCE TYPE OF THE ANGOLA FAUNA

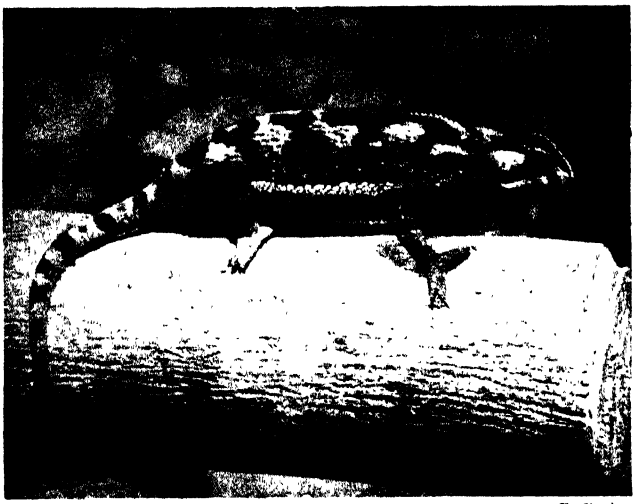
Angola hunters observe special seasons for the chase, and it is usual to insure good fortune by leaving the first kill at the grave of a chief. The wild-cat seen here is one of the fiercest of the Angola fauna

In the south there is a small gauge railway which runs for 100 miles from Mossamedes across the desert to Vila Sa. da Bandaira (Lubango), the capital of the Huilla district.

Connecting these railways with the principal townships are thousands of miles of motor roads, as good and perhaps more numerous than any other of the fifteen African colonies where I have travelled, while everywhere are the native tracks which serve for village inter-communication and the use of native porters, who still carry much of the merchandise of the country. The principal townships are connected by telegraph, but these are expensive to maintain owing to the constant breakdown of telegraph lines by wild animals and storms. Wireless installations are being erected at the main towns.

There is no river steam service except on the Portuguese portion of the Congo and the lower 100 miles of the Kwanza, as the other rivers are scarcely navigable. The coastal service is very limited. The bulk of Angolan shipments to

Europe are in mealies, coffee, copra, sugar, dried fruits, and wax. Mining is not sufficiently developed for the export of the colony's minerals. The imports are machinery of all kinds, railway materials, European provisions, wine and pedigree stock.



F Beale

COLOUR-CHANGING CHAMELEON

To accord with its surroundings and achieve practical invisibility, this insectivorous reptile has ability to change its colour. Neutral tints are usual, green, brown or black with cream or white markings on its sides

Official Loanda is placed on cliffs above the splendid harbour, the commercial town near the shore. There is the usual sixteenth century fort, church and palace, to remind one of the past, and the railway station and wireless that point to the present and future. Life is at long last stirring in this ancient African port, but its quays and warehouses are still sadly out of date. Benguella is a dead town, killed by its modern rival Lobito, with the railway terminus and its splendid harbour a dozen miles away; and Benguella Bay, which is unsheltered, is unused. But this old town with its wall-girt slave houses is interesting for its quaint air of bygone prosperity.

Mossamedes, the most southerly seaport, lies in a desert, and its pink, blue and yellow houses in a sea of white sand; but the cold sea current gives it a cool climate and the want of surface water largely prevents malaria. The population of these towns is but a few thousands—four or five in Benguella and Mossamedes, and perhaps four times this number in Loanda which is the seat of Government.

This is, of course, the story of the tropics and malaria, for the anopheles mosquito is at its deadly work over much of Angola, especially in the rainy season. There are minor pests as well, like the chigger flea, which burrows into the feet to breed there and cause ulcerated toes; while in the north the Congo floor maggot—the white grub of a fly—wanders from the crevices of hut floors to suck blood and crawl home bright red and swollen with its nocturnal meal.

Fortunately the dreaded tsetse fly, which carries sleeping sickness, is limited to parts of the Kwanza valley, for it has, I believe, been eliminated from round Benguella.

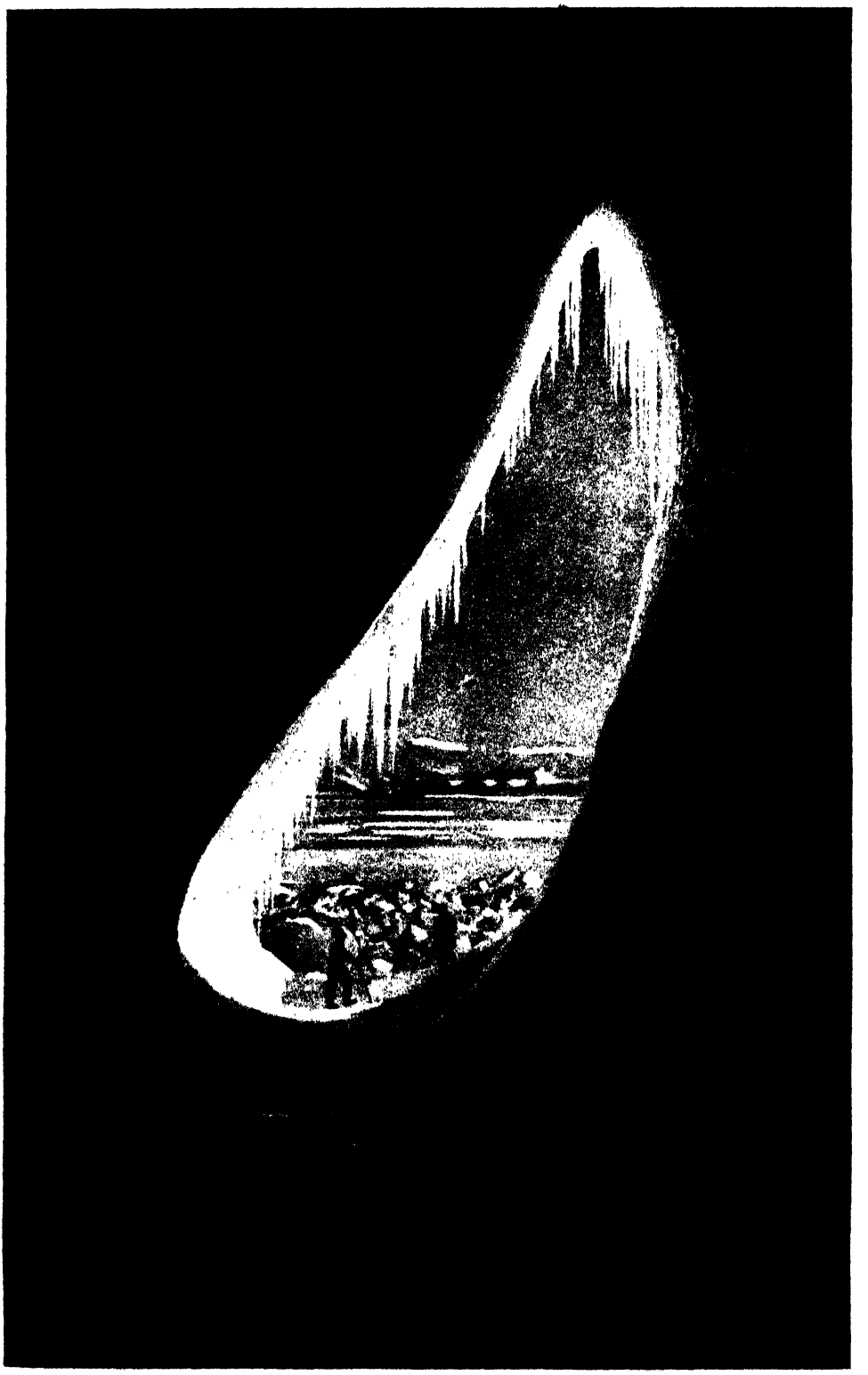
ANGOLA: GEOGRAPHICAL SUMMARY

Natural Divisions. Tropical, almost equatorial, section of the African plateau, with a terraced edge to the coast. Forested on the slopes, grassland on the upland. Coastal lowland has off-shore trade winds, and the cool (Benguella or Antarctic) current flowing northwards.

Climate. Dry season, April to October, the cool season. Heavy summer rains, usually by mid-afternoon downpours, in the hot season, November to March.

Industries. Exploitation of vegetation products by native labour under European supervision is in its infancy. Possible crops are sugar, cotton, rubber, oil palms, etc., on the coast. The plateau suitable for European settlement will support cattle rearing and yield cereals. Cf. Rhodesia.

Communications. Development and railway building react. The Central (Benguella or Lobito Bay) Railway, planned to meet the Cape to Cairo system in the Katanga district of Belgian Congo.

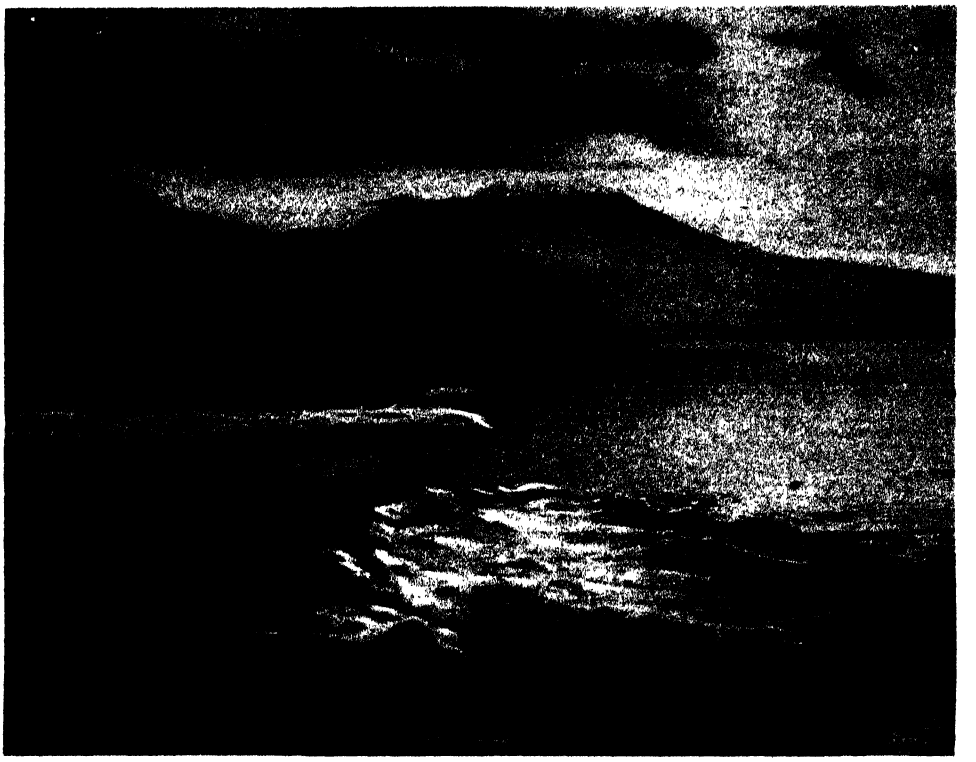


ANTARCTICA. *A fairy frame for Captain Scott's ship the Terra Nova—the mouth of an iceberg grotto fringed with icicles in summer*

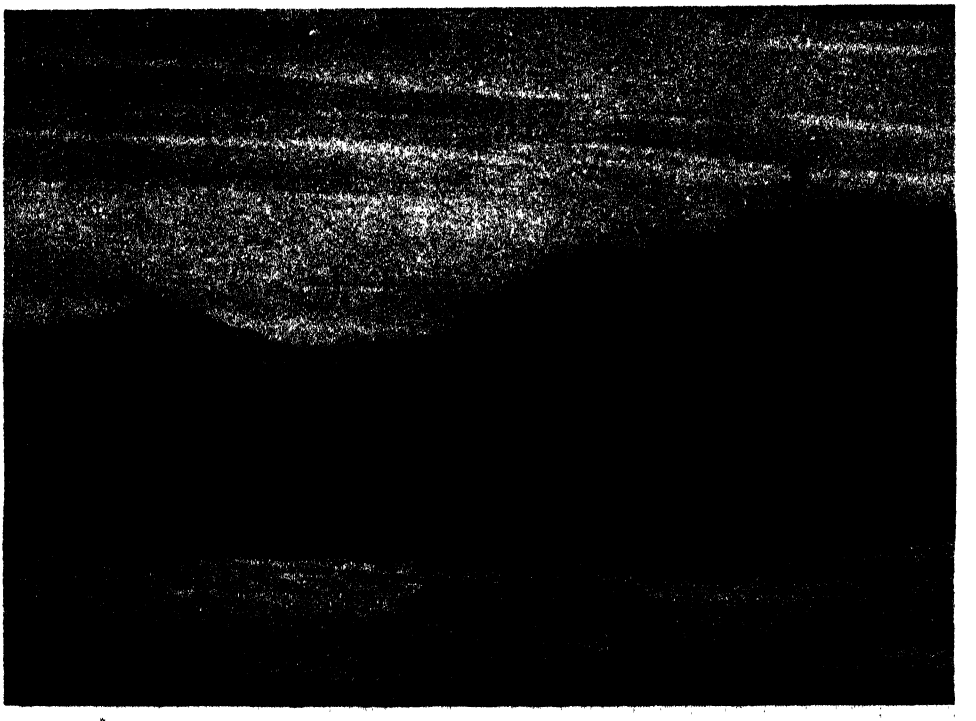
Photographs on pages 181 to 188 by Herbert G. Ponting



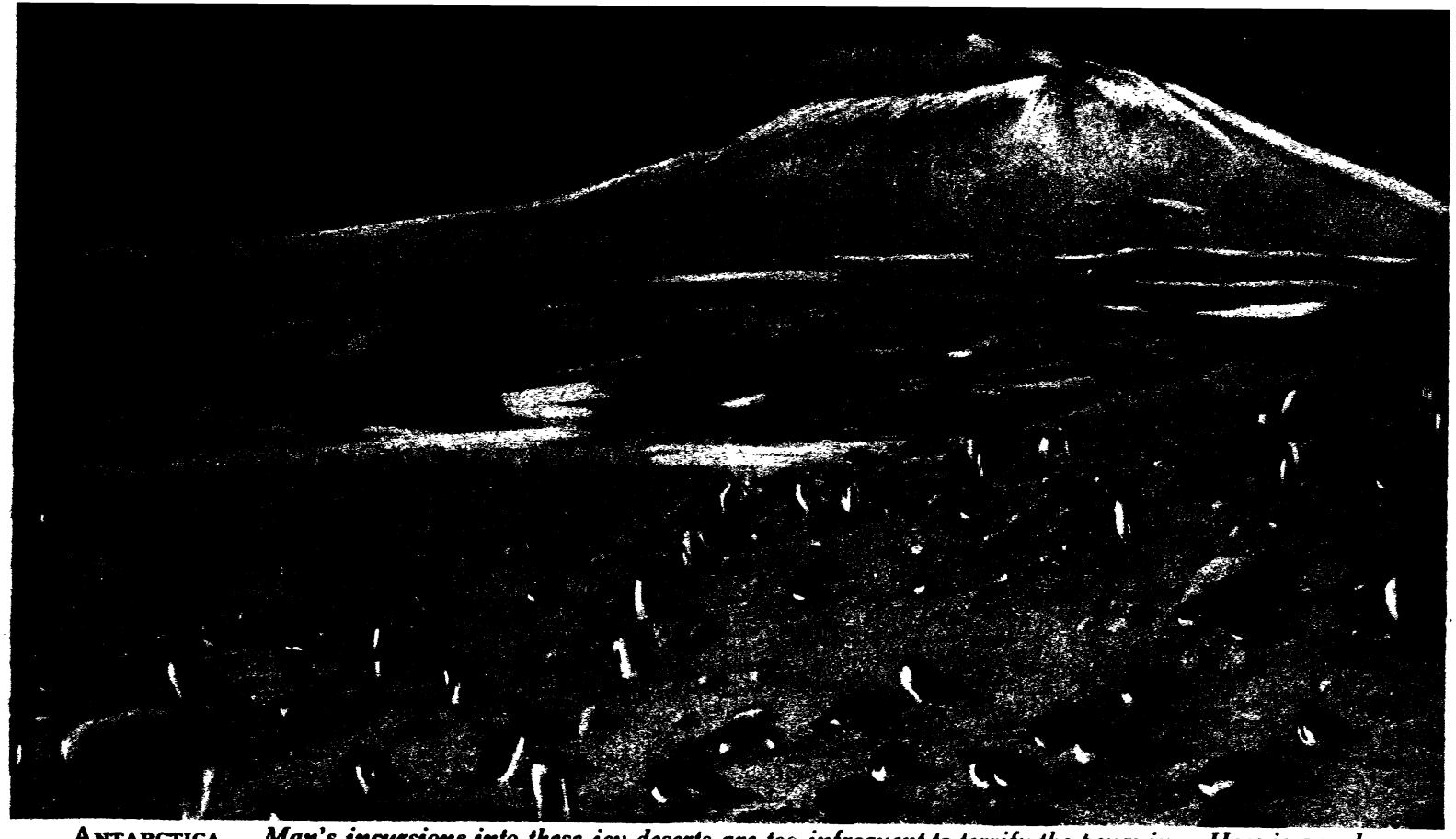
ANTARCTICA. *Hollowed into curious ridges by much blizzard weathering, this peculiar berg was seen in South Bay by the last Scott expedition. In the distance rises the snowy, smoke-tipped cone of Mount Erebus*



ANTARCTICA. *Rising from glacial moraines Erebus stands on the coast* 900 *miles from the Pole. In the foreground is Cape Bird*



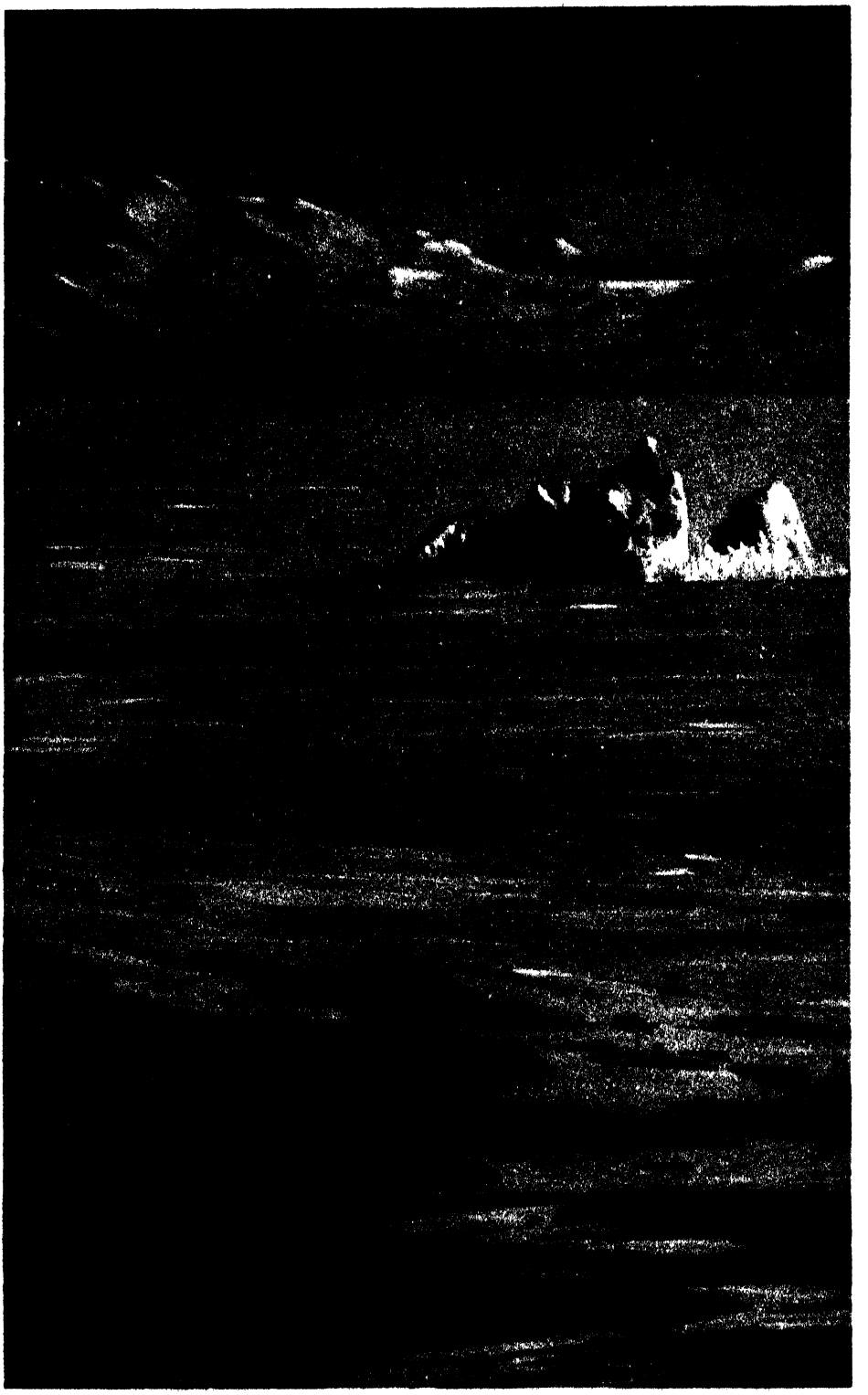
ANTARCTICA. 80 *miles from Erebus, Mount Discovery (left) marks the south of the Albert Range. Vince Cross is on the right*



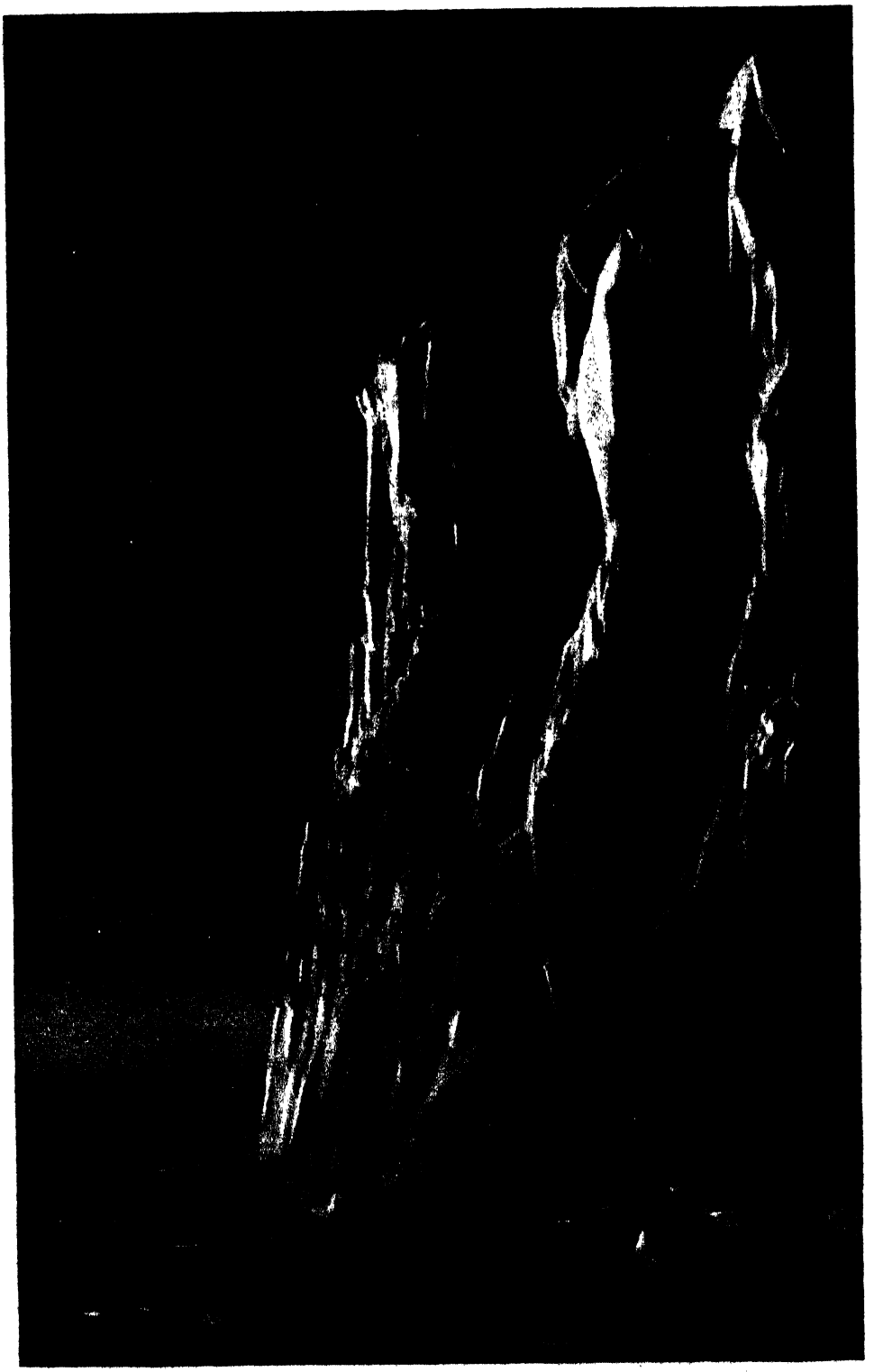
ANTARCTICA. *Man's incursions into these icy deserts are too infrequent to terrify the penguin. Here is a rookery of the fascinating birds on the slope of Cape Royds; Mount Erebus, landmark of explorers, rises beyond*



ANTARCTICA. *Pictorial effects of the most wonderful beauty are found in the Far South. The penguins basking in the summer sun here give the breath of life to a snowy scene of deathly stillness and frozen grandeur*



ANTARCTICA. *Viewed from the explorer's depot on Ross Island the ghostly peaks of Victoria Land, 70 miles away, seem poised on air*



ANTARCTICA. *At the foot of the beetling "snout" of Barne Glacier one of Scott's dog teams and its driver pause for a brief rest*



ANTARCTICA. *A Weddell seal on the ice off Cape Evans prepares to take the sea, no longer there to remain the awkward, clumsy creature it is on land, but a swift and graceful hunter of the frigid southern waters*

ANTARCTIC

The Vast Plateau of the Frozen South

by Frank Debenham

Member of the Scientific Staff of Captain Scott's Last Expedition

Illustrated by 19 Photographs taken by Mr. Herbert G. Ponting

THE continent of Antarctica, like the planet Neptune, was prophesied before it was discovered, but unlike the planet which swam into the ken of the astronomers' telescopes, the continent vanished under the search of the geographers.

On the maps of the world of the fifteenth and sixteenth centuries there appears a great land in the south covering all that was unknown at the time and usually designated Terra Australis Incognita. The argument was in a medieval sense a mathematical one, the cosmographers being alarmed at the tapering off of the continents of South America, Africa and Eastern Asia, and considering that nothing but a vast excrescence in the southern ocean could preserve the equilibrium of the world. So the horrid vacuum on the map was filled by a continent whose outline was delineated with a mock precision and whose features were even named in some detail.

Quest of a Southern Continent

But the great continent began to vanish. Abel Tasman in 1642 lopped off a great section of it by sailing round Australia, leaving, as he himself thought, his New Zealand as a promontory of a land filling the South Pacific. The belief was still firmly held 120 years later, when Alexander Dalrymple, a traveller and skilled hydrographer, proved in print to the satisfaction of most people that "the space unknown from the Tropics to 50° S. MUST be nearly all land."

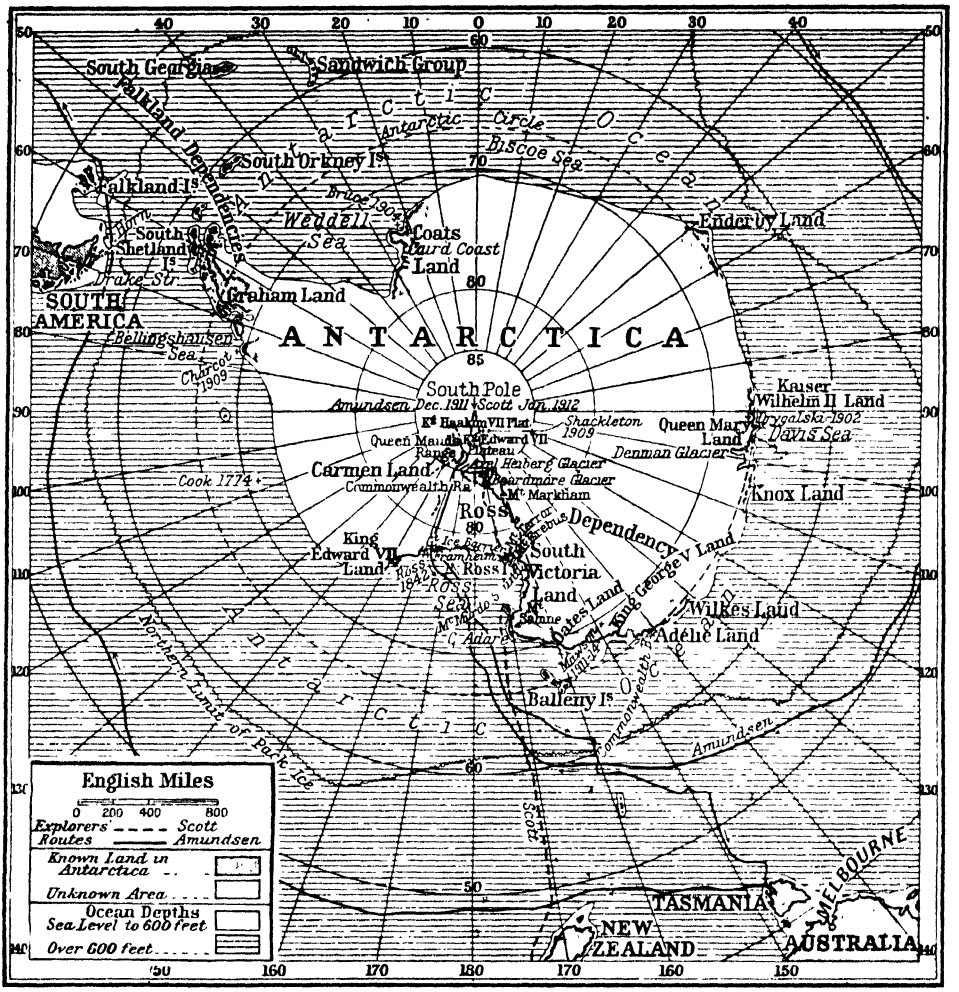
This was prophecy with a vengeance, yet ten years later the whole continent had been all but swept off the map by the circumnavigation of the Antarctic regions by Captain James Cook. So the "continent-mongers," as Joseph Banks, Cook's friend and fellow-traveller, called them, were put to confusion, and the first Antarctic explorer had good reason for summing up his results with the words: "A final end had been put to the searching after a Southern Continent, for nearly two centuries a favourite theory among the geographers of all ages."

What the Term Antarctica Connotes

With characteristic North-country caution he admits the possibility of extensive land within the Antarctic Circle, and writes: "If anyone should have resolution and perseverance to clear up this point by proceeding further than I have done, I shall not envy him the honour of the discovery, but I will be bold to say that the world will not be benefited by it."

Nearly fifty years later a somewhat similar conclusion was reached by Admiral Bellingshausen, a Russian commander, who repeated and improved upon Cook's circumnavigation of the hidden continent. Great and determined navigators as they were, both had merely discovered some small groups of islands and had missed a continent well-nigh as large as Europe and Australia put together. It was not until 1841 that really continuous land had been seen by British, French, and American expeditions, and the elusive continent had at last come on the maps to stay.

At this point we may consider the limits of the Antarctic regions, or Antarctica, a term connoting climatic



THE GREAT WHITE SPACES OF THE FROZEN SOUTH

conditions almost as much as actual territory.

As a rough delimitation we may take the 60th parallel of south latitude as its boundary, exceeding it only in the South Atlantic where we extend it somewhat farther north to include the island of South Georgia.

A less artificial boundary would be the northern limit of pack-ice, which, though varying from year to year, will be found on examination of ice-charts to have a mean position of 55° S. all round the world, but with projections north of that latitude in places and embayments south of it. A line representing a mean annual temperature of 32° F. would almost coincide with the limits of drifting pack-ice. Such are the limits of Antarctica, ill-defined perhaps and including almost one-tenth of the earth's surface, yet a region so unique in its climate that it may well be known by a single name. For the sake of convenience, however, we shall do well to divide it up in some way for the purpose of reference.

Since the region, on a Polar map at all events, is approximately circular and concentric round the Pole, the terms "north" and "south" lose their meaning, and "east" and "west" are not much better. We may, therefore, divide it into sectors corresponding to the three continents nearest to it, without defining too rigorously the exact boundary between American, Australian and African sectors.

For the casual reader this is no doubt the most convenient method, but it has also been proposed to divide it into quadrants of 90°, for which the following names have been suggested:

0°	– 90° W.	Weddell Quadrant.
90° W.	– 180°	Ross Quadrant.
180°	– 90° E.	Victoria or Australian Quadrant.
90° E.	– 0°	Enderby Quadrant.

A glance at the map shows that the region within the prescribed boundaries may be roughly described as a belt of ocean surrounding a central mass of land, but even the map shows that the distinction between land and sea is a vague one on account of the masses of semi-permanent ice which are attached to the land.

The sea itself is the most open of all the oceans, there being no obstructions, except a few groups of small islands, to the steady westerly drift of wind and water round the whole 12,000 miles along the 60th parallel, a fact which is of unusual significance.

Nearer to the main land mass we find a few groups of islands of which the best known are those in the American sector. If these are looked at on a bathymetrical chart, they are recognized as forming part of a festoon running eastward from the "tail" of South America. It includes, as far as Antarctica is concerned, the large occupied island of South Georgia, which is politically attached to the Falklands, and the little-known volcanic group of the South Sandwich Islands.

The ridge then curves back to the westward along the 60th parallel and appears above the surface as the South Orkneys and South Shetlands, and thence spreads out as a whole series of archipelagoes on either side of Graham Land. It should be noted that although many of these islands are volcanic they are not, with the possible exception of the Sandwich Group, true oceanic islands; that is to say, they have a real generic connexion with the neighbouring continents. In the Australian sector



FAMILY LIFE IN THE FARTHEST SOUTH

There are no birds more interesting and amusing than the Adélie and Emperor penguins which are the commonest form of animal life in Antarctica. Strongly armed with powerful flippers they jealously guard their brood against all foes (chief of which, the skua gull, is seen in page 193) at nesting time. The chicks are silvery grey in colour with darker heads and their feathers are downy

we have another string of islands, all volcanic in this case, running south from the Balleny Islands down the coast of South Victoria Land and ending in Ross Island in latitude 77° 30′. Except for the last named, these are all much smaller than those of the South Atlantic and as compared with them are comparatively recent.

Loneliest Land on Earth

Coming now to the continent itself, we notice at once how isolated it is from all its peers, being seven hundred miles from South America, fifteen hundred miles from New Zealand, and more from Australia, and over two thousand miles from Africa. These figures make a more striking appeal to the imagination when it is realized that even the island continent of Australia, usually regarded as isolated, is separated by a salt water barrier of very little more than one hundred miles from the most easterly of the islands of Malaysia.

Our knowledge of the outlines of the continent is somewhat limited, but in a broad sense we may describe it as pear-shaped, with the stalk pointing towards South America. We must subtract a great bite from the pear in the South Atlantic for the Weddell Sea and another south of New Zealand for Ross Sea. We may go farther and suspect bites of some magnitude about the meridians of 70° E. and 100° W., but these are nothing more than suspicions.

Exploration of the Coastline

We are left with a continent whose shape is not unlike that of South America, as seen in a mirror, but we must guard against carrying the analogy too far in detail.

Admitting for the moment the above suspicions and ignoring all but the major irregularities of outline, we have a continental coastline of some 12,000 miles in extent, of which we may say that about 3,000 miles has been reasonably explored, about 4,000 miles is inferred from evidence such as soundings, etc., and the remainder is unknown.

The chief gap is to the south of the Pacific, between Graham Land and Ross Sea, where for nearly 2,000 miles we know nothing of where ice ends and land begins, where every attempt to penetrate to the land has met with failure, and where, for the central portion, the record of " Farthest South " is still held by Captain Cook, who reached 72° S. in 1774, a record unbeaten for just 150 years.

In the African sector there is another gap, between Coats Land and Enderby Land, again a matter of some 2,000 miles, and beyond it another gap of 1,000 miles to Queen Mary Land.

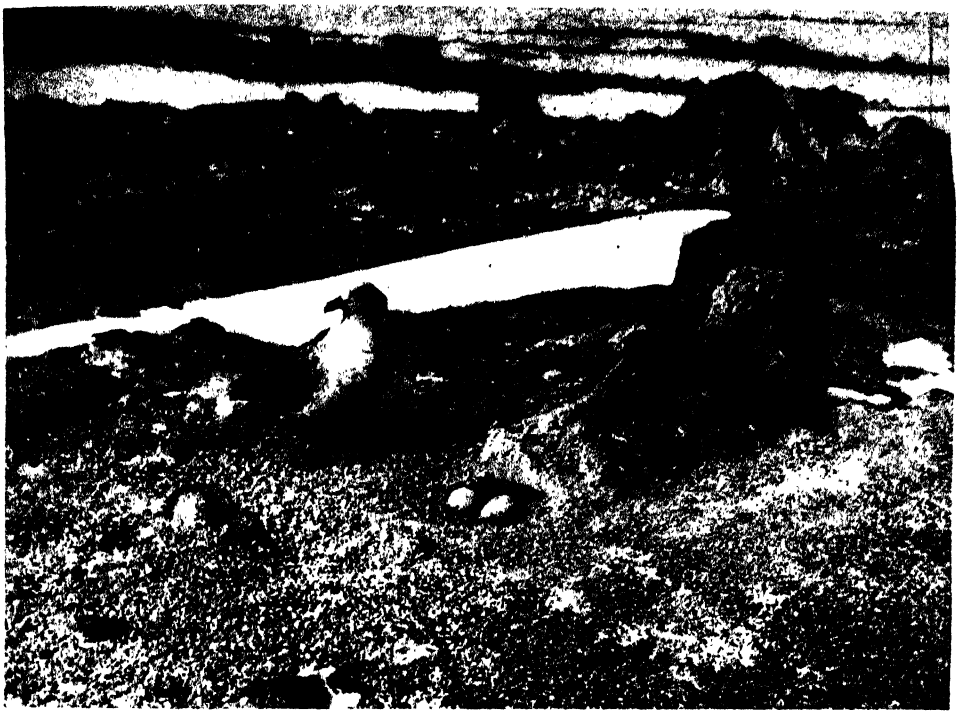
However, if it be a reproach that we are still so ill-informed about the coastline, we can at least say we have penetrated to the heart of the continent, to the South Pole itself, and from that bleak point of vantage we may describe what we know and guess about its relief and general appearance.

The Great Ice Barrier

We should find ourselves on a snow-covered, rolling plain, out of the sight of land in the ordinary sense yet 9,000 feet above sea-level. Looking straight towards New Zealand, we should see, were we gifted with ability to see round the curve of the earth, the Polar plateau extending for some 300 miles and ending precipitately in a giant escarpment, not sheer, but of steep enough gradient, reaching sea-level in less than thirty miles, whence the line of sight would traverse 400 miles of floating permanent ice, the Great Ice (or Ross) Barrier, till it reached the Ross Sea.

Shifting the point of view towards Tasmania, however, we should see the same plateau, coming down occasionally as low as 6,000 feet, extending for no less than 1,400 miles till it ended, again somewhat steeply, at the coastline of Adélie Land.

Thus far with certainty; but should we turn towards the centre line of the Pacific, we know that the plateau continues for at least 200 miles and



HAWK-BILLED ENEMY OF THE PENGUIN: SKUA GULL WITH ITS EGGS

Unlike the penguins on which they prey, the skua gulls have few virtues to commend them: they are vulturous, callous and greedy; they may be seen sitting in a circle round a wounded penguin, and when the penguin brood is hatching they sit among the nests and wait for a chance to snatch a chick. Sharp bills and claws are their deadly weapons; but they have no real courage



SEA LEOPARD THAT HAS FALLEN PREY TO A HUNTER

Of the various types of seal that are found in the regions round the southern Pole, the sea leopard is quite the rarest, though more plentiful farther north. Unlike the Weddell seal it is very active, and this, combined with its scarcity, renders it of little commercial value for blubber or fur. Notice its slim proportions and the dapplings that make its name not inappropriate



WEDDELL SEAL MOTHERS HER CALF AMID THE ETERNAL SNOWS

Very different in appearance from the graceful sea leopard (see page 193) are the common Weddell seals. They congregate in fair numbers in the ice locked bays, but are not numerous enough to compete commercially with the sea elephants which keep to the north of the ice pack and are killed for the oil they yield, while neither can compare with the whale in whose pursuit a whole industry is engaged. This photograph shows a "calf" and its mother. Sluggish and unafraid, they become greatly flustered if disturbed or attacked.

comes to an edge beyond which there is probably lower land but of what extent only the eye of faith can perceive. For the rest of the circle we should be more doubtful still, but remembering that every part of the coastline approached so far has exhibited high ice-covered land, we may expect that the plateau continues for at least a very long way if not to the coastline itself.

Of course, there must be drainage systems for the universal ice-sheet, and there may even be areas of internal drainage, but we know nothing of either, and, until we do, the safest inference is that the greater part of the continent consists of ice-covered plateau, of incredible monotony and unique extent.

Highest Continent of the Globe

We can but guess at its average height, but if we place it at 3,000 feet we shall feel within the mark; in a word, we have the highest continent of the globe, although none of its mountains yet discovered exceeds 15,000 feet. Moreover, in our bird's eye view we should see little that betokened land except along the Ross Sea escarpment where there are slopes too steep to hold snow and ice and a few arid patches where evaporation actually exceeds precipitation. Of the 6,000,000 square miles of continent, a fair estimate of its extent, we should probably see less than 6,000 square miles of veritable bare land.

We have spoken of the coastline, but for this strange land we have to find a new definition of that term, much of the actual junction of sea with land being hidden by permanent ice-sheets, from 100 to over 1,000 feet in thickness. These sheets are classed technically as "shelf-ice," a name less picturesque than the original one of "barrier" ice. The "barriers" are the most distinctive ice features of the region and deserve description, the best known being that in Ross Sea.

When in 1841 Sir James Clark Ross sailed south to 77° in an open sea he dreamed of sailing to the Pole, until he came upon a most effectual barrier in the form of a sheer cliff of ice as high out of water as his ship's masts. There was no way round, and, as we now know, its seaward face extends right across the Ross Sea from land to land, a distance of some 500 miles, its edge averaging 70 feet or so in height. We know, too, that it extends southwards as a featureless plain for over 400 miles with a mean height of 170 feet above sea-level, afloat for the most part.

Sheet of Ice the Size of France

In short, we have here a sheet of ice of about the size of France, moving northward at the mean rate of about half a mile a year, but breaking off at the free edge to form each year its crop of icebergs. The maximum change of position of this edge in seventy years was but twenty-five miles and the mean change a recession of only about eight miles, so that we may with some reason refer to it as part of the continent, especially since in 1911 Captain Amundsen landed and lived on it for over a year.

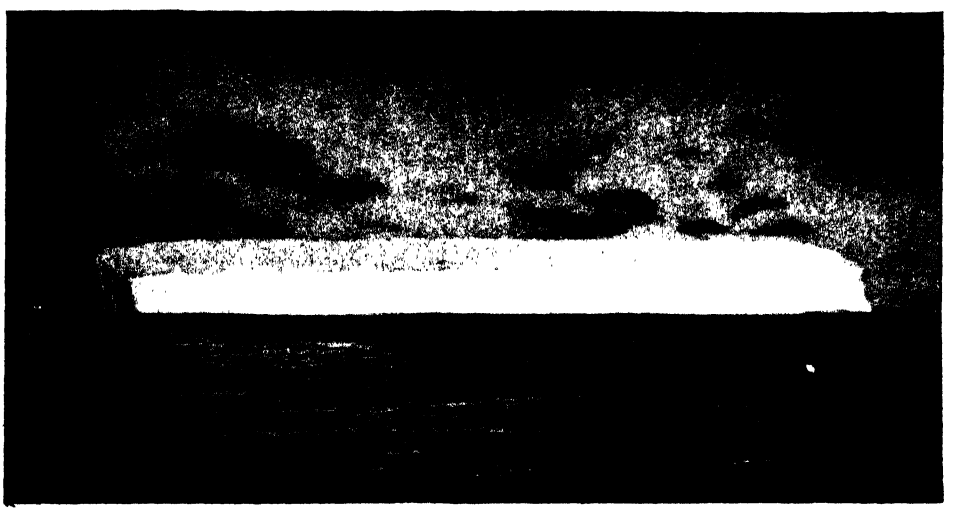
Similar, though smaller, "barriers" have been discovered in the Weddell Sea and other parts of the coast where the shape of the coastline has allowed the plateau ice to push out to sea without being broken off and there form a framework for the snowfall of centuries to build up a thick sheet of ice, and fringes of these, breaking off at the front edge each spring and summer, give birth to the famous "barrier bergs" of the southern seas.

Icebergs Thirty Miles Long

The Antarctic icebergs are, when newly calved, always flat-topped and visibly stratified and compared to the Arctic bergs are giants indeed. Rarely above 150 feet high—although it must be confessed there are exaggerated reports of some 400, 600, and even 1,000 feet high—they may be of enormous extent, authentic instances of bergs as much as 30 miles in length being well known. Such gigantic masses must have a long life even in warmer waters, and with such dimensions in one's mind

it is easier to credit their appearance in low latitudes, quite a number having reached the vicinity of South Africa, a latitude corresponding roughly with Madeira in the Northern Hemisphere, and only some ten degrees outside the tropics.

The " barriers," then, are, to some extent, a hybrid between land and sea, and they are reinforced each winter by sea-ice which freezes to an average thickness of five feet wherever the water is calm enough to allow it. This ice breaks up in the spring and summer and drifts away from the land to form the belt of pack-ice which almost permanently surrounds the continent, being succeeded by a fresh season's supply before the last has all disappeared.



OF ILL OMEN TO THE MARINER: A FLOATING ISLE OF ANTARCTICA

The Terra Nova, the famous ship of Captain Scott's tragic last expedition, had to push its way homeward for many miles before it was clear of the danger of being crushed by icebergs. The appearance of this mountainous mass, thrown off by the Great Ice Barrier, with its level surface, was but one of countless awesome incidents of a voyage of discovery whose fame is immortal

To the artist these two features, the bergs and the pack-ice, are inspiring and picturesque; to the man of business they represent simply a barrier and hindrance to the wealth of a virgin continent; to the student of geography they are symbols of a climatic condition unknown elsewhere in the world, not paralleled even in the Arctic, the climate of an Ice Age.

As might be expected from the symmetrical shape and axial position of Antarctica, the climate is comparatively simple and zonal, however obscure its ultimate causes may be. Without going into technicalities we may say that the main movement of the surface air is outwards from a centre. That centre appears to be not exactly at the geographical pole but probably somewhat to the South American side of it, judging by the evidence of wind direction at the South Pole itself.

From this centre the winds sweep outward and northward with an easterly component due to the rotation of the earth, so that when away from the disturbing influence of escarpments the prevalent wind is normally from the south-east and east. There are, however, many local causes of deflection or of intensification of these winds. The edge of the plateau is one such, and a more important one is the rapid change of temperature, or high temperature-gradient, anywhere near the sea.

With such temperature-gradients and the added factor of many winter months of radiation without any insolation or receipt of sun heat we may expect violent winds, and they are, indeed, the rule anywhere near the mainland itself. The windiest place in the world as so far observed is in Adélie Land, where the mean velocity of the wind for the



SEAL EMERGING FROM A PROLONGED JOURNEY BENEATH THE ICE

In winter the sea freezes round the coasts where it is calm enough, but the ice is rarely more than five feet in thickness, and the motion of the tides causes cracks in it. Holes along these cracks are kept clear by the seals, which live on fish and must have access to the water. A seal is here seen emerging from a hole off Razorback Island



WESTERNMOST END OF THE BARRIER OF SOLID ICE THAT GUARDS THE SOUTH

Ross Island, which towers to Mount Erebus in the centre, and on whose landward shore were the winter quarters of several expeditions, faces on the east the 500 mile expanse of Ross Sea; and against Cape Crozier, its easternmost point, abuts the Great Ice Barrier. These barriers are floating shelves of ice and occur wherever the conformation of the coast allows the plateau and glacier ice to push out to sea unbroken; the Ross Barrier is far the largest, being about 160,000 square miles in extent and 170 feet above sea-level. The edge of it visible here averages about 70 feet in height

whole year is about fifty miles an hour, and the force of individual gusts reaches far beyond 100 miles per hour. Indeed, the only station yet occupied which has not earned for itself a boisterous reputation for wind is that on the Great Ice Barrier away from the land where Amundsen experienced very few high winds throughout his stay.

Beyond the continent itself the winds become more easterly still, so that we find the drift of the pack-ice is in general to the westward. This dominance of easterly weather beyond 60° S. was unsuspected by the earlier voyagers, who invariably sailed from west to east round the continent and were much disconcerted at losing the westerlies when they got far to the south. The zone at which the south-easterlies and the westerlies meet is a variable one, but is usually about 65° S. Wherever it may be at the time, it is generally a gathering ground for icebergs and pack-ice and fogs, varied by occasional very heavy weather when the westerlies happen to be predominant.

South Polar Temperatures Compared

As may be imagined, the temperatures to be met with in the Antarctic are of supreme interest. The isotherms naturally are concentric to the coastline, and the isotherm for 32° F. for the year is a little north of the 60th parallel. The fall in temperature is rapid as one approaches the continent itself, and at 70° S. the mean annual temperature is 7° F., while at 79° S., at sea-level but on the Great Ice Barrier, it is −15° F.

More illuminating are the mean monthly temperatures for the warmest and coldest months, and these are given for three stations in the Australian sector in the following table:

	Warmest month	Coldest month
Cape Adare, Lat. 71½° S.	32° F.	-14° F.
McMurdo Sound, Lat. 77½° S.	25° F.	-14° F.
Framheim, Lat. 78½° S. on Gt. Ice Barrier	20° F.	-48° F.
Lat. 78° N. (for comparison) ..	36° F.	-24° F.

The comparison between north and south Polar temperatures may be put in a more convincing way as follows, for the midsummer months:

Lat. 88° S. December,	17° F.	Jan. 7° F.
Lat. 88° N. June,	28° F.	July, 31° F.
Difference	11° F.	24° F.

So much for statistical description. Less technically we may say that temperatures in Antarctica are, on the whole, far lower than for similar latitudes in the north, though there is little to choose between them in the matter of minimum temperatures recorded.

Where Rain is Unknown

The minimum recorded for the farthest south station is −76° F., a figure exceeded in parts of Siberia, but, on the other hand, the temperature never rises above freezing-point over the whole continent except the part of Graham Land which projects beyond the Antarctic Circle.

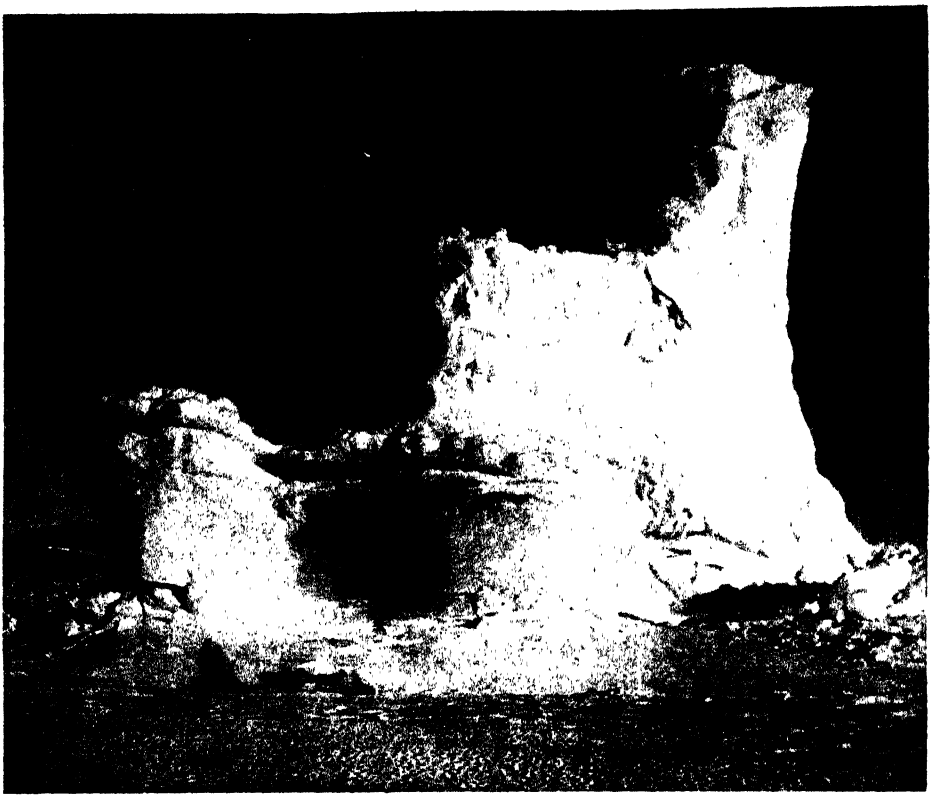
On this account rain is unknown, and the only form of precipitation is snow or rime. How great this precipitation is at any one place it is difficult to determine, but it is safe to say that anywhere on the land away from the seaboard it is comparatively small, amounting to little more than an equivalent of a few inches of rain in the year, the figure increasing as lower latitudes are reached.

Although the air temperature of 32° F. is never reached for the greater part of the continent, the amount of sun heat received during summer is great, and, consequently, where there are rocks to absorb it and pass it on to the surrounding ice the summer thaw is a very definite process, its effects being observed even as far south as 85°.

Life Adapted to Perpetual Cold

The climate of the mainland may therefore be summed up as arid as far as precipitation is concerned, very severe as to temperature and almost universally windy.

With such a climate one may well wonder how any fauna and flora is able to exist, and indeed, as far as the mainland is concerned, it is all but



WEIRDLY WEATHERED MASS OF A SOUTHERN ICEBERG

For transport, the explorers of the frozen south must largely rely on sledges and dog-teams ; here is a party silhouetted against the bulk of a huge berg. These icebergs of the Antarctic are more usually low, flat and of vast extent, like that in page 196 ; but some, such as the one above, have fantastic shapes and rival in height the towering masses of the Arctic

non-existent. Not entirely, however, for there are at least twenty varieties of rock-lichen and mosses to be found as far south as 78° S., while in the northern part of Graham Land, outside the Antarctic Circle, there is even a coarse grass to be found.

The land fauna is restricted to the invertebrate orders, two minute insects being found in the mosses at 78° S. and a greater variety as one recedes from the Pole. Of land animals in the full sense there is none whatever. This is a natural consequence of the lack of land vegetation, which itself is due to the severity of the climate and the paucity of ice-free land.

In the sea, however, there is no lack of life, and it is estimated that there is more actual living matter to the cubic yard in Polar than in tropical seas. The greater proportion of this consists of the minute forms of animal and plant life which comes under the heading "plankton," the suspended non-swimming forms. The genera of these are not widely different from those of more northern waters.

It is important to note, however, that diatoms, microscopic plants with siliceous skeletons, reach their greatest development in Antarctic waters, and indeed their growth is so profuse during the long hours of summer that they colour the sea ice yellow, afford the ultimate food for practically all the marine life and coat the floor of the ocean with their skeletons, the diatomaceous ooze. On them thrive myriads of minute crustacea of many kinds, of which we may mention the type euphausia, a pink shrimp-like creature,

which forms the staple food of some of the penguins and seals and possibly of the whales as well.

One must also refer to the presence of many forms of marine life not ordinarily associated in our minds with low temperatures; for instance, jellyfish and octopus can be caught when the waters are free from ice, sea slugs and corals may be dredged from shallow depths, and giant siliceous sponges. There is naturally no foreshore marine life since the sea-ice effectually scrapes off anything which obtains a temporary foothold on a shallow reef or beach, and it is because we miss this zone of beach life that we are apt to infer a deficiency of marine organisms.

Coming to the vertebrates, of fish there is no lack, though we know comparatively little of their number and varieties. On the shallow banks near South Georgia large catches of a coarse type of fish can be made, and these may yet be turned to account as an industry, but farther south there has been less opportunity to study fish life. In the Ross and Weddell Seas a small fish of the genus notothenia is common, and the existence of a large salmon-like fish is well authenticated. A small silvery fish of the size and shape of a sardine is often found in the crops of birds or frozen into young ice.

Bird life is restricted as to number of species, but not as to individuals. The wandering and sooty albatrosses are not true inhabitants of Antarctica, as they will not venture into the pack ice, but a number of other strong flying birds take their place, chiefly varieties of petrel. In point of beauty, the dainty pure white snow petrel claims attention, only to be met with in real ice zones, but many others are known, including the somewhat repulsive giant petrel, the brown and white Antarctic petrel and the dainty Wilson's petrel.

Most of these nest on the islands or mainland, but the only flying bird which



ICE TORN AND TWISTED BY THE GIANT FORCES OF NATURE

As the great glaciers that drain the snow-laden plateau of Antarctica grind their way slowly to the sea, they meet the shelf ice or the ice that freezes round the coasts in winter and set up mighty stresses in the mass. The result is an ice crack with ridges such as this, caused by the Barne Glacier. In the distance is Cape Royds, while the figure on the left is that of Captain Scott

really goes far south is the McCormick's skua gull, which nests where possible in the vicinity of penguin rookeries. It is a curious fact that this bird has often been met with by parties far inland, the most striking case being one which visited Scott's party when they were within 150 miles of the Pole, a distance of at least 600 miles from the nearest open water as far as known.

Introducing the Penguin

By common consent the true denizens of the south Polar regions are the penguins, of which there are at least six varieties. Some of these seem equally at home with or without pack-ice in their habitats, but, speaking generally, the Gentoo, the Ringed, and the King penguin keep to the northern fringe of the ice, while the black-throated Adélie and the Emperor penguin breed on land within or to the south of the ice.

All collect in their breeding season in huge "rookeries" on some land which is reasonably accessible, and the Adélie and the Emperor may stand as types for the whole. The former spend two thirds of the year on the pack-ice, living on the euphausia and other crustaceans, but move southwards to their rookeries in early spring. The nests are fashioned with pebbles, most of which are stolen from near-by nests, and the rookery life is a strenuous one for the parents.

The mortality of the young from the depredations of the skua or more natural causes is high, but by the end of the short summer they are ready to swim north again to winter in the pack-ice with their parents.

Strange Hatching of an Emperor

The Emperor's story is very much more interesting. These birds, which are up to 90 lb. in weight and four feet in height, are met with in the pack-ice, and to some extent migrate seasonally, but their breeding season is in the depth of winter. The egg is laid in July, the rookery being the sea-ice in some sheltered bay. It is hatched by being hooked on to the flat part of the feet, over which a flap of skin from the abdomen is dropped, and the chicks appear in the coldest and most windy month of the year.

With temperatures often far below 40° F., winds of hurricane force and finally an exaggerated maternal and communal interest in the progeny possessed by all the adults, the tiny chicks have a hard time, and probably only some twenty per cent. survive until November, when they are guided by their parents on to floes which will float them north. A strange life history and one not yet fully explained.

Of mammals there are several kinds of seals, the most important being the sea elephants, which, from their bulk, have been sought after for oil. These keep to the north of the ice for the most part. A fur seal was formerly abundant, but was practically exterminated early in the last century by unprincipled sealers. On the pack-ice are found the crab-eater seal and the rare Ross seal, while in the bays of the mainland congregate the bulkier but less interesting Weddell seal.

The Only Industry Truly Antarctic

With the exception of the sea elephants none of these can be said to have any real value either for hides or blubber, as they are too scattered to be worth hunting for. Whales are exceedingly common, and at least six species visit the regions regularly if they do not permanently inhabit them. All are met with outside the Antarctic, however, and would hardly be regarded as typical were it not that they alone among the fauna are of economic importance and can be captured there more easily than elsewhere.

Since land animals are non-existent and the only sea animal of value is the whale, it is natural to inquire if the continent contains mineral wealth. Broadly speaking, we may say that in Graham Land and its archipelagoes we have folded mountains and ancient rocks surmounted by younger, less

folded strata, similar in many respects to the southern portion of South America. So far no coal has been discovered in this region though indications of copper and other ores have been reported.

On the other side of the continent, in South Victoria Land, the plateau is formed by unfolded ancient rocks resting on a platform of rocks very comparatively inaccessible and is not likely to develop into deposits of any great value. The rocks in all parts are of the right age and disposition to contain mineral ores, but the climatic conditions and the scarcity of ice-free land for prospecting make it very doubtful whether any payable discoveries will ever be made. Indeed, the only industry which can be



ARGONAUTS OF MODERN DAYS PUSH THEIR WAY THROUGH FROZEN WATERS
The natural northern boundary of the Antarctic regions may be determined in the limit of the pack ice, that is, the smaller broken masses that lie just south of the line representing the mean temperature of 32° F. which occurs at 55 ° south all round. Thus it will be seen that the ship—the Terra Nova—in our picture had many hundreds of miles to sail before it came to the Great Ice Barrier, where its crew perforce disembarked to continue their quest by sledge and on foot

much older still, which were once much folded and contorted. No recent rocks have yet been discovered except the volcanic beds, which are a feature of the fault line which gave rise to the escarpment. In the level-bedded rocks coal beds of great extent have been discovered, from as far north as lat. 75° to as far south as but 300 miles from the Pole and probably farther.

The coal has been much charred and spoilt by the later intrusion of molten rock, but probably some of it has escaped destruction. It is, however, said to be truly Antarctic is that of whale-fishing, and, since this is already well organized and paying dividends, we may describe it fully. Its past success and future promise have caused the British Government formally to claim and control certain parts of the region, in a form reminiscent of partitions of the Americas and Africa in past times, when limits of latitude and longitude had to be used to delimit boundaries over unexplored territory.

Thus the dependencies of the Falkland Islands are defined as follows.

" Shall be deemed to include and to have included all islands and territories whatsoever " between 20° and 50° W. south of 50° S. and between 50° and 80° W. south of 58° S. The dependency, therefore, extends as a sector of the region right to the Pole, and is administered from the colony of the Falkland Islands.

On the other side of the continent the Ross Dependency comprises all islands and territory between the meridians of 160° E. and 150° W., south of 60° S., a sector which includes the whole of Ross Sea and the coastal strip of South Victoria Land. It is administered from New Zealand.

Modern whaling is a very different business from that formerly done by hand from open boats; it is now carried out from the decks of a fast steamer which, having slain the whale with a harpoon bomb, tows its catch to a factory, which may be on shore or on a large steamer specially fitted, where practically the whole of the carcase is turned into oil, meat, and fertiliser. The methods were developed in order to deal with the types of whales which could not be caught by the older plan.

The earlier Antarctic expeditions reported numbers of the " finner " type of whales in the southern seas, and the first organized attempts at developing the industry there were made early in this century at South Georgia and among the South Shetlands. The operations were so successful that the whaling fields of the Falkland Dependencies now produce more whale oil than all those of the rest of the world combined, and in less than twenty years they have turned out more than £25,000,000 worth of whale products.

Without control the industry would soon reduce the number of whales even to extinction, but fortunately control is possible since the dead whales have to be brought into harbours, that is to say, within territorial waters, to be dealt with by the factories. The administration therefore is able by the issue of licences to control the number of whale catchers and to prevent the careless destruction of immature or breeding whales. Recently a tax has been put upon the oil produced, the revenue from which will be used in fostering the industry and in financing scientific research.

At present only the Falkland Dependency industry has been organized, and is carried out chiefly by Norwegians with the main centre in South Georgia, but the Ross Sea is about to be exploited and will doubtless be organized before long. The whales captured for oil are chiefly the humpback, the fin whale, and the gigantic blue whale, of which the former is the least numerous.

Except for this industry and others possibly to be developed from the products of the southern seas, it is difficult to foresee any great economic future for Antarctica But it must be remembered that the rest of the world is profoundly affected by the physical conditions in the Antarctic, and it must be explored fully before those conditions are understood.

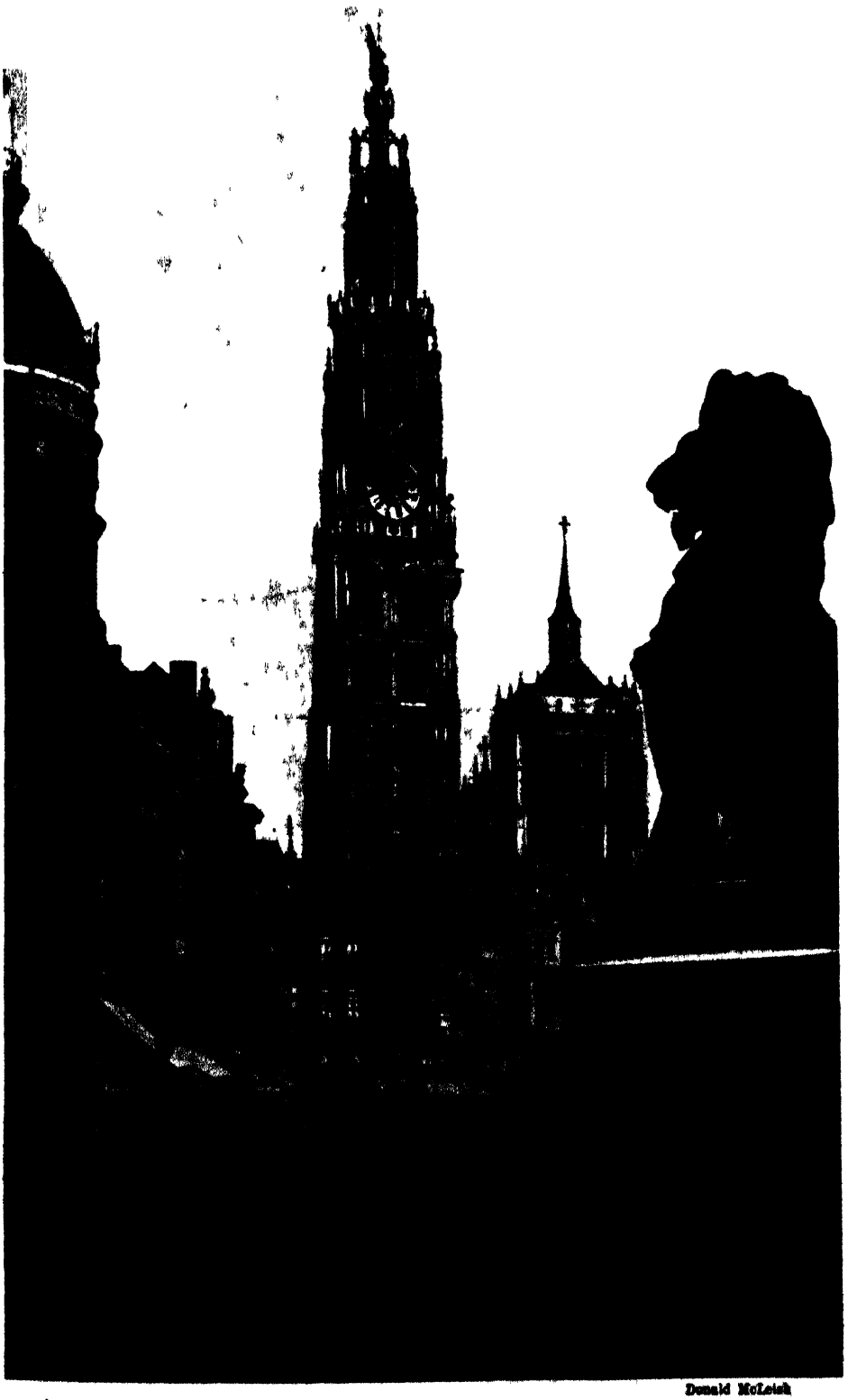
The time may well come when there will be a ring of permanent observing stations round its coasts, but beyond that the continent will probably remain for the civilized world merely a vast plateau, covered and fringed with ice, desolate, wind swept, and inaccessible, the last stronghold of an Ice Age which defeats even man's resources.

ANTARCTICA: GEOGRAPHICAL SUMMARY

Natural Division. Ice-capped South Polar continent. Cf. Greenland. Limited to the edge of the pack ice, the modern equivalent of the Ice Age. An elevated area antipodal to the sunken Arctic Basin.

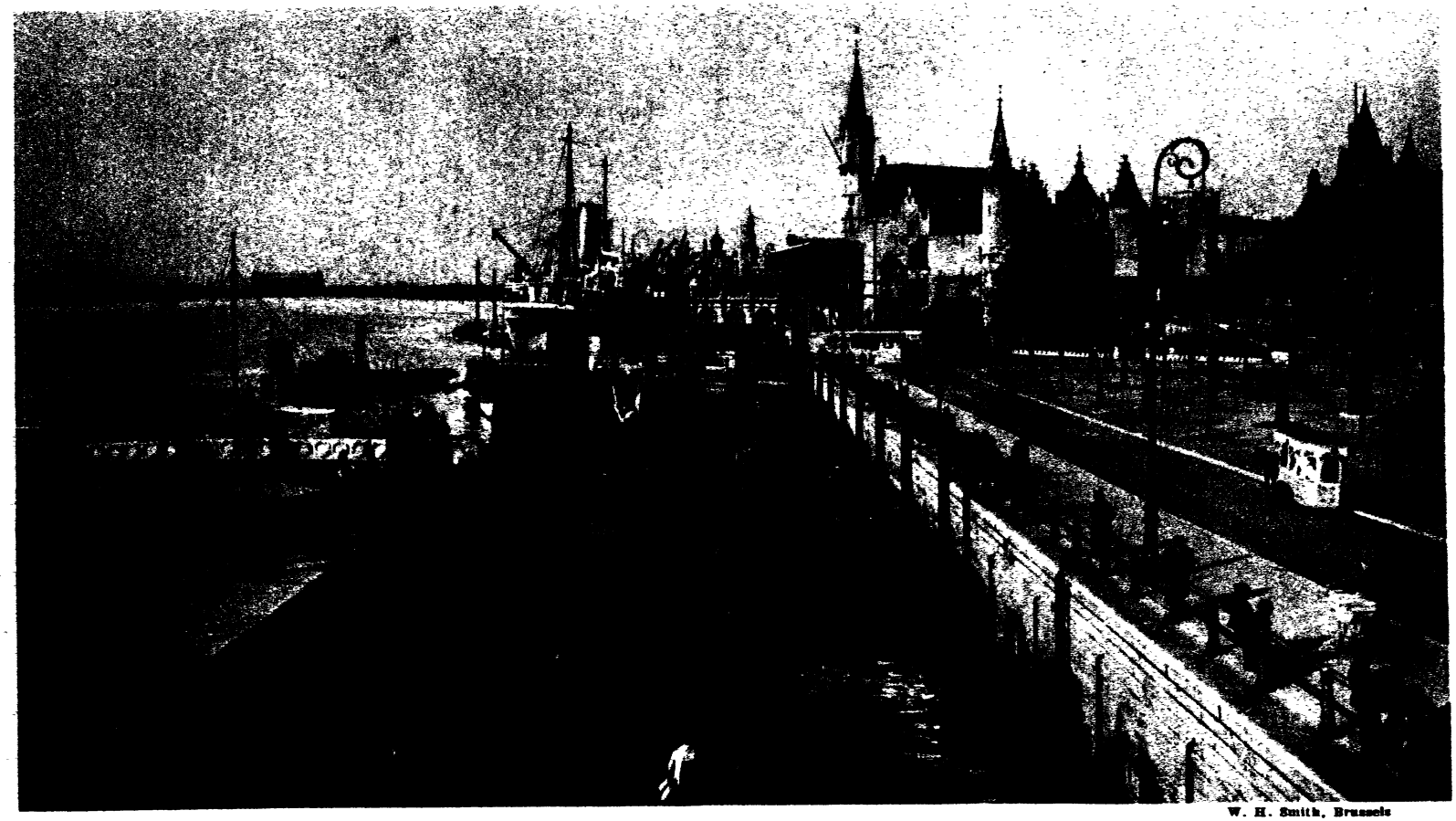
Climate. Perpetual snow and ice, relieved by the sunlight of the long " summer " day, intensified by the gloom of the long " winter " night and dominated by the easterly winds. A striking contrast to the sea area beyond the pack ice where the " Brave West Winds " or " Roaring Forties " impede sea traffic from the Atlantic round Cape Horn.

Industries. Whaling in the Falkland and Ross Dependencies.



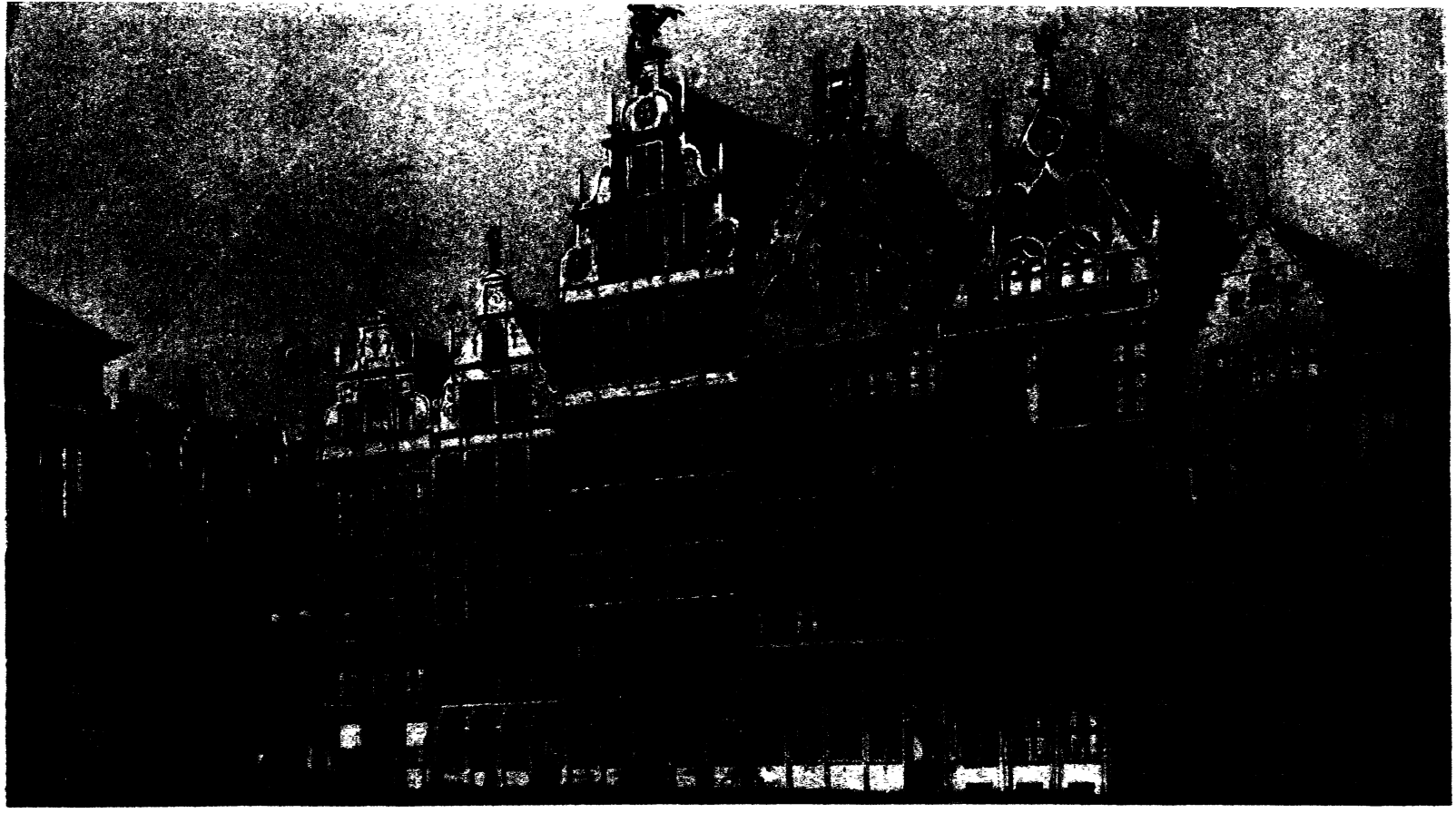
Donald McLeish

ANTWERP. *This impressive view of the Cathedral tower is seen from the Quai Van Dyck. The lion is the national emblem of Belgium*

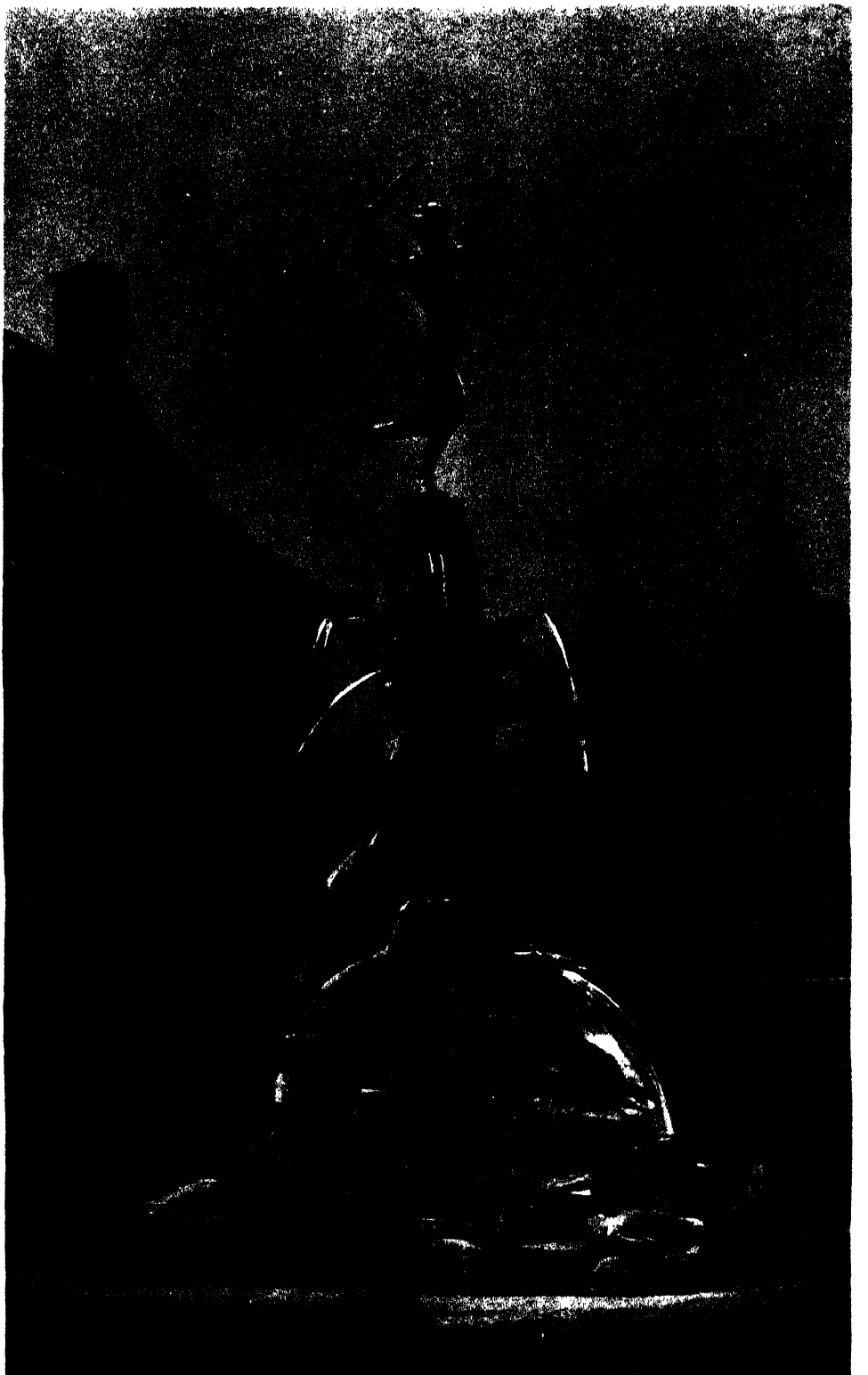


W. H. Smith, Brussels

ANTWERP. *Thoroughly modern in equipment are the quays extending for five miles along the Schelde's right bank; even the roofs of the dock sheds north and south of the Steen are laid out as terraces with cafés*

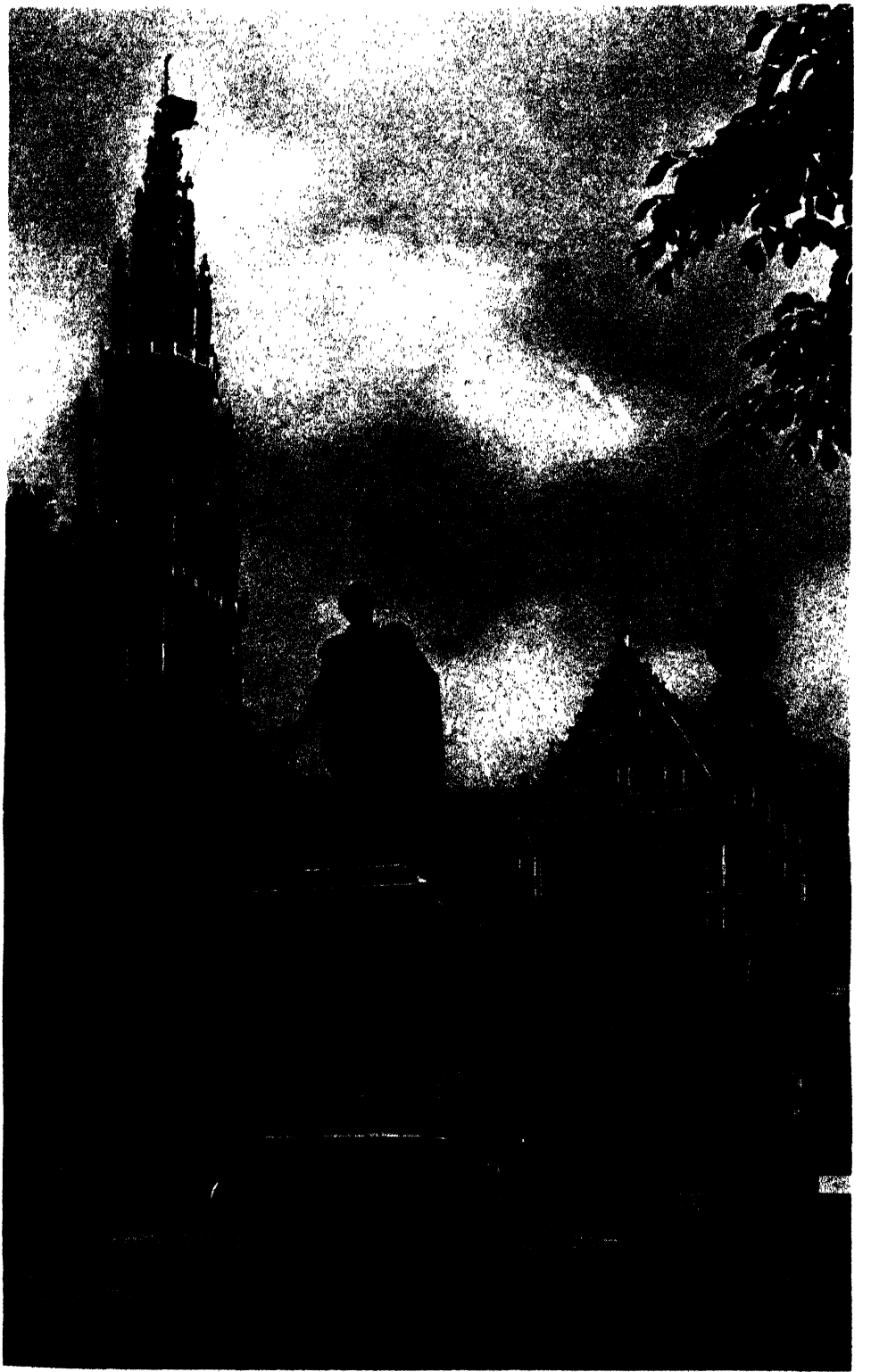


ANTWERP. *The old 16th century Guild Houses in the Grand' Place formerly belonged to various commercial corporations and recall the vigorous activity of the merchants and manufacturers of the Middle Ages*



Donald McLeish

ANTWERP. *In the Grand' Place is this bronze fountain of the legendary Salvius Brabo who slew and cut off the hand of Giant Antigonus*



Donald McLeish

ANTWERP. *In the Place Verte, hard by the Cathedral, stands a bronze statue of immortal Rubens, painter, diplomatist, and statesman*



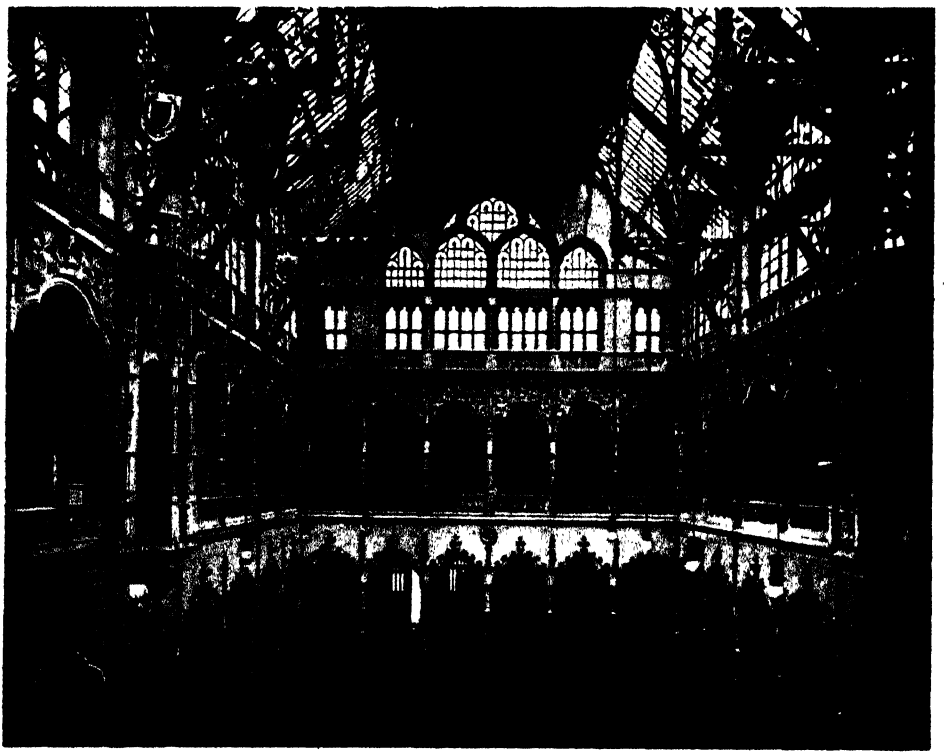
Belgian State Railways

ANTWERP. *In the magnificent docks to the north of the city, accessible to vessels of all sizes, steamers and merchantmen receive and discharge their cargoes by means of gigantic but noiseless hydraulic cranes*



W. H. Smith, Brussels

ANTWERP. *At a corner of the Van Dyck Quay, into which leads the busy Canal au Sucre or Suiker-Rui, rises the so-called Hansa House, begun in* 1902, *adorned with allegorical figures in bronze by J. Lambeaux*



Reconstructed on the lines of the original Exchange, burnt down in 1858, *Antwerp's new Bourse is an imposing edifice of elegant design*



E. N. A.

ANTWERP. *The Plantin-Moretus Museum, former home and workshop of those great printers, was bought by the city in* 1876

ANTWERP

The Great Seaport of Little Belgium

by Emile Cammaerts

Author of "Belgium from the Roman Invasion to the Present Day," etc.

THE life of Antwerp is bound up with the navigation of the Schelde, from which it derives all its prosperity. It is always wiser to approach a great port from the sea. London remains a riddle unless some attempt has been made to visit the lower reaches of the Thames. But London life is not so closely dependent on the Thames as Antwerp's activity is dependent on the Schelde. Besides being the first port in the world, London is also the capital of a great country and of a great Empire. Besides its commercial activity, Antwerp can boast only of being the second town of one of the smallest countries in Europe.

A traveller on the Harwich route would be wise in rising early and going on deck as soon as the ship steadies her course through the calm waters of the estuary. In bright weather he may get a glimpse of Flushing, the small Dutch port established on the southern coast of the island of Middelburg, and later, of Terneuzen, at the entrance of a broad canal leading to Ghent. On the north lies Dutch Zealand, on the south a small strip of Flanders annexed by the Dutch in the seventeenth century.

Heir to the Prosperity of Venice

The traveller finds himself in Dutch waters and obtains at one glance the explanation of Antwerp's troubled life during modern history. History recalls to him how, four centuries ago, the port became the greatest market and first banking centre of the world, inheriting the prosperity of Venice and benefiting from its exceptional situation on the coast of the North Sea opposite to England and within easy reach of Central and Southern Europe. He might be reminded that, after the partition of the Netherlands, the Dutch completely ruined the country's trade by closing the Schelde. Their action was so effective that for two centuries and a half all communications with the outer world ceased and even the Emperor Joseph II. himself failed to re-establish them.

Activity of the Port To-Day

His attempt took place in 1785 and is known as the "War of the Cauldron," because a shot fired by a Dutch cutter on the Louis, which was flying the Austrian flag, happened to hit a cauldron on the deck of the ship. No other casualties occurred. Napoleon was more successful, but the trade of Antwerp could not benefit from his policy owing to the Continental blockade, and it was only after the Treaty of Vienna and the formation of the new kingdom of the Netherlands that ships were again allowed to go up the western mouth of the Schelde, bringing trade and prosperity not only to Antwerp but to the whole of Belgium.

As soon as the estuary narrows, with the crossing of the Belgian frontier, signs of this prosperity become evident. Ships of all sizes and nationalities are seen on every side, on their upward or downward course, and soon the new and old docks appear on the right bank of the stream. They must accommodate an enormous trade, for the four years of stagnation brought about by the Great War have not seriously impaired the port's great activity.

During 1913 the tonnage of ships coming and going reached 25 millions; during 1921 it was 25½ millions, Antwerp thus reaching the third rank among

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ANTWERP: PLAN OF BELGIUM'S GREAT SEAPORT

the great ports of the world, immediately after London and New York. Considerable progress has been accomplished since (29½ million tons in 1922) and, in spite of what has been said to the contrary, the occupation of the Ruhr has not seriously altered the situation.

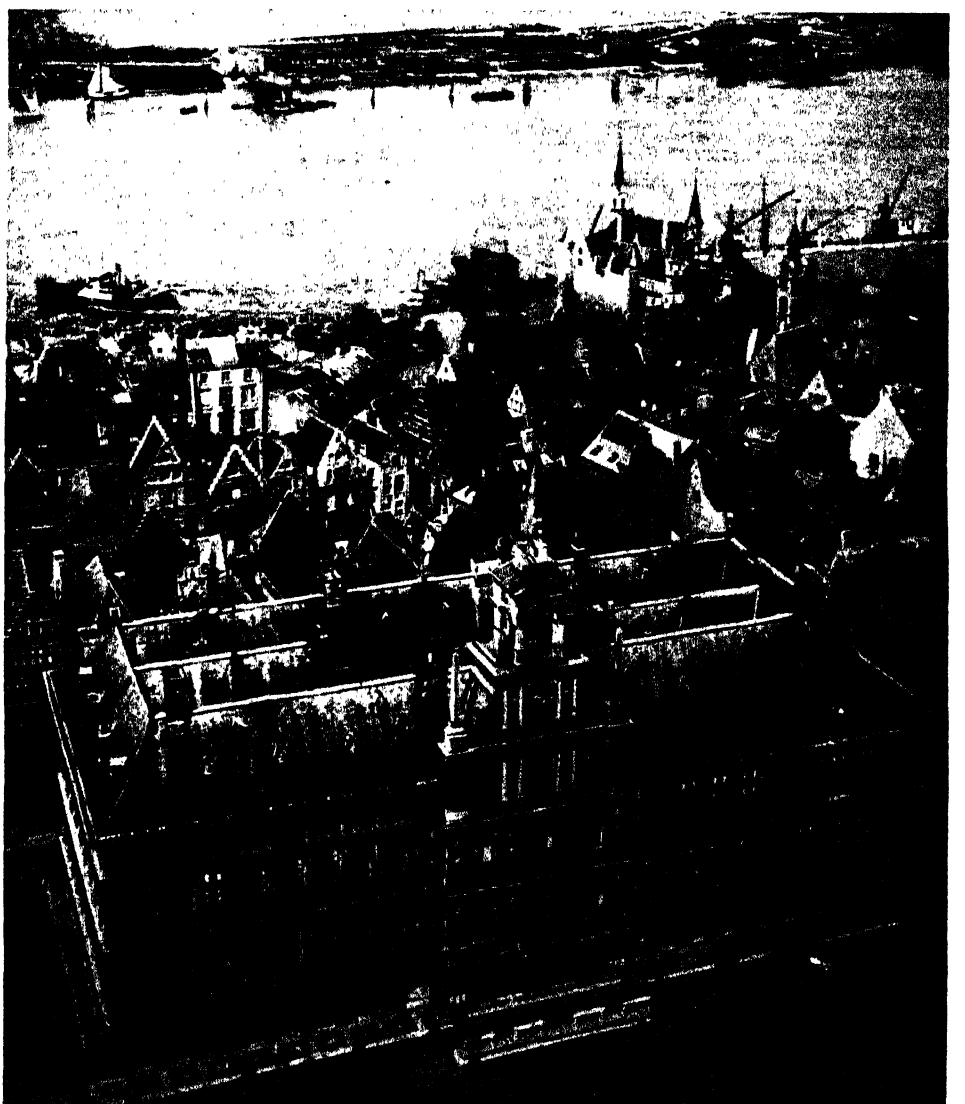
About seven miles from Antwerp the ship passes between the forts of Lillo and Liefkenshoek, the first sign of the defences so elaborately built by General Brialmont, defences which were supposed to convert the district into an impregnable entrenched camp. A little farther on, on the left hand, a huge lock is being built, communicating with a sea canal four miles in length, connecting Kruisschans with the older shipping establishments. This lock will be available at every state of the tide and will permit the passage of steamers drawing over 40 feet of water.

Another bend of the river brings us between the Fort Philippe and the Fort Ste. Marie, one of the last to be silenced by the German heavy guns during the short siege of October, 1914. Farther still, on the left hand, lies Austruweel, where the Kruisschans Canal will connect the new docks with the old; then, on the right hand again, the Fort Isabelle and the Fort de la Tête de Flandre opposite the large embankment bordering the town itself.

A bird's-eye view of the city can be obtained by climbing the tower of the Cathedral. It is the best vantage point from which to appreciate the situation

of Antwerp and of the surrounding country. Straight to the north lie the shining ribbon of the stream and the bright patches of the surrounding docks; to the west, the rich agricultural district known as the Pays de Waes; to the east, the moors of the Campine crossed by canals on the banks of which many factories have been built; towards the south, the uniform plain of Flanders and Brabant, as far as Brussels and Ghent, with its powerful network of navigable rivers and canals stretching in all directions and bringing to the metropolis the trade of one of the richest regions in Europe.

But there is more in the landscape than meets the eye. A look at the map shows that Antwerp is surrounded, within a distance of 100 to 150 miles, by a series of coal-fields and industrial districts. This rich hinterland starts from Lille, in France, and stretches to the Ruhr and Westphalia, in Germany,



W. H. Smith, Brussels

BIRD'S-EYE VIEW OF ANTWERP, LOOKING ACROSS THE SCHELDE

Antwerp, the second city of Belgium and one of the great world ports, is situated on the right bank of the broad and deep Schelde or Escaut, 55 miles from the sea. Its magnificent harbour and docks have established its pre-eminence as a port of transit; its churches, museums and masterpieces of painting as a centre of art. In the foreground is the Hôtel de Ville, dating from the 16th century

including Mons, Charleroi, Liége, and the new coal fields of Limburg. French, Belgian, and German waterways converge towards the lower Schelde and will be completed by a canal connecting the Schelde with the Meuse and Rhine.

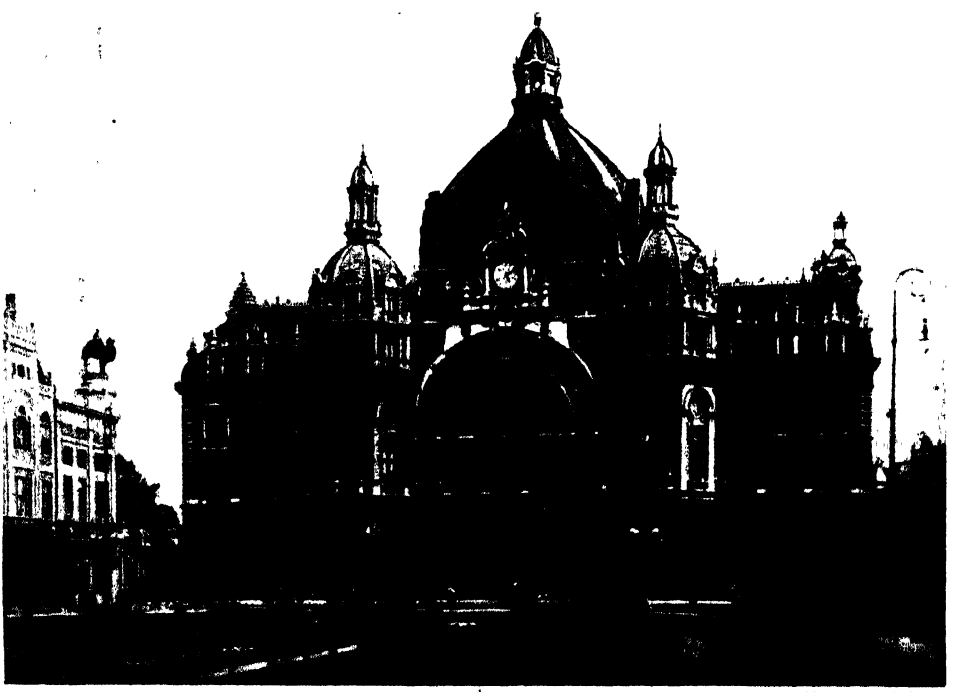
If we keep these facts in mind, we shall not wonder at the size of the town stretching at our feet, where over 400,000 inhabitants are herded together. On the contrary, it will seem to us that its importance is not yet in proportion with the advantages of its situation.

There are two obvious explanations: the repeated checks inflicted on the port's expansion in the course of history, and the fact that the town cannot expand freely owing partly to the restrictions imposed by its defences and partly to the difficulty of connecting both banks of the river.

Antwerp is one of the few ports entirely built on one bank of its waterway. The Schelde is still too wide to be spanned by a bridge and the only means to overcome the difficulty is the construction of an underground tunnel. This plan is being studied by the Belgian government, and it is assumed that within a few years a suburb of 40,000 inhabitants will spring into existence on the left bank.

If we narrow the circle of our attention to the city itself, we see at once that it is divided into two parts: the new town, beyond the boulevard connecting the Gare du Sud with the docks and including the suburbs of Borgerhout and Berchem, and the old town, presenting a maze of narrow streets and many old buildings closely packed together, between the boulevard and the Schelde.

Traffic is intense, and even in the distance its rumbling noise, increased by the cobblestones, can be plainly heard. People swarm in every direction, and we need not mix with them to realize the contrast between this historical Flemish city which has been able to recover its past prosperity, and the dead towns of Flanders, such as Bruges, where the spirit of the medieval



Phototypie Belge

BEFORE THE ENTRANCE TO THE CENTRAL STATION OF ANTWERP

Antwerp's Central Station, a handsome modern iron structure, lies at the east end of the Avenue de Keyzer, off the spacious Place de la Gare, and has main lines to Brussels, Holland and Germany. Adjoining it is the Zoological Garden, one of the best in Europe and over the entrance gate of which stands a finely sculptured bronze camel with Hindu driver

Commune is only preserved in some architectural masterpieces.

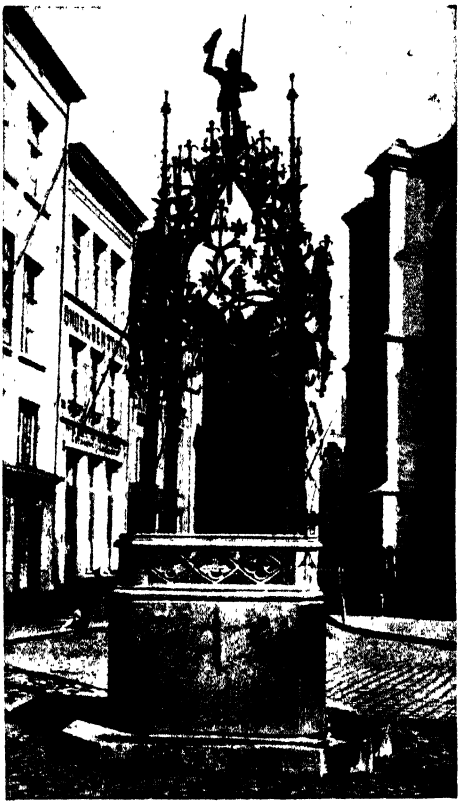
A few hours before his accidental death in Rouen, in 1916, Emile Verhaeren, the greatest representative of modern Belgian literature, was explaining to a French audience the contrast between the Flanders of the Middle Ages, which has not survived the ruin of the cloth industry, and the Flanders of the Renaissance which, after an almost complete eclipse, revived in such a wonderful way in the nineteenth century, thanks to the commercial freedom of the Schelde.

Verhaeren showed that Bruges and Antwerp are the two opposite poles of the Belgian temperament; Bruges, the city of dreams, silence and mystery, with its deserted narrow streets overgrown with grass and its canals haunted only by a few gliding swans; Antwerp, the city of noise and bustle, surrounded with modern quarters and large docks, congested with ships coming from every corner of the earth.

The Belgian school of painting illustrates admirably these conflicting tendencies of the race. The brothers Van Eyck and Memline painted in Bruges in the fifteenth century; Rubens, Van Dyck, Jordaens, and Teniers painted in Antwerp in the seventeenth.

Antwerp owes little to the Middle Ages. The tower of the Cathedral was finished in the sixteenth century, in a purely Renaissance style, and the great nave itself was only completed about the same time. Like English cathedrals, it is almost entirely deprived of sculptures, owing to the destruction wrought by the iconoclasts who inaugurated the revolution against Spain and the religious wars of the sixteenth century, with their "Spanish fury" and "French fury" and endless riots and devastation.

The town, which the Florentine, Luigi Guicciardini, described in 1550 as "an excellent and famous city, full of beautiful, agreeable and spacious houses, well kept, well ordered and furnished," and whose gaily clothed



IRON-CANOPIED STONE WELL

Traditionally ascribed to Quinten Massys, "at one time blacksmith, afterwards a famous painter," this well, surmounted by a Gothic canopy with a statuette of the mythical hero, Salvius Brabo, stands in the Marché aux Gants, near Antwerp Cathedral

inhabitants lived such a happy and prosperous life, had already lost its trade when Rubens began to paint. The last foreign traders had left and the Exchange, which had been for a time the most important financial market of the world, had been converted into a public library.

The Cathedral was begun before the crisis. So indeed was the Hôtel de Ville, finished in 1561, which we find a few steps farther, facing the Grand' Place. But almost every monument which attracts the visitor was built during the period of decadence. The same remark applies to Venice, whose art only reached its climax after its period of economic splendour had passed.

The powerful personality of Rubens appears everywhere: in the Cathedral, with the celebrated "Descent from the



W. H. Smith, Brussels

VIGOROUS CARVING OF AN ANTWERP PULPIT

The principal feature of S. Andrew's Church, a late-Gothic edifice consecrated about 1529, is the elaborately carved wooden pulpit of the eighteenth century, representing SS. Peter and Andrew in a boat about to respond to the summons of the Saviour

Cross"; in the Royal Museum with the no less striking "Spear-Thrust"; in the churches, such as that of S. Carlo Borromeo which he is supposed to have designed; in the house in the Rue Rubens in which he spent most of his life; in the chapel which bears his name; in the choir of S. Jacques, where he is buried with his family. If ever a man typified his country and his time, that man was Rubens, painter and diplomatist, favourite of the Archduke Albert and Isabella, great propagandist of the Counter-Reformation so actively promoted by the Jesuits who, with his help, were laying the foundations of modern Belgian Catholicism.

The reaction against the sober and stern Calvinism which prevailed in Flanders for a short time is plainly apparent in every feature of social life. It is felt throughout the fine seventeenth century mansion which has been preserved as the Plantin Museum. Though a master printer, Christopher Plantin was well looked upon by the Spanish governors and obtained, in 1570, the monopoly for printing liturgical books. The house itself was partly built in the sixteenth century, but most of the furniture and pictures belong to the Counter-Reformation. We realize from them the accuracy of Guicciardini's description, and the comfort and refinement enjoyed by these rich Flemish bourgeois who were able to decorate their houses with the masterpieces of their time.

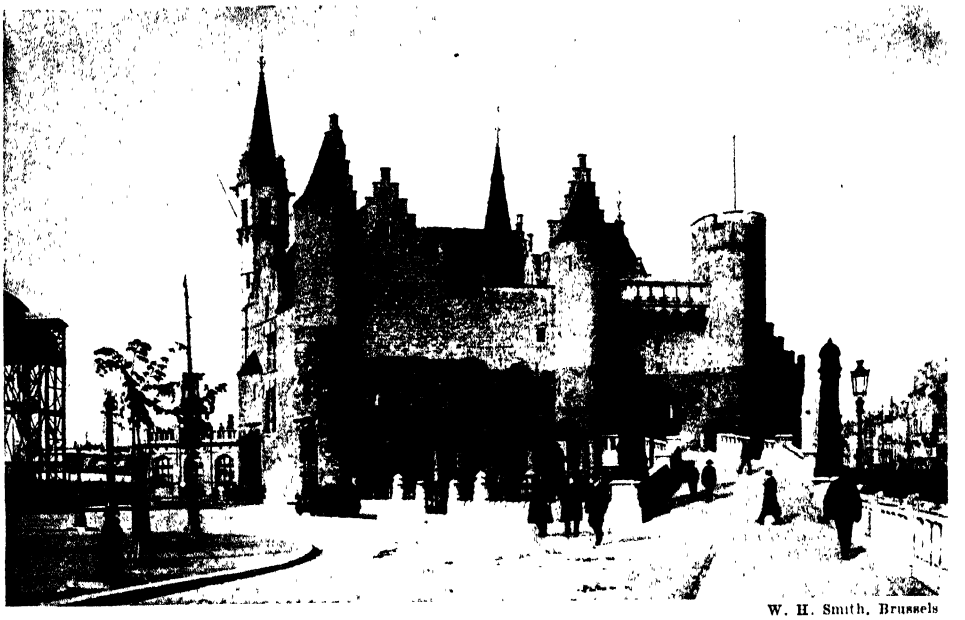
The same spirit is still more apparent in the florid Renaissance architecture of the Corporation houses in the Grand' Place and of most other public buildings. The rococo churches, with their heavy ornaments and over-loaded façades, give us some striking features of the exaggeration of this style. On the other hand, Rubens's sacred pictures, which frequently adorn the interior of these



Belgian State Railways

ANTWERP'S GREAT CATHEDRAL, THE LARGEST GOTHIC CHURCH IN BELGIUM

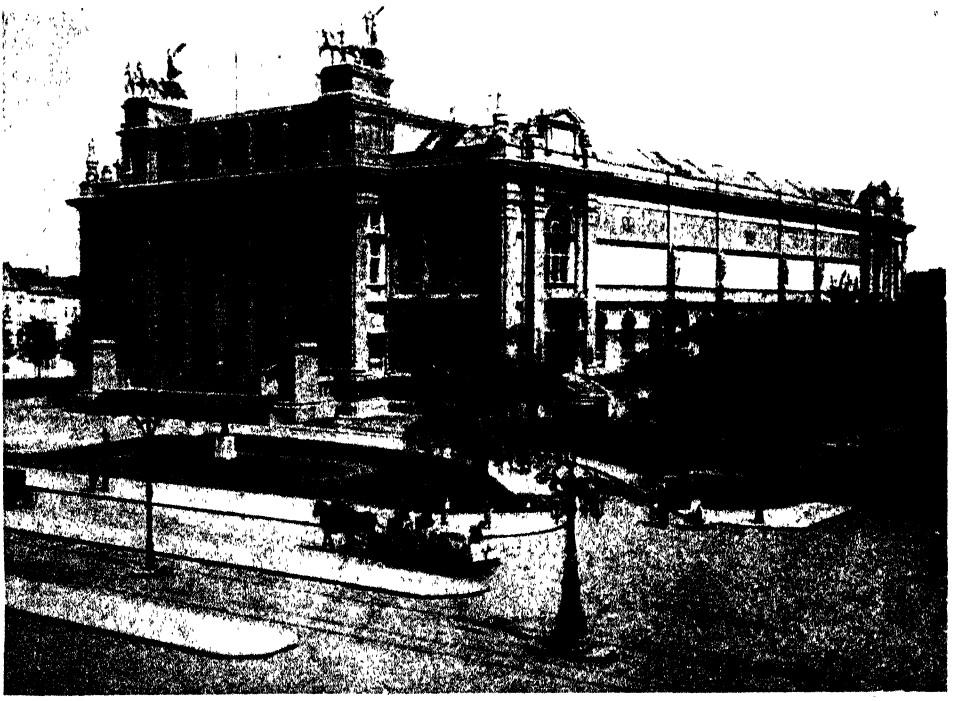
Towering above the small houses which cluster thickly about it, Antwerp's famous old Gothic Cathedral of Nôtre Dame, with its 470-foot spire, forms a conspicuous landmark. The building operations, begun in 1352, came under the direction of successive architects, but were not completed until the sixteenth century The Cathedral was despoiled of many of its treasures during the religious wars



W. H. Smith, Brussels

FROM PRISON TO MUSEUM: HOARY RELIC OF ANTWERP'S EARLY DAYS

As ancient as Antwerp itself is the Steen, a turreted castle standing on the quay. The building has undergone more than one restoration, but the dungeons at least are as old as the tenth century and bear sombre witness to its early history. It now contains the Museum of Antiquities and a remarkable collection of historic objects and curiosities, including instruments of torture used by the Inquisition



ROYAL MUSEUM OF FINE ARTS, ANTWERP

Erected in 1879-90, the handsome building of the Royal Museum contains paintings by the old masters, including the Rubens and Van Dyck collections, many beautiful sculptures and works by modern painters. The building itself is in the Italian Renaissance style; the portico, overlooking the Place Léopold de Wael, is supported by four giant Corinthian columns and flanked by loggie on the upper storey

churches, provide excellent examples of the best productions of a period in which, for many, religion had become intimately associated with a pageantry of colour and movement. It would be unfair to judge these works by our modern standard. They are bound to appear to us too sensuous and theatrical, but this feeling ought not to blind us to the splendour of colouring and to the dramatic majesty of the whole.

We must become permeated with the atmosphere of the period and show ourselves as indulgent toward the Flemish exaggerations of Rubens, of Jordaens and of Teniers, as we do towards the verbal exaggerations of Marlowe, Beaumont and Fletcher, and even of Shakespeare in his early plays.

Grim Legend of the Severed Hands

A mere glance at the collection of modern paintings in the Royal Museum of Fine Arts will show that the love of bright colouring and energetic action is still strongly alive in Belgian art. A visit to the Salle Leys, in the Hôtel de Ville, will confirm us in this belief, and we will soon realize the important part played by the Antwerp School in the art of the country, especially as regards historical painting.

Though a native of Brussels, the modern sculptor J. Lambeaux was specially appreciated in Antwerp and erected in the Grand' Place a remarkable fountain, in which the influence of Rubens can be plainly traced. It illustrates the legendary feat of Salvius Brabo, the first duke of Brabant, supposed to be a relative of Julius Cæsar.

At that time the Schelde was held by a giant, Druon Antigonus, who exacted a tribute from any mariner going upstream. When the sailors were unable or indicated that they were unwilling to pay, Antigonus punished them by cutting off their right hands.

Hence the severed hands still preserved in the city arms. Like a modern David, Brabo succeeded in defeating Antigonus and, as a reprisal, threw his hand into the Schelde. It is said that the legend may have originated in the name of the town (Hand-werpen, to throw a hand), but needless to say, modern etymologists do not endorse such an explanation.

Struggle Against Exploitation

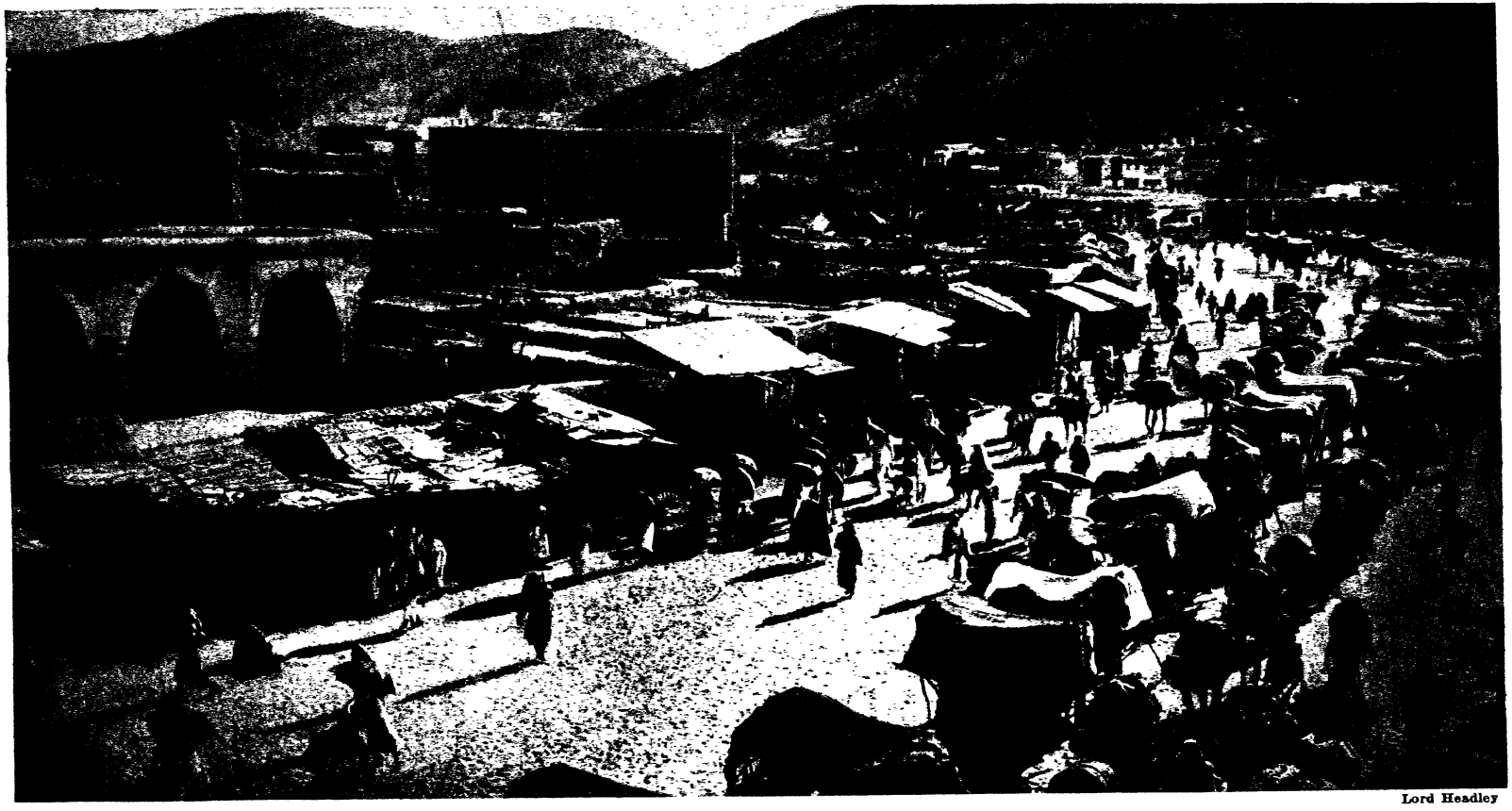
Whatever the facts may be, the story is worth recording, for it illustrates the struggle which, from the very origin of the town, the defenders of liberty had to wage against those who exploited its exceptional position in order to exact undue advantages.

It was not only owing to its geographical situation that Antwerp succeeded in taking the place of Bruges as the trade metropolis of Europe in the sixteenth century. It was mainly on account of the policy adopted by the dukes of Brabant who liberated trade from the many shackles imposed upon it by the medieval cities and opened wide the port's gates to foreigners.

The Freedom of the Schelde

For more than two centuries, when these gates were closed by the Dutch, the Belgians never tired in their efforts to find an outlet to the sea and the full freedom of the Schelde still remains for them the cardinal point of their foreign policy. They know only too well that without a free Antwerp, their economic life would be stifled and their independence jeopardised.

Other towns play a most important part in Belgian life. Intellectual activity is seated in Brussels, industrial activity in Liége, Charleroi and Mons. But all these centres depend on the only outlet which the country possesses on the sea and which brings her into contact with the whole world—the port and metropolis of Antwerp.



Lord Headley

PILGRIM CARAVAN WITH ITS LONG TRAIN OF CAMELS ON THE WAY TO ARAFAT

Of the two files of camels, one carries the food and baggage while the other bears the pilgrims themselves. Arafat is a hill, about two hundred feet high, some thirteen miles east of Mecca. The pilgrims ride in "shugdufs," which correspond roughly to the "howdahs" carried by elephants, and consist of carpets or curtains stretched over a framework to keep off the sun. This photograph and those on pages 225-7, 230, 231 and 246 were taken by Lord Headley, President of the British Muslim Society, on his official visit to Mecca in 1923. He was the first Englishman to visit the Holy City openly

ARABIA

Its Deserts, Oases and Holy Cities

by Rosita Forbes

Author of "The Secret of the Sahara-Kufara," etc.

IT is probable that, from very early times, Arabistan, the "Island of the Arabs," was known, by reputation at least, to the West. It has been discovered, forgotten and rediscovered several times during the world's history. The earliest Hebrews of the Mediterranean knew something of Arabia. Herodotus learned from the Phoenicians that they came originally from the Persian Gulf.

Egypt gave the name of Punt to the land of spices in south-west Arabia, and it was in search of that incense country, the legendary Arabia Felix, that Aelius Gallus led an expedition by way of the present Nejran. It is probable that in Mariaba he reached Marib, the capital of ancient Sabaea, whose kingdom succeeded the Minaean and preceded the Himyaritic dynasties in south Arabia. The Roman general was guided by envoys of the Nabataean envoy, whose capital was the Edomite Selah, afterwards Petra.

Petra, the Hidden Valley City

Few Europeans have visited the ruins of south Yemen and Nejran, but Halévy and Glaser have described the famous dam at Marib, the bursting of which caused one of the earliest great migrations towards the north and east, and Glaser was able to make copies of some hundred Himyaritic inscriptions.

It is possible that the Nabataeans came originally from Sabaea, but history first speaks of them as the caravan traders of Arabia Petraea, with a secret city hewn out of the rocks, and so guarded by nature as to be impregnable. It fell at last, not before the arms of Rome, but before her civilization, and among the austere Arab tombs are scattered ornate monuments of Graeco-Roman architecture.

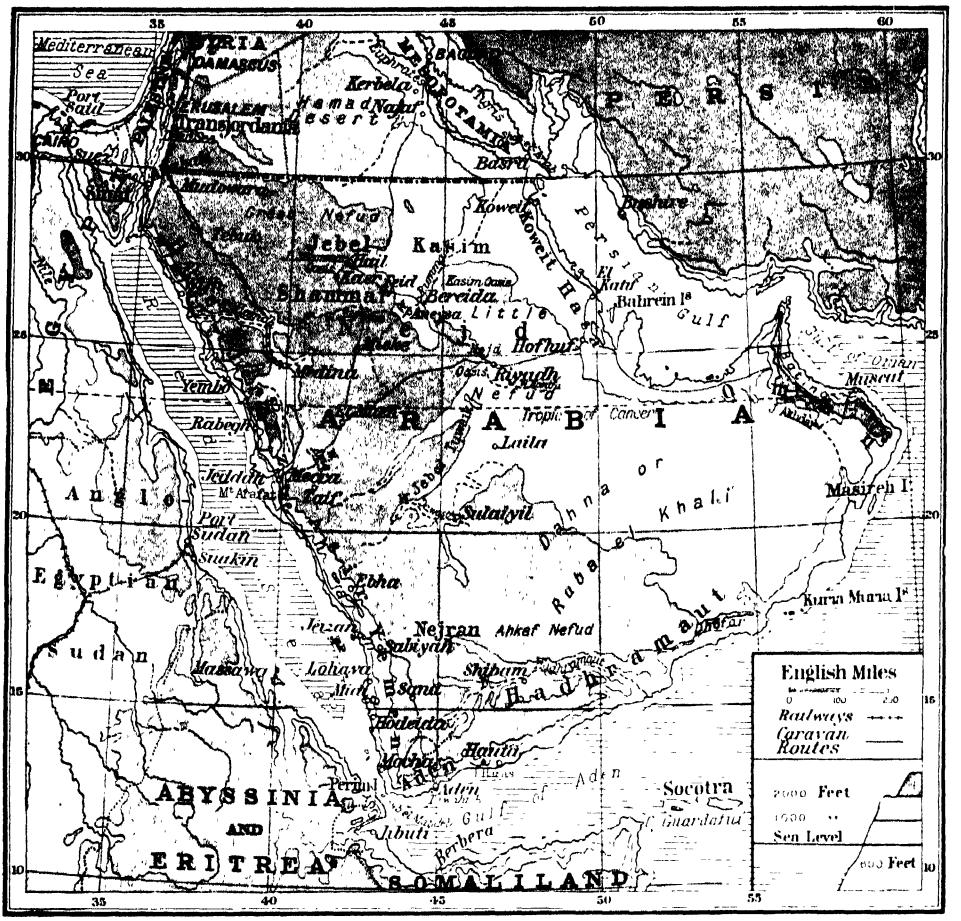
There is a Roman theatre and there are many-chambered monuments that show traces of different influences. On the floor of the valley (Wadi Musa) below the labyrinthine city of the dead, are the ruins of what was once a large town, the centre of the merchant routes to Yemen, Egypt and Persia.

The Tilted Shelf of Arabia

So little is left but the "House of Pharaoh's Daughter," that it has been suggested the destruction of Petra was due to some great natural cataclysm rather than to the gradual shifting of trade centres which drove the Nabataean merchants to Palmyra and other markets.

If this is true, the annihilation of the valley city left intact the honeycomb of mountain tombs and the mile-long entrance cleft between walls of coloured sandstone, hundreds of feet high and sometimes only six feet apart. Petra was rediscovered by Burckhardt early in the nineteenth century, and from both its natural beauty and its architectural and archaeological interest, it must rank as the most remarkable known ruin in Arabia.

The Arabian peninsula may be regarded as a shelf tipped gently towards the east. Its greatest length is some 1,200 miles and its average breadth 700 miles. As the slope towards the Red Sea is steeper and shorter than the gradual fall to the Persian Gulf, the highest level is in the west where it is probable that the original level was considerably higher still. In Yemen some peaks reach an altitude of 10,000 feet and the central district of Nejd has an elevation of



DESERTS, OASES AND UPLANDS OF THE GREAT ARABIAN PENINSULA

2,500 feet with outstanding masses rising to nearly double that height.

The general eastward decline is only broken by Jebel Tuwaik, a plateau faced by a cliff, which curves through the east centre; and by the rocks of Oman, which, in Jebel Akhdar, rival the peaks of Yemen and Midian.

Since Mesopotamia, Syria and Palestine are excluded from the scope of this chapter, there are no perennial rivers to note in Arabia. In Yemen, Asir and Hejaz, in Hasa, Oman, Nejd and the Aden Protectorate, there are wadis (valleys) which are sometimes flooded by rainstorms and which, at certain seasons of the year, have the appearance of running streams. Generally, these wadis show very little depression, and those rising east of the western watershed are particularly shallow. The most important are Wadi Rumma, running from Medina to the Shat-el-Arab, which falls 6,000 feet in less than 1,000 miles; and the Wadi Hanifa between Tuwaik and the Persian Gulf. These provide the main lines of communication with the interior, for water is found at varying depths beneath their surface and this, when it rises to ground level, produces groups of oases. The wadis which find an outlet in the Red Sea show much deeper beds at their sources in the hills, and sometimes their banks form an obstacle rather than a help to passage. As they reach the Tehama, the flat belt which borders the Red Sea from Aden nearly to the stony lands of Sinai, they widen into depressions which are almost invisible at their mouths.

The chief features of Arabia are the deserts, which are as various as the mountains and valleys of other more fortunate countries. The most extensive of these deserts is the Dahna, or Ruba el Khali, which is a hard, barren plain, covered with fine gravel, but often carrying water at a considerable depth below the surface.

The Nefuds are belts of deep sand blown by the wind into waves and round backed dunes. Here are found the curious horseshoe-shaped pits described at length by the Blunts. The Nefud sands may be of granite, sandstone, or limestone, and the amount of pasture they offer depends on their consistency. The northern Nefud forms a land of enchantment in spring, offering a quantity of different herbs for the immense flocks which pasture there.

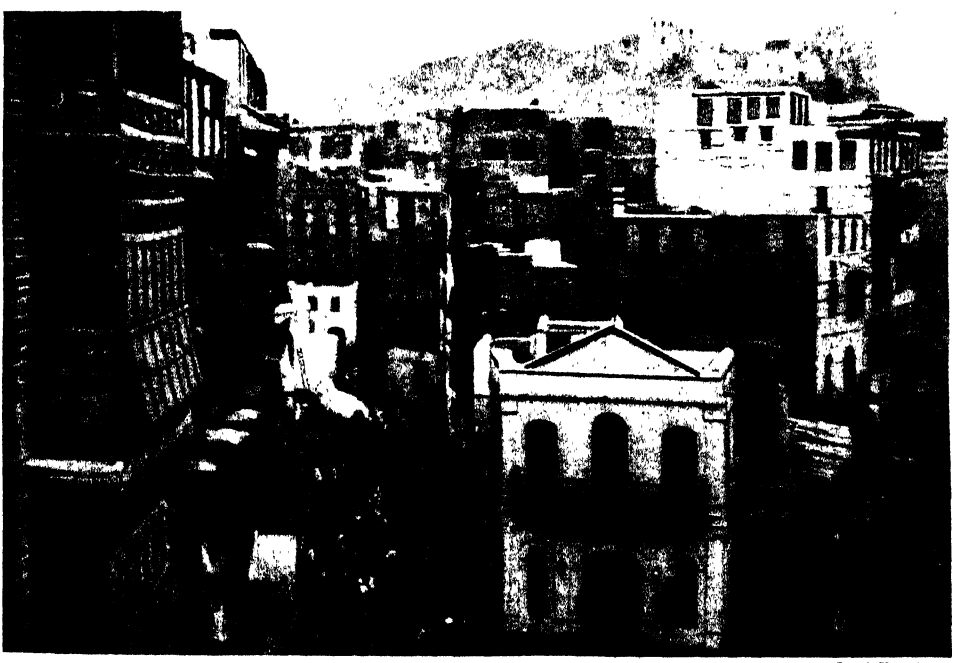
In the southern desert, the famous "empty quarter," the Dahna, where there are no wells and a caravan must subsist during a month's journey on camel's milk, the Nefud has no vegetation.

The Ahkaf is a heavier Nefud, and the only known tract lies in the south-west on the edge of the empty quarter.

The Harrah is the worst of Arabian deserts, for, though it is generally only found in patches, it is very hard for the legs of pack-animals, and the heat reflected from its sterile lava tracts is intense. Deserts of one kind or another encircle Nejd and, in certain places, stretch down to within sight of the coast. To the north lies the Nefud extending to Midian, but leaving a passage for the ancient pilgrim road to Medina and Mecca, now followed by the Hejaz railway, which runs from Damascus and Beirut to Medina.

To the east is the Little Nefud, which runs south-east to join the great southern desert, never crossed by a European, and possibly not even by an Arab on its centre line.

Westwards the circle is broken by intervals of steppe which afford passage to caravans through depressions in the western hills. Within the circle lie the



Lord Headley

WITHIN THE WALLS OF THE MOST SACRED CITY OF THE MOSLEM WORLD

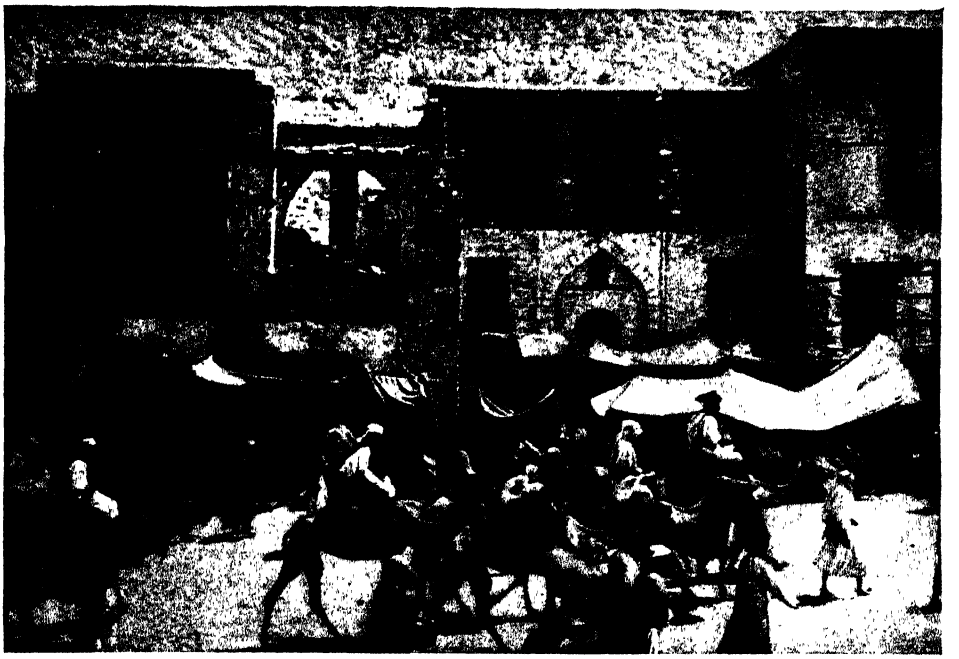
Through the "Way of Saiec," seen on the left, countless devotees pass to observe varied religious ceremonies connected with their pilgrimage. The road to Medina lies on the right, and the police station stands at the angle between the two streets. The beautiful teak and other hard-wood carving that adorns many of the Mecca houses is exemplified in the building to the extreme left



Lord Headley

SOLEMN PROCESSION OF THE KING OF HEJAZ WITH HIS RETINUE TO HOLY MECCA'S SHRINE

Riding on one of the pure bred stallions from his famous royal stable is the King of Hejaz. The white steed may be seen on the right of the photograph, and immediately behind is an attendant bearing the celebrated Golden Umbrella which follows his majesty on occasions of state. In front and behind come horse and foot of the royal bodyguard. Lord Headley, President of the British Muslim Society, took part in this very procession. Mecca lies in the midst of bare, unfertile hills intersected by many winding valleys, and it will be observed that the houses in this street stand in front of a particularly bare and stony hillside



Lord Headley

PILGRIMAGE TO ARAFAT, ISLAM'S "MOUNTAIN OF MERCY"

In Mina, the place of the sacrifices, by Mecca, is to be seen at the time of pilgrimage the most wonderful procession of devotees from all parts of the world passing to or from Arafat. These pilgrims of Islam have come from great distances, often taking many months on the journey, and not seldom have expended all their savings in order to pay respect to the memory of the Prophet

great central oases, Jebel Shammar, Kasim and Nejd.

Jebel Shammar is a plateau 2,300 feet high, sloping from south-west to north east, and its highlands attract sufficient rainfall to ensure cultivation. The population is divided into husbandmen (perhaps 18,000), who own considerable palm groves and grain, and Beduin nomads (about 20,000), who pasture innumerable flocks and herds.

The capital is Hail, and there is an older town called Feid.

Kasim, situated in the south of Jebel Shammar, is a string of oases, under 100 miles in length, of which the two central townships, Aneysa and Bereida, are the most important commercial centres in central Arabia. The settled population may be 65,000, chiefly of the ancient Tamin tribe and, as Aneysa is the only large oasis on the road between Mecca and Mesopotamia, it enjoys a considerable degree of civilization.

Doughty describes Bereida as "a great clay town built in the waste sand with enclosing walls and towers . . . beside a bluish dark wood of ethel trees upon high dunes." Kasim exports ghi, dates and cereals, and it used to be famous for its horseflesh, but the breed has declined since the Great War.

Nejd, in which Kasim is often included, covers about 10,000 square miles, and consists of a line of oases upon and under the plateau of Jebel Tuwaik. The chief town, Riyadh, was the seat of Ibn Saud's sultanate and the capital of Wahabism.

Nejd may be divided into three parts: the northern valley, the central region consisting of a chalky broken plateau (Jebel Tuwaik) looking down on to a sandy plain, and the south-western wadi of Dawasir, only explored by St. John Philby. The whole region is intermittently fertile, and the population has been estimated at a quarter of a million. Riyadh is built of sun-dried clay, with flat roofs laid on tamarisk branches, supported by palm beams, and the huge palace here is probably the

finest structure of this kind in the world. The whole Nejd group has Dahna east and south of it, Nefud and steppe on the north and steppe on the west, the last broken by several fertile valleys descending by way of Wadi Dawasir to the south-west. The other fertile regions form an uneven ring outside these central districts.

On the east this ring is thin and irregular. From Koweit to El Katif shore and interior are continuous steppe. Hasa consists of an isolated chain of oases, after which there are only a few small cultivable patches in the wadi mouths until Oman is reached. Here the fertility of Batina is due to periodic rains and the drainage from the inland mountains which also enriches the valleys to the north. Desert reigns until Wadi Hadhramaut is passed, after which the coast becomes intermittently fertile, and the valleys running down from the Upper Hadhramaut basin are rich in vegetation. Still farther west, we come to the upper edge of the tilted shelf which is Arabia. A sharp drop of some 1,000 feet divides the shore belt from the plateaux. The character of the country is here more sharply defined, for



Edmund Candler

DEVOTEES MAKING THE SEVEN-FOLD CIRCUIT OF THE KAABA

Many of the houses in Mecca are stone built and make an imposing sight as they rise, tier on tier, behind the Great Mosque of El Haram (sanctuary), which holds the Kaaba, the most sacred shrine of Islam. The pilgrims are performing the ceremony of walking round the Kaaba where it stands draped in its black carpet. This they do on the first seven days of the Hadj or pilgrimage

the Tehama is a desert of varying degrees of barrenness, and it is backed by a towering range, fertile even on its ridges.

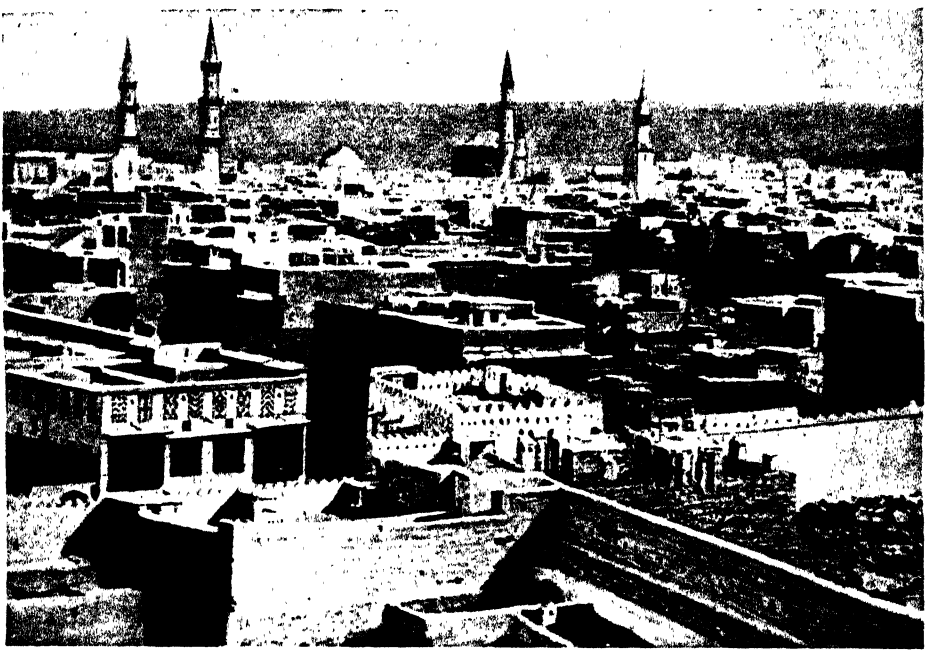
Sana, the capital of Yemen, where coffee, roses, almonds, wheat and bananas are grown, is at an altitude of 7,500 feet. Behind this ancient country, the edge of the old Sabaean kingdom, where Balkis ruled Sheba, the land degenerates into the desert of the unknown Ruba el Khali—"the terrible emptiness."

In north Yemen and Asir the mountains rise sheer out of the Tehama, often in the form of a cliff, but farther north, in Hejaz, they are divided from the plain by a series of foothills. Beyond Mecca the monsoons cease to discharge and the level of the high ground drops 2,000 feet in some 300 miles.

Between the holy cities of Hejaz, which, with Taif, form considerable oases, are spare stretches of arable ground, but the coastline to the north becomes more and more barren till the volcanic system of Midian raises the north-west corner of the sloping shelf to a final elevation.

The climate of Arabia is not unfavourable to human existence, except in some portions of the coast, where the damp heat of summer is almost intolerable. In the interior extreme dryness mitigates the noon heat and ensures a degree of coolness at night. Very few germs can live in such conditions, so on the northern Nefuds and steppes duration of life is long. In the more barren deserts exhaustion comes early to those Beduins who try to eke out their existence on a minimum of food. In the hill country the daily range of temperature is so great that it impairs the health value of the heights. Yemen profits most by the autumn monsoon. Oman has sufficient intermittent rains, and, along the edge of the western watershed, heavy storms occur occasionally during the summer.

The most favoured inland region is Jebel Shammar, which receives spring



OVERLOOKING MEDINA, SECOND ONLY TO MECCA IN SANCTITY

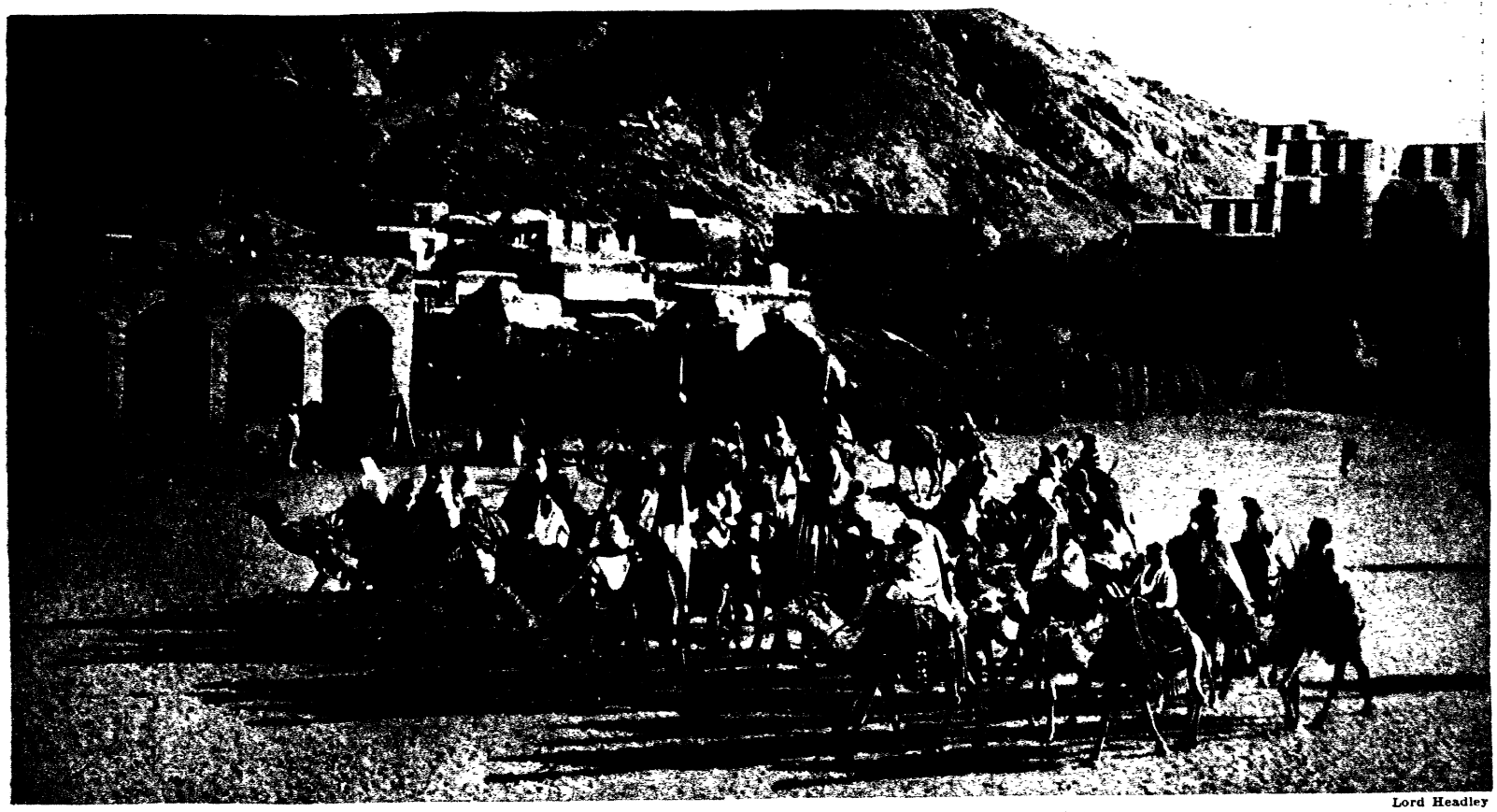
Medina, the old capital of the Mahomedan Empire, lying some 240 miles north-west of Mecca, is celebrated as the refuge of Mahomet and the place where he died and was buried, and is often designated "the City of the Prophet." His tomb, beneath a conspicuous pointed dome, is found in the enclosure of the magnificent Great Mosque—the chief feature of the city



Lord Headley

ARAB FRUIT-SELLERS AT YEMBO, THE SHELTERED HARBOUR OF THE HEJAZ

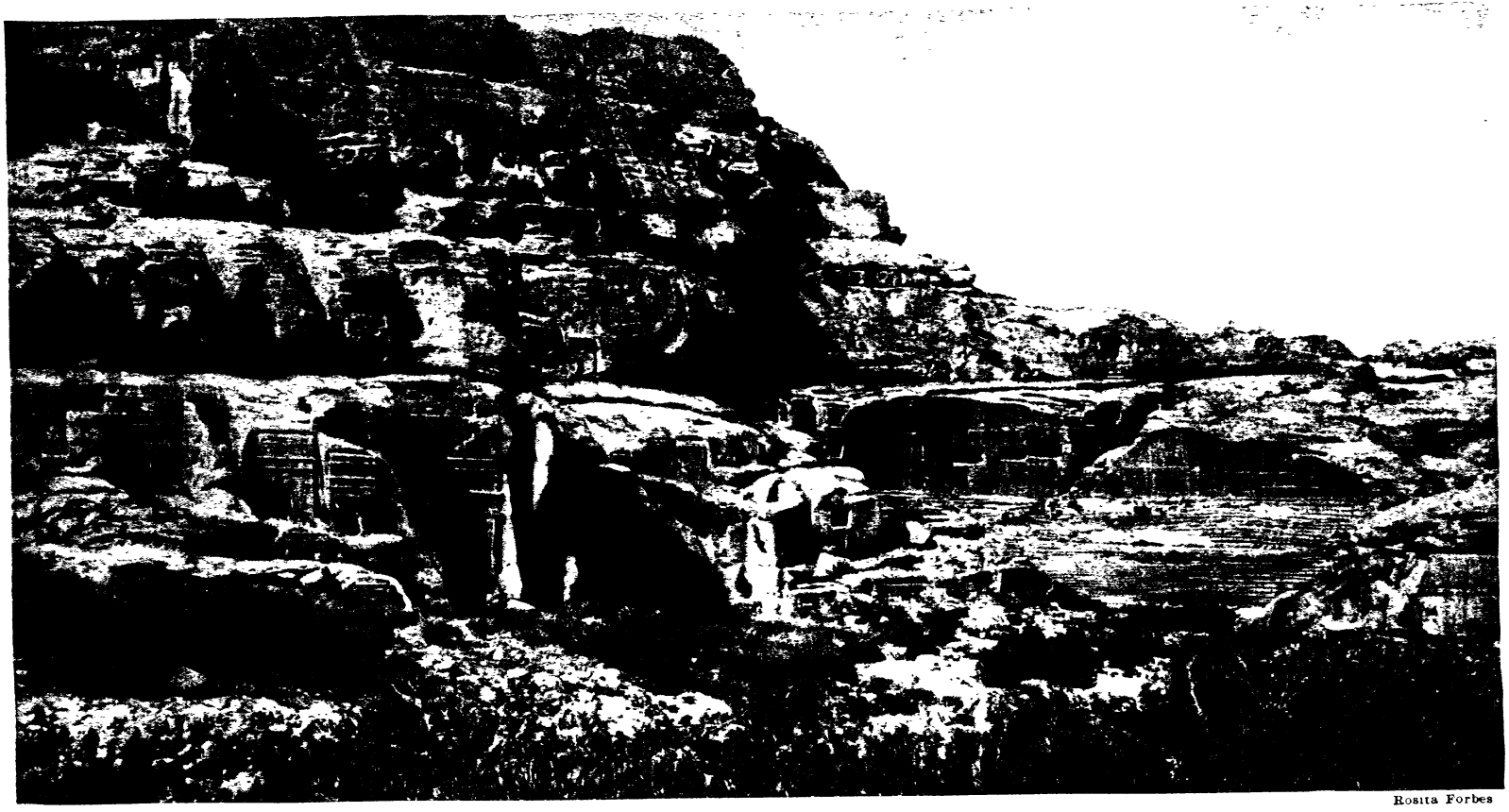
At many ports in the East the traveller may encounter a mob of natives which collects as soon as a visiting steamer is sighted to sell dates and melons to the **ship-bound passengers. These enterprising** salesmen know that fresh fruit is very welcome in the close heat of the Red Sea, and ask double the value of their goods **while the noise of haggling fills the air.** Most of the coastwise vessels touch at Yembo either to take in stores or discharge their cargo of pilgrims on the way to Mecca. This port is one of the most important in the Hejaz, and lies some 130 miles south-west of Medina



Lord Headley

SQUADRON OF THE BEDUIN CAMEL CORPS IN FULL ARRAY

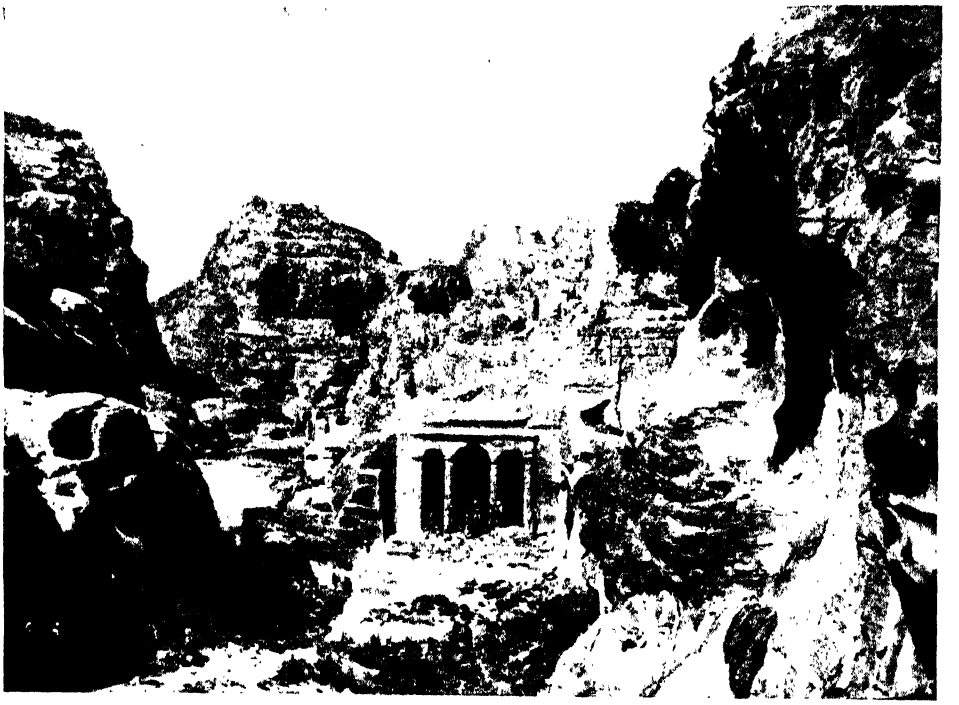
These desert warriors present a formidable appearance, armed as they are to the teeth with spears, pistols, rifles and scimitars. Their camels are not, by any means, the ordinary beasts of burden, but are particularly fast-trotting animals capable of holding their own with the best horses over long distances on the level sandy plains of the great Arabian desert, though traversing the rugged highlands they would be easily beaten by the nimble, sure-footed donkeys bred by the native inhabitants of this bare, uninviting land



Rosita Forbes

TOMB-PIERCED CLIFFS OF ROSEATE SANDSTONE THAT ENCLOSED PETRA, THE HIDDEN CITY

Where, within this secret circle of red rock amid the deserts of Arabia, stood street and palace and temple, are now only the remains of tombs and shrines cut in the rock and an uneven space covered sparsely with white broom and the fleshy foliage of squills. To the right can be seen all that remains of the great theatre with its thirty-three tiers of seats which held an audience of three thousand. Above gape the rock graves of the ancient people, predecessors of the Nabataeans, who first discovered the defensive possibilities of this hidden fastness



Rosita Forbes

ONE OF MANY ROCK-HEWN TEMPLES WHERE PETRA'S PEOPLE WORSHIPPED

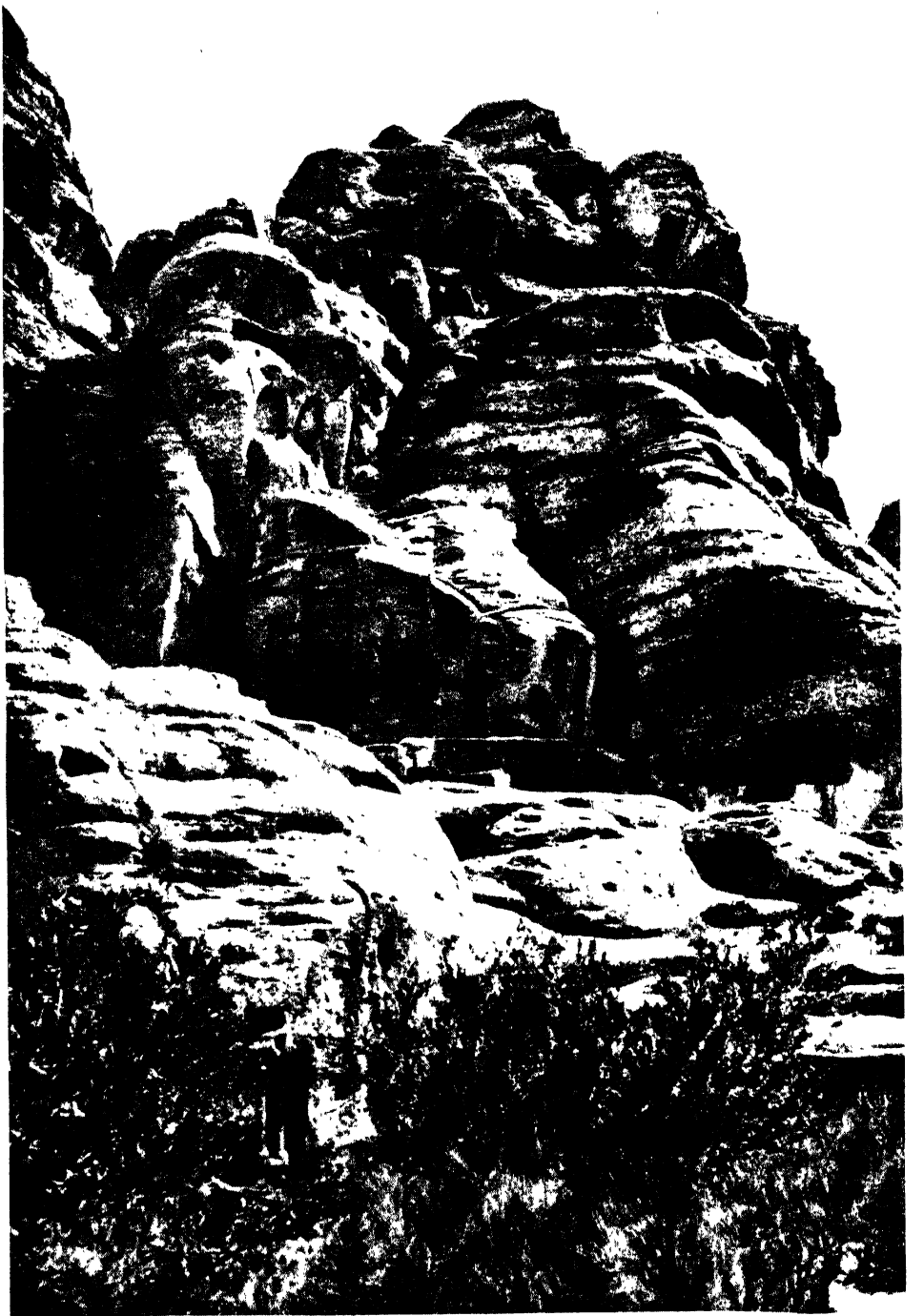
As Petra, the hidden city, grew more and more prosperous with the receipts from its control of the trade between East and West, so the number of excavations grew. Tomb and temple with pillars exquisitely carved from jagged cliffs of sandstone appeared in varying architectural styles. The one seen above has an inner and outer chamber, and was found to contain a Byzantine cross



Rosita Forbes

AT THE ENTRANCE OF THE GLOOMY PASSAGE THAT LEADS TO PETRA

After a long and thirsty journey over the uneven surface of the desert the traveller comes to a break in the wall of crimson stone that bars his way. Going down the gorge which the ancients thought to have been made by Moses when he smote the rock for water, the blazing sky fades to a dimness, and a man may touch both walls at once, so narrow is this secret cleft



Rosita Forbes

ROMAN TOMBS CUT IN SANDSTONE WEATHERED BY CENTURIES

Hundreds of rock tombs cut in the sides of the surrounding cliffs of red sandstone are almost the only remaining vestiges of all the great city of Petra. Various architectural styles—Egyptian, Assyrian, Persian and Graeco-Roman—roughly indicate the chronological extent of Petra's prosperity. This depended on a picaresque control of the trade routes and languished under the orderly rule of Rome

rains from the Mediterranean, and produces regular vegetation. Here the annual rainfall is only little less than that of Lower Egypt, but the precipitation diminishes rapidly towards the central districts where the almost negative record of Upper Egypt is the rule. The southern desert probably receives a mild shower only once in several years.

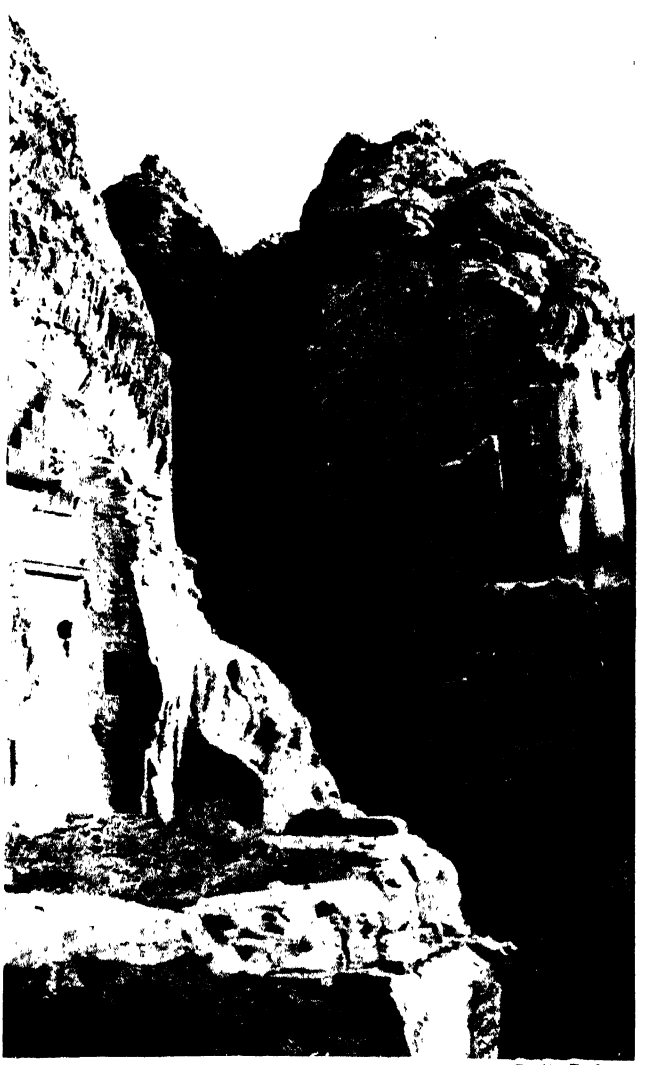
Heat, of course, is the main feature of the Arabian climate, and the southern region of the peninsula is within the zone of maximum July-August temperature. The hottest regions are the coasts of Yemen and Oman. Snow appears on the high crests of Jebel Shammar in winter, and the Yemen and Asir highlands experience severe frosts.

Mean Temperature	Jan.	June
Jeddah	72.1 F.	85.1 F.
Sana	56.8 F.	71.1 F.
Basra	51.8 F	87.3 F.

Maximum Temperature	Jan.	June
Jeddah	91.2 F.	115.2 F.
Sana	85.3 F.	89.2 F.
Basra	80.1 F.	111.4 F.

The population of Arabia can only be guessed at. It may be something between 6,000,000 and 8,000,000, and as a rough division, 3,000,000 might be allowed to the whole Red Sea coast, more than half of that number pertaining to Asir and Yemen; 1,500,000 to the southern and Gulf districts, of which Oman would have a third; under 1,000,000 to all the central settled districts; and possibly 1,000,000 to the central nomads.

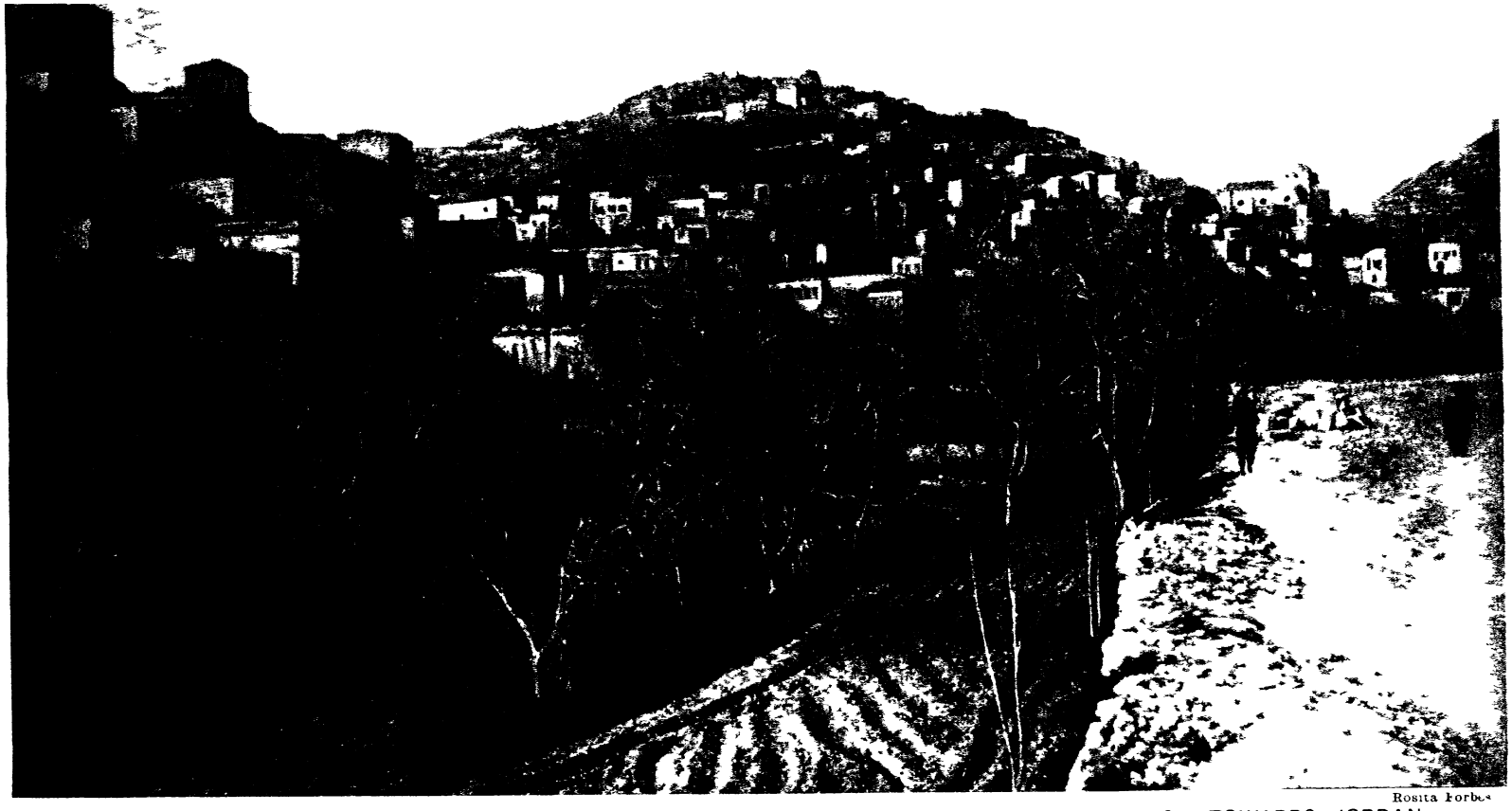
The physical conditions of Arabia constrain the majority of the tribesmen to a nomad life because it is almost impossible, except, perhaps, in Yemen, to increase the food-producing area. "Emigration constantly takes place and makes Arabia a cause of danger and unrest to her neighbours. The birth-rate is high, so the surplus population usually remains for some time within the peninsula, gradually accumulating and tending to form new nomadic groups which try to establish rights to wells and pasturage already occupied. At last the action of some tribe, or



Rosita Forbes

SANDSTONE GORGE OF THE WADI MUSA

High up the rough red sides of the cliffs are tombs cut in the rock. The gorge, through which a perennial stream once flowed, is about eight hundred feet deep, and, in places, so narrow that fifty might hold it against an army



Rosita Forbes

FLAT-ROOFED HOUSES OF ES-SALT STANDING HIGH ON THE HILLS THAT LOOK WEST TOWARDS JORDAN

Peopled with inhabitants two thirds of whom are Moslems Es Salt the second largest town of Trans Jordania is the chief town of the division of Belka It stands twenty miles north east of the Dead Sea at a height of 2 740 feet in the mountains beneath whose eastern slopes lies the desert and, though not touched by the railway, has a fairly considerable commercial importance Quantities of raisins are grown here and the town has a certain repute for the wine which it produces The division of Belka lies in the province of Gilead and is the ancient land of the tribe of Reuben



Donald McLeish

AS A BIRD WOULD SEE THE HOUSES AND ROCKY HARBOUR OF LOHAIA

Viewed thus from an aeroplane, Lohaia is seen to stand upon a low, sandy point jutting into the Red Sea some 130 miles west-north-west of Sana, the capital of the imamate or principality of Yemen. Lohaia is one of the chief ports of this province. The principal trade is in coffee, which is grown mainly on the western slopes of the Jibal hills

sheer want, forces them out, with all their predatory habits and defective experience of settled life, towards the borders of Egypt, Syria, or Mesopotamia. In historic times the settlement of the north-west African littoral by Arabs is known to have been due to a forcible expulsion of surplus population from the peninsula, carried out by certain of the stronger tribes. The overflow of the Shammar into Mesopotamia and of the Aneysa tribes into the Hamad are also instances in point."

Arabia is " a land of ancient violence." In few districts is it possible to secure from the soil more than a meagre existence on the borders of starvation. Agriculture is impossible in three-fourths of the peninsula, and water is to be found only occasionally in deep wells or rare rain-pools. Scanty and insufficient sources are jealously guarded. Therefore, the primal instinct of the Beduin is suspicion. Every stranger is a potential enemy and, above all things, the Arab is hostile to the unknown.

The " rafiq " system holds good throughout Arabia. A rafiq is a guide derived from each tribe through whose range the traveller must pass. The efficacy of the system is based on the recognition that a particular range (dirah) belongs to each tribe and the rafiq must be a man of importance who will be recognized as responsible for the safety of his companions.

A raid is a youth's chance of winning fame. The great chiefs have an annual season for raiding. The farther they go the greater glory they acquire. Raiding parties travel light, without women,



Rosita Forbes

HEAVY GOING FOR MAN AND BEAST ON THE STONY ROAD FROM MAAN TO THE WADI MUSA

Arabia Petraea is the name given by the Romans to the stony stretch of desert land comprising the northern Hejaz ; here the traveller is surrounded by its granite and sandstone hills midway on the route from Maan to the Wadi Musa—the "Gorge of Moses"—that narrow and precipitous defile giving access to Petra. The cavalcade picking its way along the rough caravan route consists of a camel, tireless and invaluable beast of burden on the level, and some of the sure-footed Arabian mules that can negotiate the most difficult hill slopes



ENCAMPED AMONG THE BARREN SOLITUDES OF ARABIA PETRAEA

Maan, a stopping-place on the Hejaz railway, is of importance as being the station where one alights in order to reach Petra. This photograph of the country surrounding it shows that Arabia Petraea—stony Arabia—is no idle name for the district; great barren hills and plains stretch on all sides, cumbered with stones and boulders between which grows the sparsest of vegetation. Amid this desolation are pitched the tents of some Sherif—the name shared by a noble class that derives its descent from Mahomet through his daughter Fatima



Rosita Fortes

RELICS OF ROMAN CULTURE IN THE OASIS-LIKE DESERT TOWN OF JUF

Lying full in the centre of the great desert that occupies the hinterland of Syria beyond Jordan, Juf is scarcely more than a village, but here dwells the most important community of the district. "Desert" must be understood in the sense of a region where the barren predominate over the fertile areas; very few of the world's deserts resemble the popular idea of a level sandy waste. Indeed, the country abounds in relics of Roman civilization—note in this photograph the Roman theatre and the columns still standing with their architrave intact

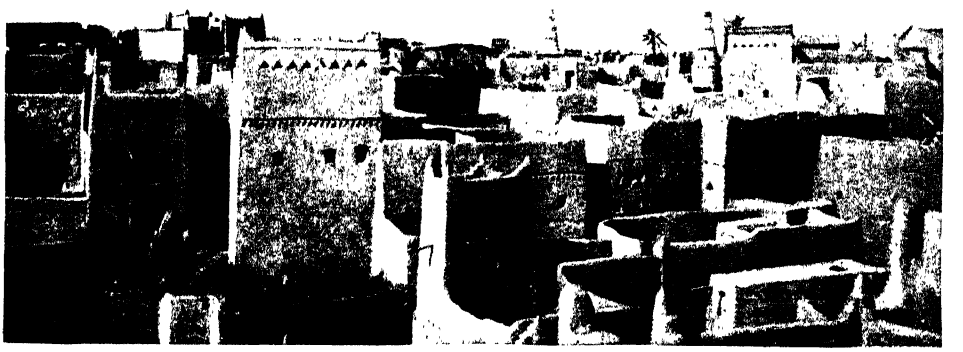
mounted on fast, well-bred camels, and the rafiq is powerless against them. When they swoop down on a caravan submission is the best policy, for it will save the traveller's life, though not his property, and entails, by desert custom, no slur on his courage. Arab protection is supposed to extend to anyone who has eaten his food, but, strictly speaking, the safeguard ends on the third day, when all that has been eaten on the first is said to have passed out of the body.

Settled communities in Arabia are affected in various degrees by the nomad society surrounding them, though often the townsfolk regard the Beduins as savages, while dependent on them for food and transport. The land is owned by the tribes, unless a merchant has bought his own urban property and possibly given a daughter to the tribal sheikh to secure surety of tenure.

The towns of Arabia are chiefly overgrown villages on which the other hamlets of the district depend. They are usually unproductive and are merely a distributing centre for the neighbourhood. The Kasim towns, of which mention has been made, organize the caravan traffic of central Arabia, and the Holy Cities are cosmopolitan resorts, living on their visitors and pilgrims.

Medina and Mecca are forbidden to non-Mahomedans, but many Europeans have succeeded in visiting the latter city in disguise. Snouck-Hurgronje lived in Mecca for five months in the character of a learned Moslem doctor. Italians, such as Varthema and Fuiati; Germans, such as Wild and Von Maltzan; Englishmen, such as Pitts, Burton, Keane, Wavell, and Headley; a Swiss, the famous Burckhardt; a Spaniard, Badia; a Swede, Wallin; Frenchmen, such as Courtellement and Roches—have seen Mecca. Medina has been visited by at least nine out of this list.

Mecca, the capital of Hejaz, is the birthplace of the Prophet, supposed to have been descended from Ishmael, the son of Abraham, who married a daughter of the ancestor of the Koreish, the rulers of Mecca when Mahomet was born. It lies in a narrow valley which takes the place of the ancient walls. Large suburbs spread to the north of the city and beyond these are the



Rosita Forbes

ANEYSA, A CARAVAN CENTRE IN THE ARABIAN DESERT

Aneysa, in the independent emirate of Nejd, is the centre of several important caravan routes, and as one of the chief commercial towns of central Arabia has intercourse with many large cities of the East. It is renowned as the birthplace of Abdul Wahab, founder of the Wahabis, a Mahomedan sect, and, together with other central highland districts, is famous for its fine horses



E. N. A.

OVERLOOKING JEDDAH WHERE PILGRIMS GATHER FOR THE LAST STAGE OF THEIR JOURNEY TO MECCA

Jeddah stretches along the Red Sea shore for about a mile. The anchorage is protected by coral reefs which, if they make access dangerous, at least afford some protection to craft moored between them and the shore. There are few facilities for landing either cargo or passengers save the small "sambuks" or open boats manned by Arab longshoremen. The streets are narrow and tortuous, so that to reach an open space is a relief. As a commercial port Jeddah has declined but the pilgrims make up the deficit, for the townspeople rely upon them for most of their yearly income

camps for Syrian and Egyptian pilgrims. In the lower part of the town is the famous mosque, the House of Allah, containing the sacrosanct Kaaba, where is the black stone supposed to have been placed in position by Ishmael, but probably a relic of the stone worship which originally existed in Arabia. Here also is the sacred well Zem-Zem, whose miraculously discovered source saved the life of Hagar and Ishmael when they were banished to the desert.

The college adjoining the mosque, intended as a lodging for students and teachers, is let out to rich pilgrims, and a poorly-furnished library is maintained for students. Above the mosque a broad stream runs across the valley between the holy hills, Safa and Merwah. This is the chief market and centre of Meccan life, but there are smaller markets roofed over, as in Damascus and Tunis.

Architecture of the Holy Cities

The houses of Mecca are well built, three or four storeys high, with terraced roofs and fine carved wooden latticework at the projecting windows. The water supply is entirely derived from Mount Arafat by means of a conduit, for the Zem-Zem water is sacred and believed to cure all ills. Pilgrims buy it to carry away to their own countries where it is a valued gift.

The soil of Mecca is barren, but fruit and vegetables come from Taif, the garden city in the hills where are the summer villas of the rich Meccans. There are no local industries and the population of some 70,000 depends for its livelihood on the annual influx of about 200,000 pilgrims, of which a quarter come from the Dutch East Indies and 20,000 are British Indians.

Medina is a walled town in a large oasis full of palm groves. Its population may be 40,000 and it is very mixed, for there has been much intermarriage with Kurds, Persians and Turks. Medina, the terminus of the Hejaz railway, consists of two parts. The old town is surrounded by a wall and separated by a broad, open space from the modern town and suburbs, which are guarded by a rampart of mud and coarse bricks. The Prophet's mosque, the Haram, in the former, is hemmed in by narrow lanes and crowded houses, but its principal gate is decorated with marbles, tiles and gilt inscriptions, and its spacious court, with minarets and lofty dome, leads to the supposed graves of Mahomet and his successors, the Caliphs Abu-Bekr and Omar. The tomb of Fatima, and some palms she is said to have planted, are within the same precincts.

Agricultural Wealth of Medina

The houses of Medina are substantial, built of granite and lava blocks, cemented with lime, and some of them are four or five storeys high, but the streets, though clean, are dark and scarcely wider than paths. Unlike Mecca, Medina has always been an agricultural city. It is surrounded, except to the west, by fields and palms, and good water can be obtained in the oasis, though it is often brackish. One hundred and thirty different kinds of dates are grown, also vines, peaches, pomegranates, bananas, limes, jujube-trees, wheat, barley and clover.

Jews and Moslems in Old Sana

Sana, the old capital of the Zeidi Imams of Yemen, later the Ottoman capital, is situated 100 miles inland from Hodeida on an open plain 7,750 feet high. Here, besides the old Arab town, with its intricate markets and its government buildings, and the spacious garden suburb, there is a Jewish quarter where some 6,000 Hebrews practise their various crafts - cobblers, metal workers, and weavers. They are not ill-treated, but they may not carry arms, build a house of more than two storeys, nor alter the scantiness and simplicity of their dress which consists of a single, long, cotton shirt with a skull cap.

Old Sana is surrounded by a 40-foot wall of stone and mud, flanked with

ancient towers, to which the Turks have added various more wooden defences. The citadel (Qal'ah) covers several acres and stands on a slight eminence to the east, but it is armed with nothing more formidable than a saluting battery. There are many mosques, both Arab and Turkish, and the markets are plentifully stocked, not only with local products, but also with European stores from Hodeida and Aden. The population has been variously estimated by the different Europeans who have visited Sana—notably Harris, Marzani, Aubrey Herbert, Wavell, Bury, etc.—but it may be in the neighbourhood of 20,000.

Sabiyah's Huts of Leaf and Clay

Sabiyah, the present capital of Asir, is supposed, according to a recent census taken for the purpose of land distribution, to have the same number of inhabitants, yet it is almost entirely built of "areesh"—round huts made of leaf from Dom palms and lined with clay. The town is divided into old and new Sabiyah, and lies at the foot of two small tabular hills called Aquar Yemeniya and Aquar Shamia, where emeralds are said to be found.

In the newer portion the late Emir Idrisi had begun building himself a large palace of mud bricks, and several of the merchants and ministers had followed his example, so that the mushroom-shaped areesh were gradually giving place to two- and three-storeyed houses with plaster façades.

European Visitors to Asir

Ebha, the old Turkish capital, has endured so many wars that it is at present partially ruined and almost wholly deserted. The first Europeans to penetrate into Asir were the members of the Danish expedition under Carsten Niebuhr in 1763. Since then the country has been visited by the French doctors, Fresnel, Jomard, and Tamisier, who accompanied Mehemet Ali's expedition, and, to a minor extent, by the present writer in the winter of 1922-23.

Having reviewed the main inland towns of Arabia, we come to the ports, of which Aden is the most important. Aden consists of some 2,000 white-washed houses of stone or mud, and the whole town has been practically rebuilt since British occupation. One of its sights is a tunnel 350 yards long, connecting the town with the isthmus. Tawahi, the port of Aden, is new and prosperous looking, with European hospitals, hotels and government offices.

The main trade of Arabia passes through Aden, which exports coffee, hides, honey, dried fruit, oil of sesame, fodder, drugs (almost entirely kat), animals and pearls, chiefly to India and West Africa, and imports oil, groceries, hardware, tobacco—in fact, all luxuries. The total value of her trade in 1914-15 was £5,940,000.

Jeddah, the port of Hejaz, has also a considerable trade, exporting some £60,000 worth of skins, hides, wool, henna, gum, mother-of-pearl shells, besides an immense quantity of specie (the result of the pilgrim influx), amounting to over £1,000,000 a year, and importing £1,500,000 worth of groceries, spices, timber, carpets, crockery, tobacco and hardware. Her trade is with Egypt, Massawa and India.

Ports of Araby and Their Trade

The ports of Asir and Yemen, of which, since the decay of Mocha, Hodeida, Midi and Jeizan are the largest, import European and Indian goods, chiefly through Aden, and export the hides, grain and livestock of the Tehama, pearls from their fisheries, and fruit, rock-salt, kat, honey, and coffee from the hills. I estimated the revenue in 1922 of the Emir Idrisi in Asir and north Yemen as nearly £200,000 derived from customs duties and tithes.

Koweit, on the Gulf coast, has a population of some 37,000, nearly all of whom live in the town, which illustrates the barrenness of the surrounding sultanate with its 20,000 practically uninhabited square miles. Koweit's trade is chiefly with India and the Persian and Arabian



ARABIA. *Weird houses with dark intersecting alleys are found in Jeddah, a port whose decline began when the Hejaz railway opened*





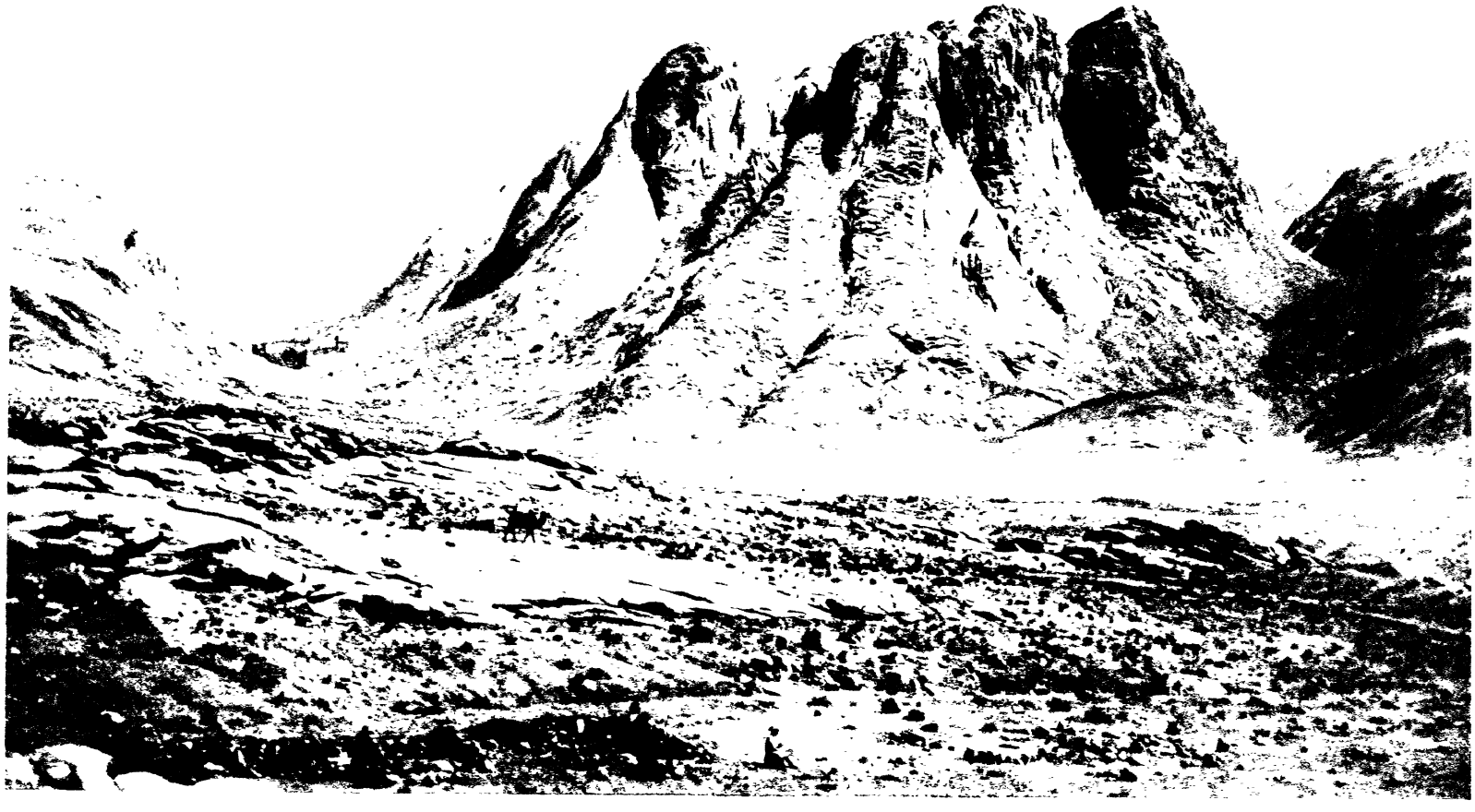
ARABIA. *Yambo, port of Islam's holy city, Medina, lies on the eastern coast of the Red Sea in the Hejaz. Ornate but decrepit buildings flank the streets traversed by pilgrim bands and struggling camel caravans*



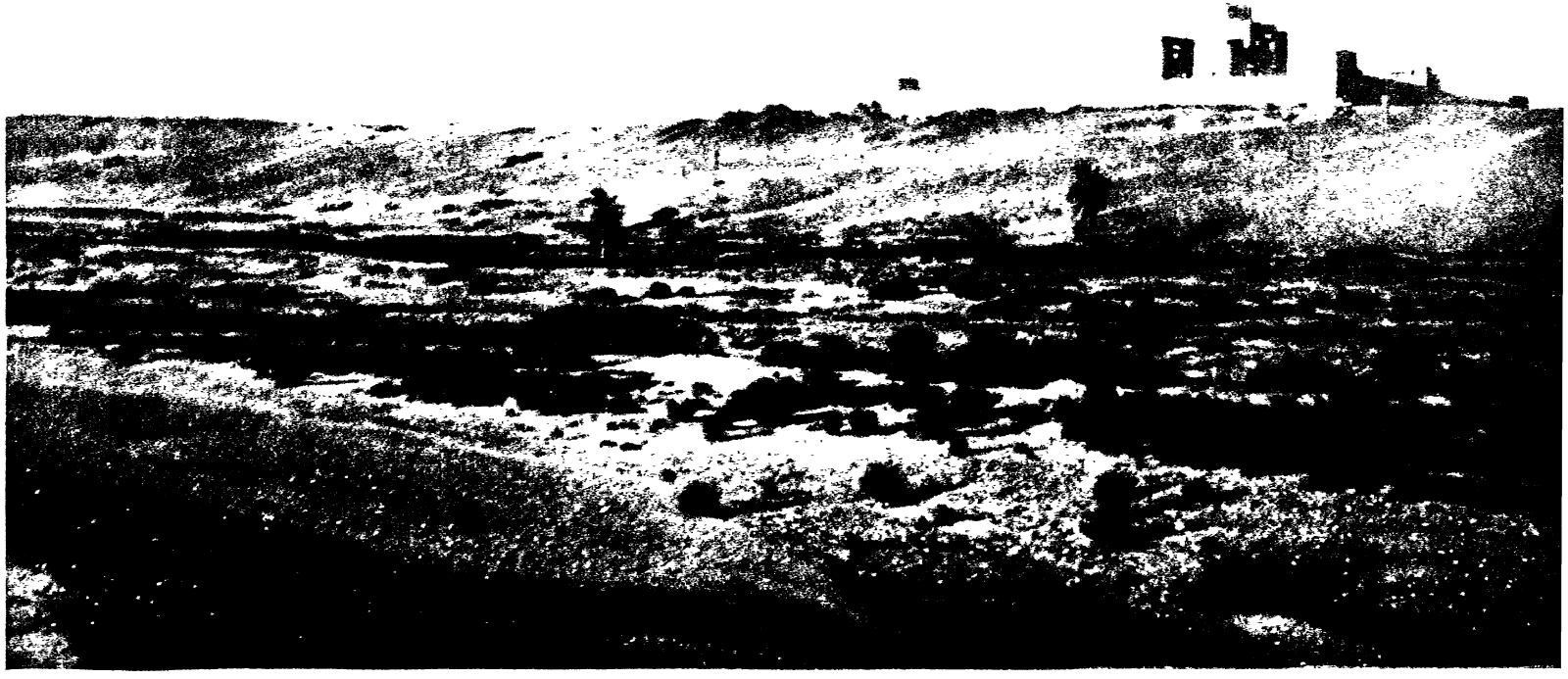
ARABIA. *On an ancient trade route between Palestine and Arabia is this gorge, the only passage which led to what was Petra city*



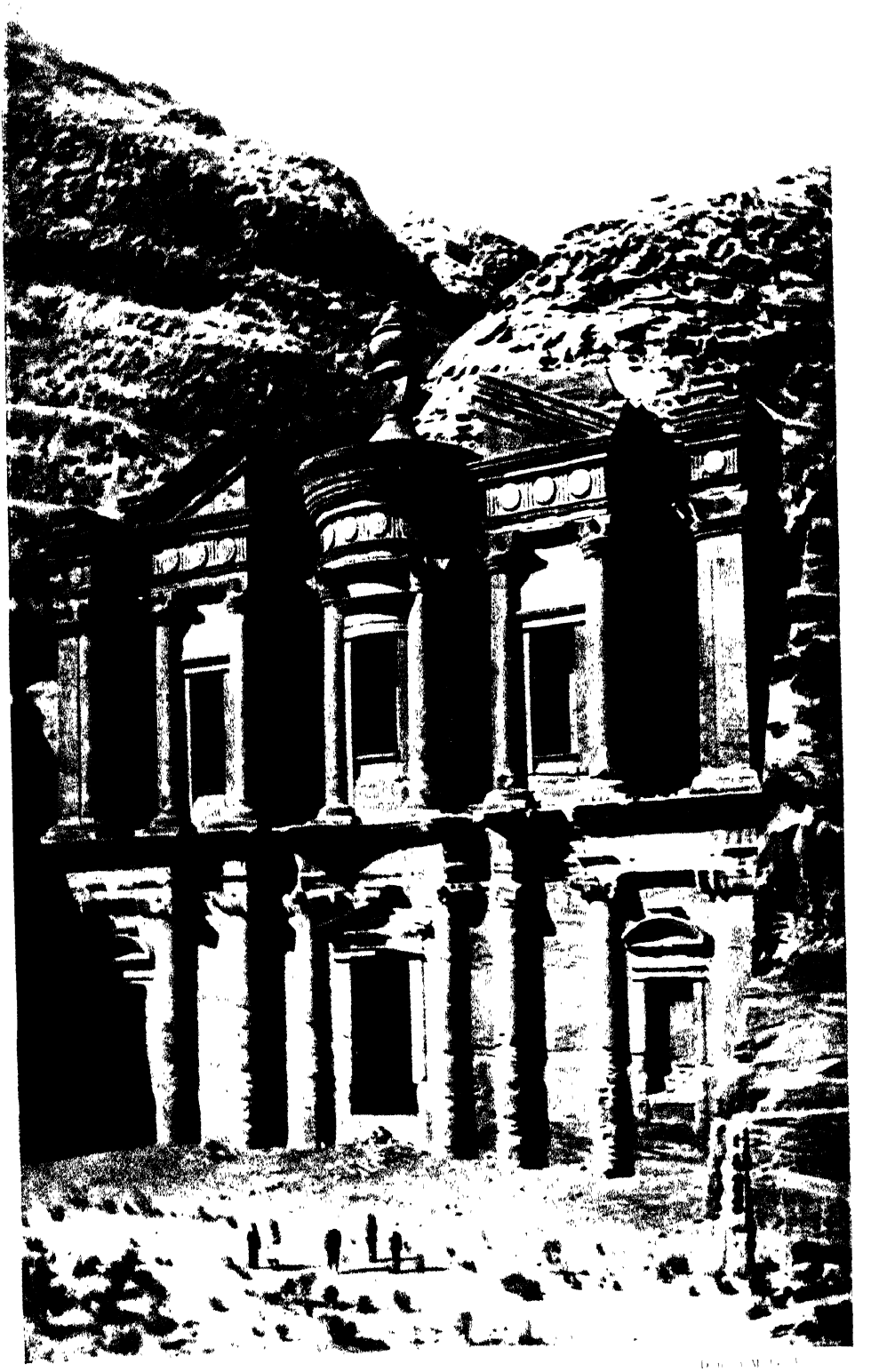
ARABIA. *The site of Petra, 'rose red city half as old as time,' is here seen from a height between the walls of the ravine of the Musa*



Near view of a vast mass of quartz and schistus granite, Ben Mor, or Great Hill, in the central height in the west of the Island of Mull, from the Sound of Iona. On the hill to the left is the ruins of Kilfinichen Chapel.



ARABIA. *Lying on the Red Sea coast south of Hejaz, Yemen province stretches inland to the El Akhaf desert. Barren, hilly land prevails, with occasional oases near which stand such Arab citadels as this*



ARABIA. *Chiselled from the red sandstone face high above deserted Petra stands the imposing Ed Deir temple, a relic of Roman times*

coasts. Its chief imports are piece goods, rice, sugar, coffee, tea, arms and ammunition, oil, grain and hardware. It is the market of Nejd and Jebel Shammar upon which the central districts depend for their luxuries and even for necessary food stuff. Its exports are dried fish, pearls, specie, ghi and livestock, chiefly horses.

Oman, with its capital Muscat, and half a million inhabitants, has a considerable settled population which lives by agriculture and produces not only fine dates, but plantains and mangoes, pomegranates, quinces, sweet and bitter limes, olives and almonds. In Jebel Akhdar flourish walnut and fig, vine and mulberry, while the coconut is found in Dhofar.

In Batina fishing is the most important industry, and on the coast all livestock, including camels, are fed on fish-heads boiled up with date-stones.

Hinterland's Dependence on Coast

Sheep, cattle and goats are very plentiful, and in some of the inland towns there exist simple industries such as indigo dying, weaving, and gold and silver work. The most valuable export is dates, of which the finest go to America, and the chief imports are rice and cotton. In 1913 £180,000 worth of arms and ammunition was imported.

Hadhramaut, with a population of 150,000, produces a race of merchants who travel widely in the coastal districts, and have succeeded in establishing thriving businesses even in Asir and Yemen. Nevertheless her trade is small and local, an exchange of dates, wheat and honey, for oil, piece goods, groceries and iron.

It will be seen from this summary that, while the coastal districts produce considerably more than their essential food supply, the interior depends upon them for maintenance, producing only gums, butter, hides, wool and camels to pay for European and Indian goods and their long transport inland. The nomads, from north to south, breed an admirable type of fast riding-camels and also quantities of baggage beasts which supply Egypt and western Asia. The small wiry breed of Asir is capable of carrying a 700-pound load.

The famous Arab horses come chiefly from Nejd and there is a considerable export of these to India, Syria and Egypt. Fine asses are bred in Hejaz and the central districts, and these are almost as invaluable as camels in a country where there are no roads and no tracks, except for a few miles on the coast. A route in Arabia is merely a direction. Quantities of small grey donkeys are imported from Africa and these form the chief means of transport in the western Tehama.

Islam Universal but not Unanimous

Since the eighth century the dominant religion of Arabia has been Islam. There are a few non-Moslem residents on the coast, chiefly Persians and Levantines, and old Jewish colonies exist in Yemen and Nejran, but these are a very small exception to the monopoly of the "True Believer." Islam is not, however, as unanimous as it is universal. The great majority of the people are Sunnis, but Shiites predominate in Hasa and Central Yemen, the former being Karmathians and the latter Zeidist. Even Mecca is tainted with heretical Zeidiism, owing, perhaps, to the number of Shiites who yearly make the pilgrimage from their holy cities of Kerbela and Najaf.

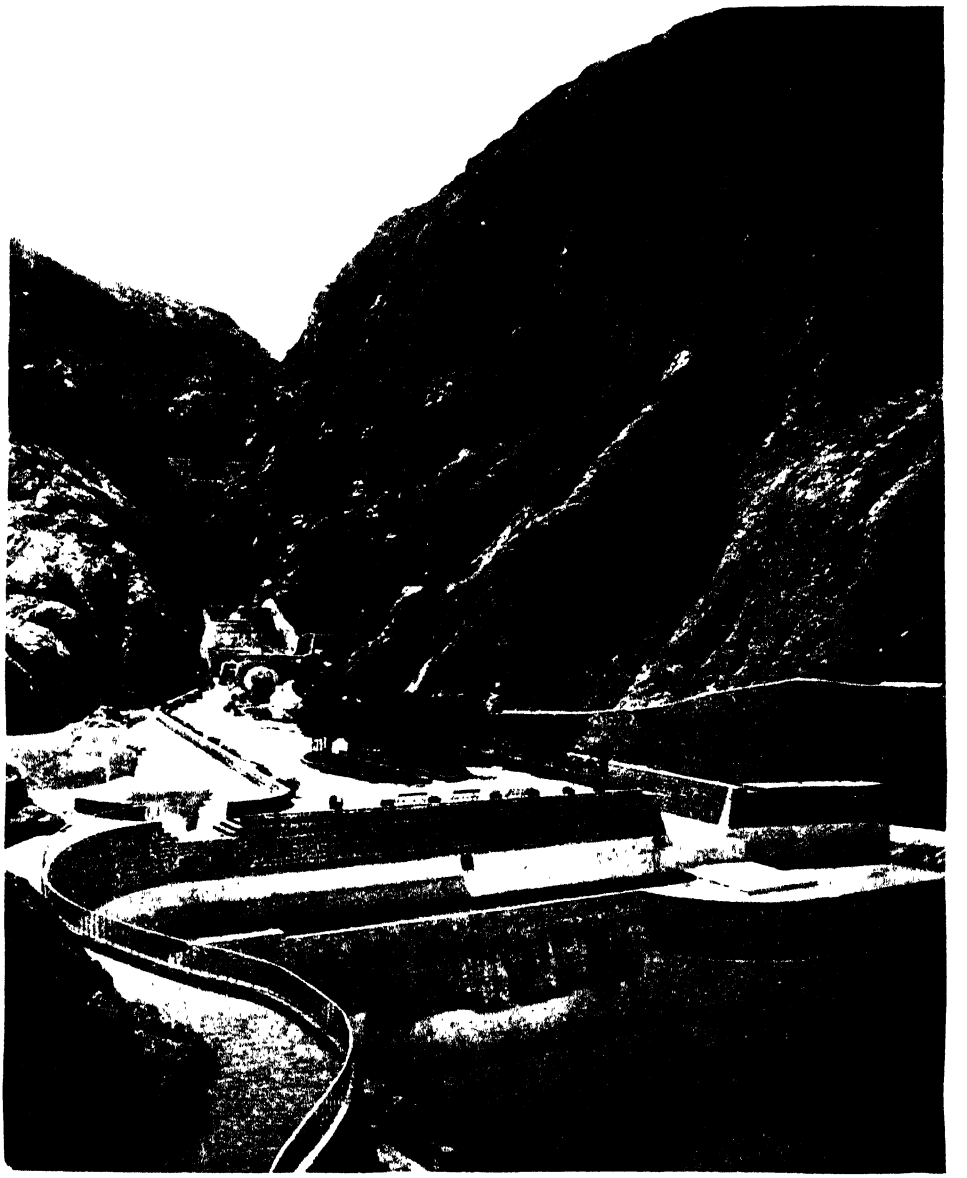
The Strongest Force in Arabia

Central Arabia has long been Wahabite. Wahabism, which arose in Nejd in the middle of the eighteenth century, is an ascetic revivalist movement among Moslems who sympathise with the strictest and most orthodox form of Islam. Its founder preached a return to the practices of the primitive Church, suppression of pagan ceremonies, no communication with infidels, whether Turks, Jews or Christians, and suppression of all luxury.

Ahmed el Idrisi taught a somewhat similar doctrine in 1830, and is responsible for the austere Idrisi tarika

ADEN SWELTERING UNDER THE ARABIAN SUN IN THE CRATER OF AN EXTINCT VOLCANO

Situated on the southern coast of Arabia and a hundred and five miles east of the straits of Bab el Mandeb, which form the southern end of the Red Sea, lies the town of Aden. It is built in the crater of an extinct volcano, part of whose rocky circle may be seen here, and is situated on the east side of a promontory about two miles long and three broad. The town is an important coaling-station on the sea road to India and exports salt which is obtained by evaporating sea water. Apart from the sometimes intolerable heat, the climate is healthy



HOW SULTRY ADEN SOLVES THE PROBLEM OF WATER SUPPLY

Since the seventh century, when its great rock cisterns were begun, the water supply has been Aden's great problem. The cisterns, which have been restored and one of which is shown above, have a total capacity of eight million gallons. An aqueduct brings water from a village seven miles away, and there are a few wells, but the chief source of supply is the distillation of sea water

(parent of the more famous Senussi tarika of North Africa) which reigns to-day in Asir and is the basis of a firm alliance between the puritans of Nejd and the Idrisi's tribesmen who control the route from central Riyadh to the markets on the Red Sea coast.

Wahabism is undoubtedly the strongest force in Arabia to-day, especially as it was organized and manipulated by that great personality of the peninsula, Ibn Saud, Emir of Nejd. It is possible that it may prove to be the regeneration of Islam, but it represents the most retrogressive spirit in Arabia.

The coastal districts, with the exception of Asir, have come into contact with European methods and are anxious

MUSCAT, CHIEF TOWN OF OMAN, BUILT UNDER THE BATTLEMENTS OF A COMMANDING FORTRESS

Lying at the foot of the precipitous hills on the south coast of the Gulf of Oman is Muscat, capital of the province of Oman. In it resides the sultan of the state, whose residence is the white building on the left built by the Portuguese in the sixteenth century. The town exports pearls, dates and horses, and much trade is carried on with the ports of India. Here natives are seen unloading cargoes from lighters moored in the harbour, wading ashore with their loads on their shoulders. The province of Oman has a surface in the main barren and mountainous, but there are parts where the soil is fertile



Rosita Forbes

DRAW WELL SUPPLYING WATER TO AN OASIS IN THE DESERT

Arabia has long been proverbial as a barren land, which only water can transform into a garden. Perennial rivers are few; periodical rains only in elevated regions, but many arid wastes are made fertile by irrigation. Here, at Shagra, from a superstructure over the well-mouth, buckets are lowered and raised by ropes drawn over pulleys by animals ascending and descending an artificial incline

to profit by her civilization, but Nejd is the centre of an old, narrow tradition which regards science as devilry, material comfort as laxity and all modern progress as pandering to the influence of the infidel. It remains to be seen whether the fanatical fervour of the Wahabis will be able to carry the Holy War into the more tolerant countries which lie beyond their deserts. It is a curious anomaly that out of these forces of destruction Ibn Saud was able to construct the only united and expanding emirate of the peninsula.

The Arabs of the north are of mixed blood and show a type modified by the imprint of many races Persian, Mongol and Frank. They are the Ishmaelites or wanderers, lean, hard-faced men, generally bearded, with weak chins and large noses, sometimes of great stature. In summer and winter they wear heavy camel-hair mantles over a series of woollen robes, which, with a silk or cotton scarf wound round their heads, gives them a dignified and patriarchal appearance.

The tribesmen of Yemen and Asir are of a different stock. They are the pure Arabs. They are small-boned, lithe and supple, clean-shaven, with fine-cut, thin features and hair bunched in stiff ringlets on either side of smooth, golden-brown faces. On the coast there is an admixture of slave blood from Abyssinia and Somaliland, and in the deserts the type sometimes degenerates into a creature who is almost savage, wearing nothing but a loin-cloth, carrying a spear, and rubbing his body with oil. In Jebel Haras I have seen fuzzy-headed Beduins with the low forehead and broad features of Central Africa.

The great Hashid and Bekil confederation represent the pure Arab at his best, for their mountain life hardens and invigorates them. They wear indigo kilts and turbans, with sheepskins slung across their backs, and some of their fortresses, stone-built and loopholed, are so high among the rocks that sheep and cattle have to be carried up across men's shoulders when they are a few days old.

The Arab woman's life varies little except in so far as it is nomad or settled. In the more tolerant towns shrouded figures are seen in the streets, bells tinkling in the hems of their garments as they go by barefooted or shod in coloured sandals or the high yellow boots of Hejaz. In Asir and Nejd a woman of good class only leaves her house twice, to be buried or to be married. The Beduin woman has more freedom and also does more work. An Isiri tribesman explained the division of labour in this way: "Man is born to fight, woman to work. Man carries the gun, woman the tools and the child."

ARABIA: GEOGRAPHICAL SUMMARY

Natural Divisions. Plateau marked by gable ridges; much of the interior is but slightly known. On the west the Red Sea trench, part of the Great Rift Valley, the Red Sea coast is marked by coral reefs, coral sand and terraces rising to a gable ridge. In general the land slopes sharply to the west and gently east to Muscat, and north-east to Basra. Rivers lose themselves in the porous limestone or in the desert sands.

Climate and Vegetation. The interior, especially Rub'a el Khali, is rainless desert, cf. Egypt. To the north of the desert lies the area of winter rains, gradually increasing in quantity as the Mediterranean Sea is approached. South of the desert the highlands and the S.W. coast receive monsoon rains, cf. Abyssinia and India. Vegetation depends on the rainfall and occurs in the oases, and in scrubland and steppeland, which provides pasture and is typical "Beduin country." The "harra," a lava desert in the north west, separates north and south Hejaz. Tropical Yemen is most fertile and productive.

Railways and Communications. All routes are fundamentally pilgrim routes to Mecca, and depend upon water supplies and oases, e.g., the routes from Medina and Rabegh to Mecca with the "harra" between them. The Hejaz railway follows a trough west of the main gable ridge.

Trade. Mecca district produces no sufficient supplies for the pilgrims and so trade converges on the Holy City.

Outlook. Natural conditions preclude trade progress in the Anglo-Egyptian Sudan and Abyssinia, the population seeming condemned to a Beduin nomadism, with its accompanying feuds, and isolated settlement at the oases.

THE ARCTIC LANDS

To-day & To-morrow in the Far North

by Vilhjalmur Stefansson

Arctic Explorer and Author of "The Friendly Arctic," etc.

SO far as climate and natural products are concerned there is no simple and logical way to differentiate Arctic from non-Arctic lands.

The simple mathematical way of bounding the Arctic by a circle on the globe about 66½° from the Equator is the worst of all methods in the sense that it corresponds least to any realities of climate or of vegetable and animal life; in mid-winter, at least, some places considered sub-Arctic are warmer than others considered subtropic.

It might seem logical to take the northern limit of trees as the southern boundary of Arctic lands. Unfortunately, the features of climate which we associate with the Arctic do not alone determine forest distribution.

It would be even more unsatisfactory to define Arctic lands by distance from either the magnetic pole or the cold pole than to define them by their distance from the North Pole. But there is still another pole which has a little more—though not much more—fitness for being used as the centre of the Arctic. This is the so-called ice pole, or pole of relative inaccessibility.

Pole of Relative Inaccessibility

In navigating the Polar Sea you can approach with ships to within 400 miles of the North Pole on the Atlantic side, while you cannot approach within 1,000 miles of it on the Alaska side.

By plotting out on every meridian the farthest point to which a ship has been able to attain under its own power, we have marked out the area of relative inaccessibility, the "centre" of which has been taken as a point about latitude 84° north and 160° west from Greenwich.

If you were to come from the Spitsbergen side you would arrive at the North Pole after approximately 400 miles of walking. If you wanted to go to the ice pole you would have to walk nearly 400 English miles beyond the North Pole. In deference to long custom, however, we shall here frequently refer to Arctic lands in the sense of those more than 66½° from the Equator.

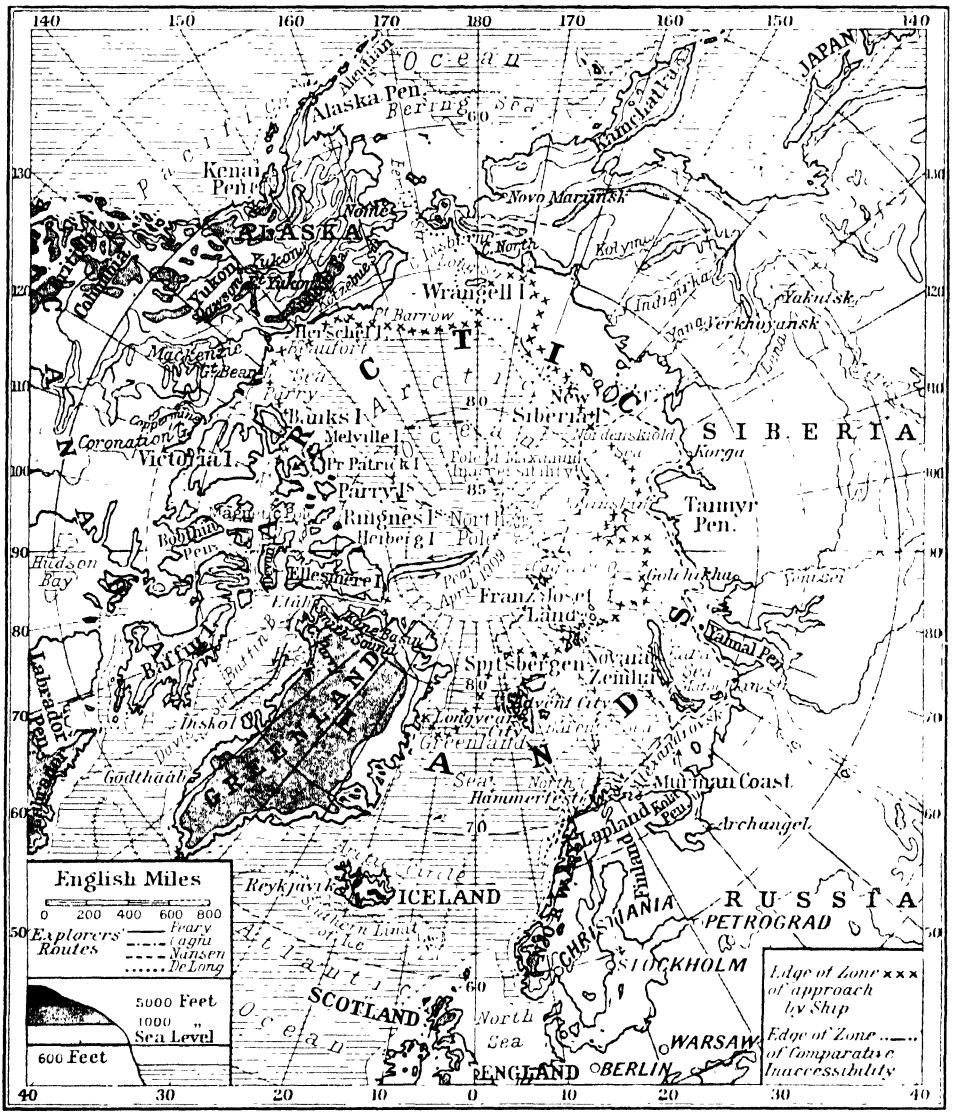
Wide Range of the Eskimos

Since Arctic lands are in the minds of some people nearly or quite synonymous with those occupied by Eskimos, we shall in some aspects consider as Arctic such territories as the Eskimos are known to have inhabited in recent times.

In the Old World the Lapps are usually called an Arctic people, but in this work they are dealt with under a separate head, and we will consider here only the lands occupied by Samoyeds, Chukchis, Asiatic Eskimos, and other reindeer nomads or hunters.

Taking the Eskimo range at what it was in the time of the early American explorers, we include in their territory the northern tip of Newfoundland, the coast line of Labrador, and most of the Labrador peninsula, the northern half of the western coast line of Hudson Bay, the Arctic coast of Canada and Alaska, following around Bering Sea to the Aleutian peninsula and islands, and ending on the south coast of Alaska somewhere near the Kenai peninsula.

All the islands to the north of North America can be included in the Eskimo world, although a few of them have as yet shown no sign of ever having been inhabited. In Asia there are Eskimos on the north-east tip of Siberia as far west as Cape North. On the Atlantic side the Eskimo area extends about as far south as the south tip of England, while the Aleutian portion on the Pacific side



THE GREAT LAND MASSES OF THE ARCTIC CIRCLE

is as far south as the middle of England. In the main the Arctic lands are low. Alaska is in part mountainous, but the Eskimos do not generally live on the high land. The triangular prairie or lowland north of the Endicott Mountains has an area about that of the British Isles and there are no cliffs facing the coast higher than 30 or 40 feet. Melville Island is rugged rather than mountainous, and so is Baffin Island. The high Canadian islands are Heiberg and Ellesmere, and all that part of continental Canada which was inhabited by Eskimos is low enough to be entirely free of snow in summer.

Generally speaking, the northern portions of the Old World are similarly low, and therefore similarly free from permanent ice or snow. The highest of the Arctic lands is Greenland, which is one reason why about 90 per cent of it is covered with permanent ice. The other cause is heavy precipitation.

Like every other part of the world, the Arctic has a climate broadly divisible into continental and insular. The most striking feature of insular

climate is its comparative uniformity. The exaggerations which now and then creep into the accounts of travellers, and the general theory of the ancients that the Polar regions are always cold, are responsible for the common belief that all the Arctic lands are cold at all times of the year. This impression is entirely fallacious. We would say instead that only those parts of the Arctic which have an insular climate are "cold" throughout the whole year.

Excluding Greenland, the Arctic lands with an insular climate are not nearly as extensive as those that have a continental climate. Although we have never done so in the past, we should really emphasise the continental Arctic climate, since it affects both more square miles of land and more people who live under its influence.

According to the common views, we are prepared for the low temperature of the continental Arctic winter; but only students of climatology are equally prepared to be told that the temperature of 90° F. above zero in the shade is more frequently exceeded in July at Fort Yukon, north of the Arctic Circle, than it is in London.

Going straight west from Scotland we come to the middle of the Labrador coast. Although the Labrador coast is cooler in July than the coast of Scotland, the interior of the Labrador peninsula is likely to be hotter in July than the Highlands of Scotland at the same altitude.

To get the most striking view of what a continental climate may be in the Arctic, take the reports for Verkhoyansk on the Yana river in Siberia, just north of the Arctic Circle, where we have a record of 92° F. below zero in winter, and 93° F. above zero in summer, a temperature range of no less than 185° —about the greatest known. This is in the Yakutsk province where wheat, barley, oats and rye are grown.

For the sake of emphasis it is worth pointing out that the minimum temperature of Verkhoyansk is at least 20° F. (and more likely 25° F. or 30° F.) lower than any temperature that ever



AFTER REPLETION COMES REPOSE: WALRUSES IN THE BERING STRAITS

It would scarcely be possible to find a picture more suggestive of care-free abandon than is found in these gigantic walruses asleep on a block of ice in the Bering Sea. The species is confined to northern circumpolar regions and has highly developed gregarious habits; its only redoubtable foe is the Polar bear against whose advances the long tusks are a formidable defence.

occurs at the North Pole. This ceases to be surprising if we remember that the three main factors which control minimum winter temperatures are: (1) distance north from the Equator; (2) distance above sea-level; and (3) distance away from the ocean.

Although Verkhoyansk and Fort Yukon are only a few hundred feet above sea level, this altitude helps them to be colder than the North Pole, which lies in the ocean. But what helps still more is that each of them is several hundred miles away from the warmth of the ocean while the North Pole is 400 miles away from the chill of the nearest land.

To understand the stabilising influence of the Arctic Ocean upon the temperature of the coasts and the islands, we must remember that its common name, the Frozen Ocean, is not to be taken too literally. Warm water is lighter than cold. This sets up constant ocean currents which cool the tropics and warm the Arctic. It has been estimated that even in January at least 25 per cent of the surface of the Arctic Sea is open water. The 75 per cent that is ice is in the form of cakes of various sizes from that of a table to that of the largest English county. They are constantly moving about sluggishly before the wind and current, spinning on their axes as they move ahead and constantly jostling each other.

In the summer from 50 to 75 per cent of the surface of the Polar ocean is free of ice. The temperature of the water all the year round is near plus 28° F. The average thickness of the ice, even in winter, is less than four feet, so that a certain amount of heat can pass up through it if the air above is anything like minus 40° F., but there is an especially rapid exchange of heat



Valley-ice stretching

WITH THE ADVENT OF SPRING WINTER'S ICY GRIP RELAXES

Owing to the constant play of currents the surface of the Arctic Ocean is never entirely frozen. In spring the winter ice, which is formed of fresh-frozen sea-water and covers three-fourths of the total surface, begins to break up and, pressing on their axes and grounding as they jostle each other, the cakes gradually move out into the warmer seas. Only a quarter of the "Frozen Ocean" is ice-covered



Vilhjalmur Stefansson

EASILY OBTAINED MATERIALS SOLVE THE ESKIMO'S HOUSING PROBLEM

Though the snow house is an almost unknown form of shelter to the Eskimos of Alaska and Siberia, their brothers who inhabit the islands north of Canada and that part of the mainland which lies between Hudson Bay and Cape Parry use them all through the winter. In Greenland earth houses built on a skeleton of whale's bone and stones are commonly used.

between the open water and the air when they come to differ markedly — say water at plus 28° F., and air at minus 50° F.

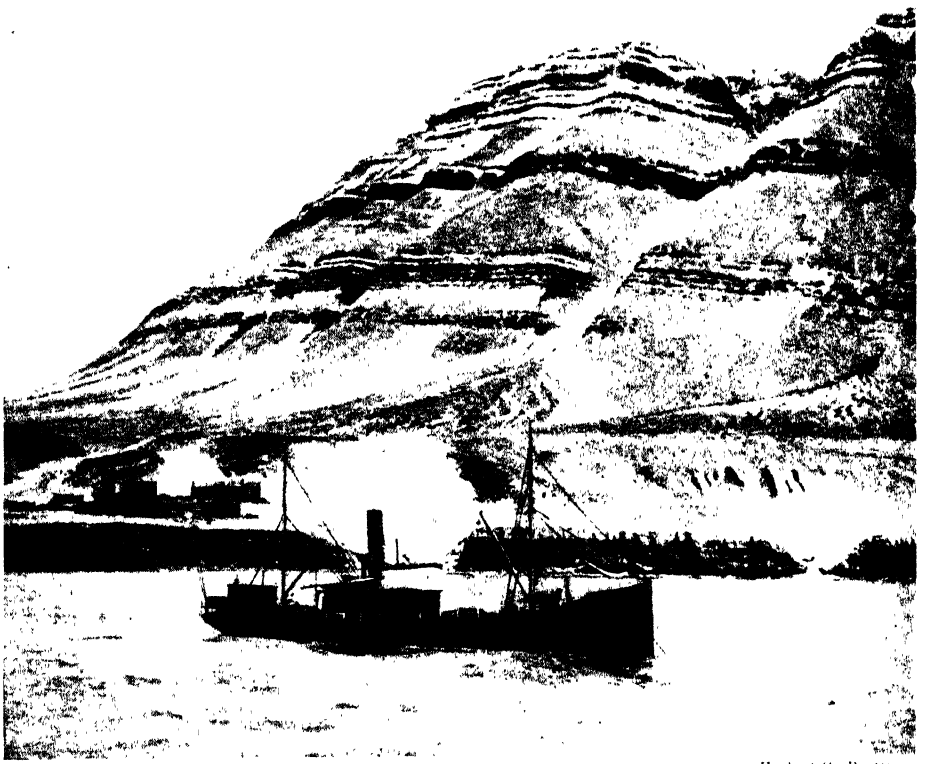
This interchange of heat prevents the air on the coast or in small islands from becoming colder, so far as we know, than about 55° F. below zero. In the interior of large islands you may get a temperature approaching the continental, and on the sea coast of large islands a temperature as low as minus 60° F., or even a few degrees lower, may occur when the wind blows from the interior of the island.

Continental climates are not peculiar to the Arctic. There are only a few places in the Arctic, such as Verkhoyansk, that have greater extremes of heat and cold than parts of the wheat and cattle lands of the United States.

The most significant of the various factors that inevitably produce high continental Arctic summer temperatures is easy to explain. The temperature of a summer day depends mainly on the amount of heat received from the sun during the twenty-four hours, or rather upon the amount of light that is converted into heat. But the total heat per day depends not only upon the heat per hour but also upon the number of hours during which the heat is delivered.

Roughly speaking, the sun delivers heat only during the period between sunrise and sunset. Now consider any specific summer day in the northern hemisphere — for instance, June 25. On that day the sun shines about twelve hours in Mexico, thirteen hours in the middle United States, fourteen hours in southern Canada, eighteen hours in central Canada, but 24 hours a day over a vast area (hundreds of thousands of square miles) in the northern part of Canada.

As the amount per hour decreases on going north so does the number of hours increase, giving a product of the two factors that is roughly constant. From this theoretical consideration we would conclude that June 25 would be likely to be about equally hot in Mexico, in the United States and in Canada, along some line that follows northward through the interior of the continent



Herbert G. Ponting

ONE OF SPITSBERGEN'S GREAT COAL-BEARING MOUNTAINS

Although the existence of coal in Spitsbergen had been known for three hundred years, it was not until the end of the nineteenth century that the first full cargo was shipped. Since then many thousands of tons have reached Europe, the mines being largely worked by British, American and Swedish companies. The strata on this mountain face are very boldly marked

at the same height above sea-level and as distant as possible from the sea.

The theory we inherited from stay-at-home Greek and medieval philosophers, "the farther north you go the colder it gets," has long held its ground against the universal experience of travellers. It pretends to be applicable at all times of year, everywhere, while the true explanation has to be varied month by month and also according to whether the place is on a continent or an island.

It is true that, generally speaking, the average cold for the year increases as you go north; it is also true that the cold of January and of several other months increases as you go north. It is even true that where insular climates apply even July is colder the farther north. But North America and Asia are vast continents, and in their interiors the maximum temperature of a July day is likely to be about the same whether 1,000, 2,000 or 4,000 miles north of the Equator.

The rains of summer and the snows of winter form a combined precipitation in the Arctic lands which is generally much less than that of any parts of the tropics and temperate zone except deserts. Rain is easy to measure in gauges, but snow very difficult, for after being deposited on the ground it may be whirled into the air by the wind to be deposited in another place.

Precipitation estimates for the Arctic are therefore unreliable so far as winter is concerned. It is probable that if we were to melt the snow and add it to the rain we would have in those parts

of the Arctic that have a continental climate anything from four inches to twelve inches of water per year. In the southward extensions of the Eskimo country into Newfoundland and the Aleutian Islands there is a much heavier precipitation; in places forty or fifty inches.

In the continental Arctic the fall of snow (measured as snow) will be from one and a half to three feet per winter. This means that the snowfall in parts of Scotland and in parts of the southern half of the United States is much heavier than in the typical Arctic. Here we have the main explanation of the fact that (if you exclude Greenland) there is far less permanent ice and snow on the land in the Arctic regions than in the north temperate zone. A careful estimate would probably show that there is more "eternal ice and snow" within the torrid zone than there is in the Arctic portion of the continents of North America and Asia.

Altitude and Glaciation

Greenland, with reference to ice the chief exception to the rule of Arctic lands, is a mass of mountains in a region of comparatively heavy precipitation, and so we have in reality "Greenland's icy mountains." But in that quotation from the well-known hymn we must emphasise mountains if we are to get the true picture.

There are four other Arctic islands or groups that are more or less mountainous, and therefore contain more or less glacier ice Franz Josef Land, Spitsbergen, Ellesmere Island and Heiberg Island. There are said to be a few small glaciers in Baffin Island. There are great glaciers in the high mountains of southern Alaska. More than three-quarters of the glaciers of Canada are in the warmest of all its provinces British Columbia; again because of high mountains and heavy precipitation. Similarly, there is more permanent ice in the tropical and subtropical mountains of southern and central Asia than there is in Asia north of the Arctic Circle.

From the point of view of altitude and glaciation it is important to contrast the Arctic and Antarctic. The Arctic is mainly a deep ocean, but the centre of the Antarctic is mainly a continent thought to be larger than Australia, and on the average the highest of all the continents.

Arctic and Antarctic Contrasted

Apart from Greenland there is very little land in the Arctic that is ice-covered, but in the Antarctic there is very little land that is not ice-covered. In the Antarctic sea life is extraordinarily abundant everywhere along the fringes of the continent, but once you leave the sea behind you leave behind also all life, except a few micro-organisms; in the Arctic the sea was formerly supposed to be well supplied with animal life around its fringes and devoid of life towards the centre; but recent investigations tend to show that life is found in considerable abundance throughout the Arctic seas.

These conditions have made necessary a fundamental difference in the methods of exploration and travel. The Antarctic explorer marches over firm land. There are occasional crevasses into which he may fall, especially near the edges of the continent and upon steep slopes in the interior, but in the main his footing is secure.

Different Conditions of Travel

The Arctic explorer has been compelled to travel over moving ice. In the Antarctic he can leave behind a depot on the outward journey and (if his astronomical observations and dead reckoning are fairly careful) he will find it on his way back. The ground does not shift, there are no predatory animals and there is no rapid decay, so that food and clothing would be found in good condition at the exact spot years later. But on the Arctic Sea, if you left a depot behind, you would have the same trouble in returning to it that you

would if you left behind a dingey in mid-Atlantic expecting to pick it up on a return voyage. The ice cake you leave the depot on may drift in any direction. It may be broken by pressure into fragments, burying your depot; or the piece on which it is located may be tipped on edge, spilling into the water.

Since your route is overland you can begin an Antarctic journey in the spring, carrying it through the summer with the advantage of both comparative warmth and perpetual daylight. In the Arctic you must have firm ice instead of slush or water, and the journey must therefore begin shortly after mid-winter in intense cold and little daylight, and must be finished before the warmth of May, just after the arrival of the perpetual summer day.

We now know that food and fuel (the lean and fat of animals) can be secured almost anywhere in the Arctic. This so far compensates for the difficulties of darkness and moving ice that Arctic travel is now generally considered easier and safer than Antarctic.

An important difference between the continental and insular climates in the Arctic is that where the insular prevails, fogs and drizzling rains are common throughout the summer. Even in the islands precipitation is but slight in winter and the weather therefore usually clear. This is one of the chief reasons why all Eskimos, and most white men who have been in the Arctic several years, prefer winter to summer.



Paul R. Reynolds

FORESTALLING BLEAK WINTER'S RIGOUR NORTH OF THE ARCTIC CIRCLE

In the most northerly regions where winters are long and dark with the temperature often far below zero, much care must be devoted to the building of a habitation that will be warm and wind tight. The primitive Eskimos seen here are constructing such a house; skins, later to be covered with moss and earth, are the walls that cover this basket like framework of willows.

But where continental climates prevail, there is often a great deal of clear summer weather. During the summer of 1910, for instance, my party were about 100 miles inland in Canada, just north of the Arctic Circle. We had week after week without a cloud in the sky. The weather itself was therefore pleasant, although it was extremely hot, ranging frequently from 80 to 95° F. in the shade with extreme humidity.

What made the season intolerable was the plague of mosquitoes, sand flies and other insects that sting. The Arctic grasslands beyond the forests are the paradise of the mosquito

Tropical travellers who have also been in the Arctic agree that mosquitoes are nowhere in the tropics half so numerous. While their buzzing and biting make life difficult, there is the slight consolation that they carry no disease - malaria, yellow fever or any other. The mosquitoes come out just before the last snow disappears in the spring and are bad for a period of two or three months, quieting down usually towards the latter part of August, when their place in the torture of men and animals is taken by the sand flies.

As a whole the Arctic lands are probably neither more nor less stormy than the temperate lands, and the insular climates there correspond to, say, England or Japan in that respect, while the continental areas correspond to the United States or Russia. Thunderstorms are comparatively rare.

Localisation of Winter Storms

Generally speaking, stormy areas are those where mountains or high plateaux come near the open sea. Barrow Point, Alaska, and Herschel Island on the north-west coast of Canada are about 400 miles apart and the difference between them in winter storminess is typical for the Arctic. Barrow is several hundred miles from the nearest mountains, and winds above forty miles an hour are rare. Herschel Island is less than twenty miles from a fairly high range, and gales of from fifty to seventy or even eighty miles an hour occur every month of the winter, when the snow flies so thick that you cannot see a house painted red at twenty paces. One such storm at Herschel lasted nine days, with a wind throughout the entire period probably never less than 50 miles per hour, and frequently up towards seventy or eighty. These are generally local storms. Thirty miles either east or west there may be light winds or even calm weather.

Arctic weather is more uniform than that of the temperate zone and resembles tropical weather in that respect. On the north coast of Canada or Siberia the summer as measured by the time when small ponds are free of ice, is not likely to vary more than six weeks between one year and another. At the north-east corner of Great Bear Lake (just within the Arctic) we had the first mosquitoes the first week in May, and as the lake was not frozen we could travel on the ice even near shore until the first week in November.

Healthiness of the Arctic Climate

Most people spending the year with us would have considered that summer about five and a half months long. One hundred miles to the north of us on the coast the summer might have been considered to be four months, and 500 miles north in Melville Island, perhaps three months. These conditions would doubtless be similar in Arctic Siberia and in the islands beyond.

But whether the Arctic climate is continental or insular it is found by people of all races most stimulating and favourable to health. This is one of the chief reasons why Arctic explorers always want to go north again. It makes little difference what the other conditions may be, you are happy if you are superbly healthy. Herein lies a problem for the Arctic explorer who tries to convey a true picture of how it feels to live in the high north. When he describes with objective correctness a blizzard in which he took keen delight, the reader sees only how miserable he himself would have been if he had been out in that kind of a storm in Scotland or Ontario.

Southerners in Northern Lands

It is commonly supposed that only the northern nations enjoy a northern climate. This has been contrary to the experience of all Arctic travellers so far as I know. The whalers from Scotland and Norway are usually natives of those countries, but the whalers from New Bedford and San Francisco, U.S.A., are of all races and nationalities. There are numerous

cases where negroes and South Sea Islanders have gone to the Arctic in whaling ships and have liked it so well that they have settled down to live as trappers of foxes on the north coast of Canada and Alaska.

Flora of the Arctic Circle

If we consider only the lands within the Arctic Circle and take the estimate made by Sir Clements Markham about the year 1913, we have in the Arctic about 28 kinds (species) of ferns, 250 kinds of lichens, 330 kinds of mosses, and about 760 kinds of flowering plants. There are doubtless many others that remain still to be identified.

Not only are the Arctic flowering plants more numerous as species than the non-flowering, but they are also more abundant as individuals. I have estimated roughly that for every ton of mosses and lichens north of the Arctic Circle there are ten tons of grasses, sedges, and other flowering plants.

There has been a custom of speaking of the Arctic grasslands as "tundras" At a conference of geographers in the United States in 1922 there was substantial unanimity against the use of this term, since no one knows exactly what it means. Russians at this congress explained the Russian meaning of the word, but since that is not the meaning with which geographers had been using it, there is no point in trying to translate the Russian into English. Some of the geographers favoured speaking of "Arctic grasslands" or "Arctic meadows." I prefer Arctic prairie, but usage has made tundra a technical term for British geographers. The distinction between tundra and prairie lies in the permanently frozen subsoil of the tundras.

Northern Limit of Forest Growth

The most northerly island in the world, so far as we know, is Ellesmere. Even here there are more than 100 species of flowering plants, among them primroses, buttercups, dandelions, wild timothy and bluegrass. Peary has reported that he met a bumble-bee about half a mile out on the ice north of the north tip of the most northerly land in the world. It had wandered from the flowers on the shore, where there were beetles, butterflies and several other kinds of insects as well.

Within the actual Arctic Circle forests are not extensive, although by no means absent. What determines the northern limit of trees is neither the intensity of the winter cold nor the length of the winter, but the maximum heat of the summer (no matter how short). The maximum heat required seems to be somewhere between 70° F. and 80° F. in the shade. As this is attained on the Arctic lowlands, we have forests thrust well northward along most of the river valleys. On the Mackenzie in Canada, more than 100 miles north of the Arctic Circle, there are spruce trees straight and graceful 100 feet high. Trees of 50 to 75 feet are found another 50 miles north.

Dwarf Willows of Melville Island

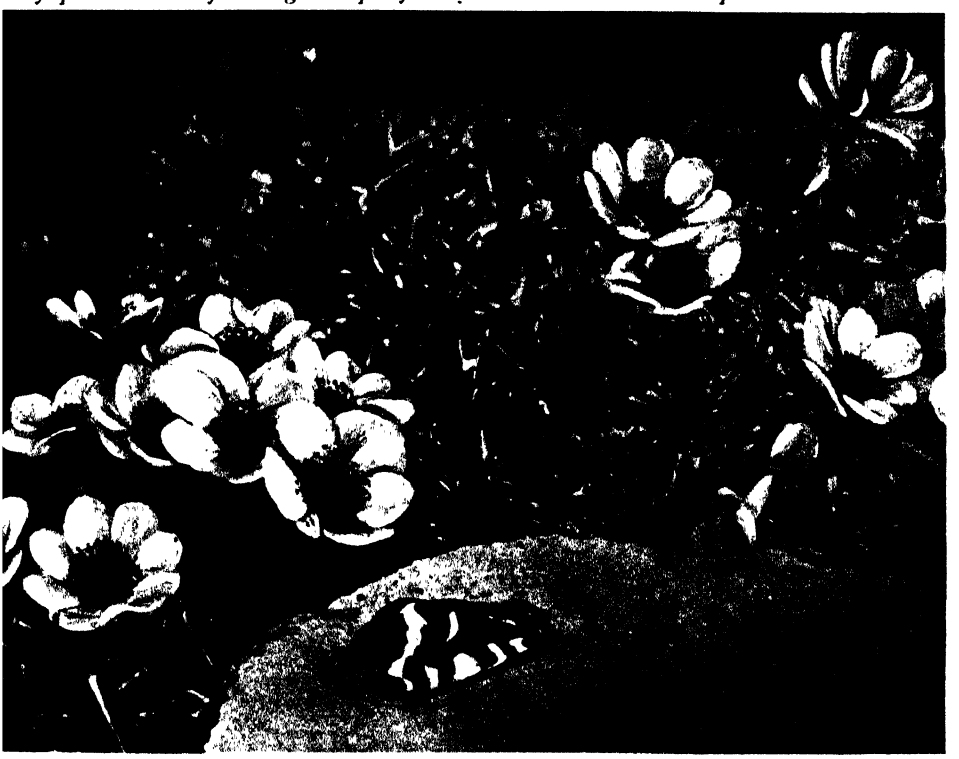
The most northerly trees of importance are the spruce and cottonwood or poplar. There are also alders and willows that are locally called trees. In some of the river valleys "willows" 15 to 25 feet high are found down to tide water. In the islands to the north of Canada these "willows" grow smaller as you go north. In Victoria Island, about 250 miles north of the Arctic Circle, they are five or six feet high. Another 300 miles north, in Melville Island, they are seldom more than knee high. In the most northerly islands there are small bushes of various sorts, but in these extreme locations the roots are usually larger than the stems above the ground and the stems themselves take the nature of creepers.

The great land animal is the caribou. These animals are about as numerous now as buffaloes were about 1870 on the plains of the United States. The estimates for Arctic Canada run from five million to thirty million. There are various species or sub-species,



Vilhjalmur Stefansson

ARCTIC LANDS. *Incredible as it may seem, over seven hundred kinds of plants and ferns grow profusely on these northern prairie lands*



Vilhjalmur Stefansson

ARCTIC LANDS. *Amazing is the number of vividly coloured butterflies as well as beetles and even bees that enrich the Arctic summer*



Vilhjalmur Stefansson

ARCTIC LANDS. *Seals afford the Eskimo both food and clothing, and these men, having harpooned one from their boat which is now beached, are hauling their catch up the shelving shore from the ice-strewn sea*



Paul R Reynolds

ARCTIC LANDS. *In Arctic Alaska enormous numbers of trout crowd the waters. The fish are not shy like those in European lands, and this photo shows one day's catch, little more than one day's food for a large Eskimo family*



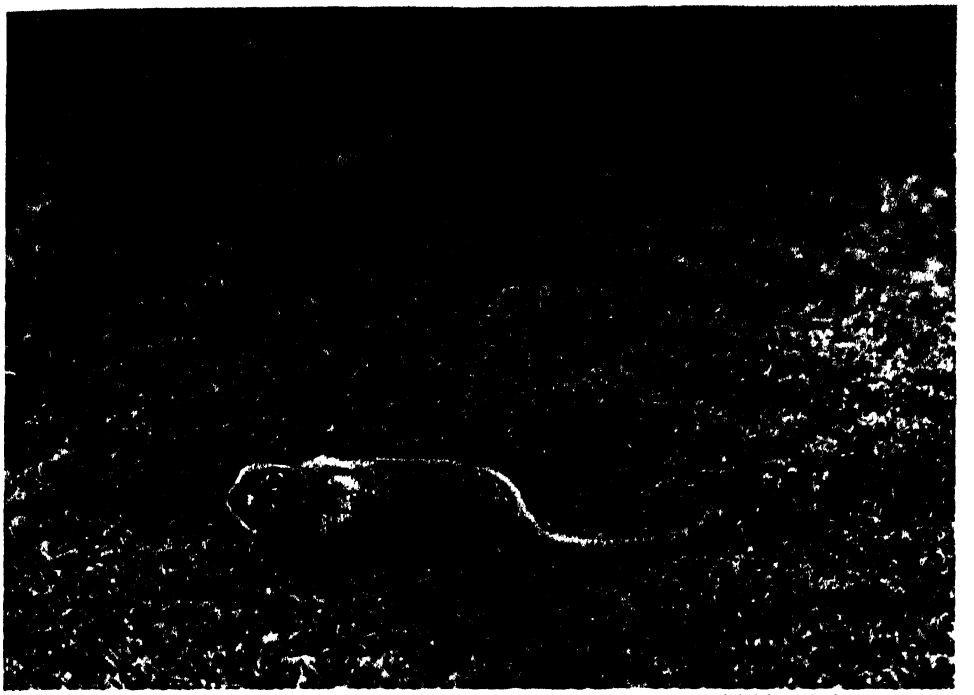
Vilhjalmur Stefansson

ARCTIC LANDS. *The Far North is no sterile realm of ice; millions of birds breed in summer, and the snow owls remain far into winter*



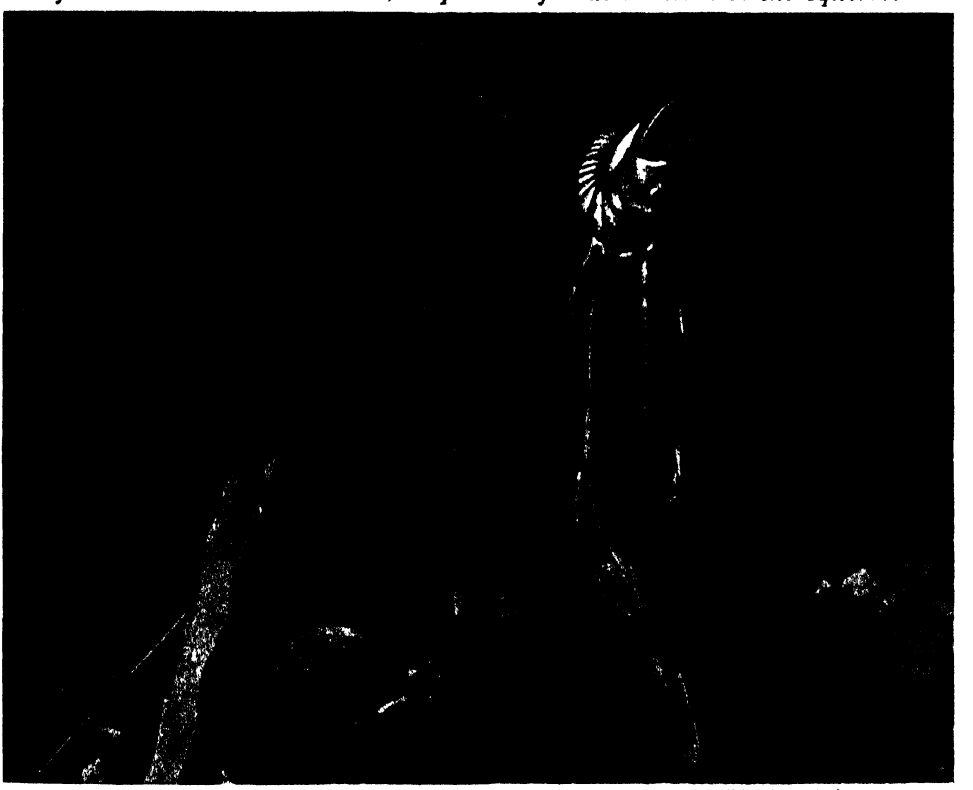
Vilhjalmur Stefansson

ARCTIC LANDS. *The eider-duck is found in these latitudes from Spitsbergen to North America; eider-down is gathered from its nest*



Vilhjalmur Stefansson

ARCTIC LANDS. *Another example of the teeming animal life of the Arctic is the marmot, a species of rodent allied to the squirrel*

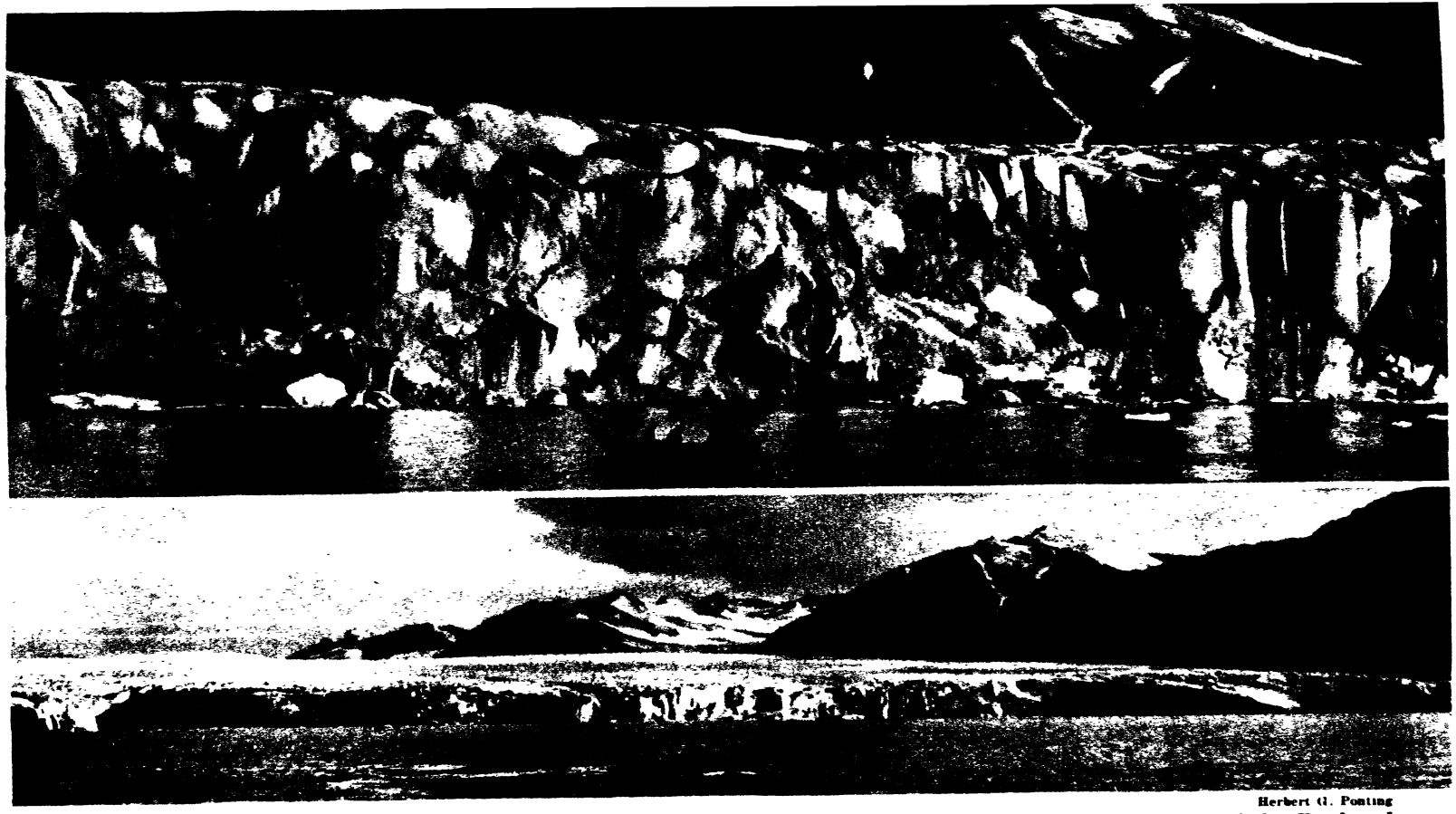


Vilhjalmur Stefansson

ARCTIC LANDS. *Trout attain great size in the rivers and lakes of northernmost America, and fish of over* 50 *lb. have been taken*



ARCTIC LANDS. *On the Recherche Glacier, Spitsbergen, looking towards the Calypso Glacier. Glaciers are formed by the changing of the snow nearest the rock to ice, and eventually the whole mass moves downwards*



Herbert G. Ponting

ARCTIC LANDS. *Photograph from Recherche or Joseph's Bay, Spitsbergen, of the vast expanse of the Recherche Glacier, with (above) a "close-up" view of the same scene showing the precipitous face of this enormous sheet of ice*



Vilhjalmur Stefansson

ARCTIC LANDS. *Spruce forests cover large tracts in this area, wrongly reputed barren, and are used for pit props and scaffolding poles. Here, in the Yukon, evergreen coniferæ are often over one hundred feet high*

differing considerably in size, but shading gradually one into the other. In the open country around the mouth of the Mackenzie they are about twice as large as on the most northerly islands.

There is a considerable movement southward in the autumn in certain places, but it scarcely has the character of a real migration—such as that of geese, for instance. In the most northerly islands no southward movement has been noted. The caribou do cross in winter on the ice from island to island, but they are as likely to travel east or west as north or south. We find them about equally numerous in these islands at all seasons.

Distribution of the Caribou

The horns of caribou are shed every year. The old males shed theirs in January, the half-grown males in February or March, and the cows in April or May. All over the northern islands you find scattered the horns of every age and both sexes, showing they have been there in January and March no less than in June and September.

Caribou roam at present over all the known Arctic islands north of North America. They are found in Spitsbergen, Novaya Zemlia and the New Siberian Islands, but are absent from Franz Josef Land and Wrangell Island. The Spitsbergen caribou are said to be nearly extinct because of the depredations of white men during the last three hundred years.

Next after the caribou the most important animal is the ovibos (called also cattle, Polar cattle, and Polar oxen by the early explorers, and more recently musk-oxen by sportsmen and travellers). These animals differ from nearly all others in the world in that they do not flee their enemies. They have two enemies in the Arctic now—wolves and human beings. The caribou can run much faster than the wolf, which captures them by a pursuit that eventually tires them out. But the ovibos cannot run half so fast as the wolf, so they form in a circle or hollow square with the smaller animals inside; or, more properly speaking, they would so form if they were attacked by wolves, but it is my belief that they are never attacked.

Threatened Extinction of the Ovibos

The method of defence which is perfect against wolves is, however, suicidal with regard to the Eskimos, who usually kill every animal of every herd they see. The result is that the ovibos are now found only in districts which are rarely or never visited by human beings. It is estimated that there are one or two thousand left in rare inaccessible places north-west of Hudson Bay, and perhaps fifteen to thirty thousand in the islands to the north of Canada. There are probably also several hundreds, or perhaps 2,000 or 3,000, in northern and north eastern Greenland.

The scientific name ovibos means sheep-cow, and is roughly descriptive. There is a resemblance to the American bison and to the Asiatic yak. The biggest and fattest males weigh about 700 pounds, and may be roughly compared to Highland cattle, although the legs are shorter and other proportions of the body different. On most parts of the body there is long straggling hair somewhat like the mane of a horse. In the roots of this long hair grows the wool, brown in colour, softer in texture than cashmere and apparently suited to the manufacture of the finest fabrics.

Other Arctic Prairie Mammals

There is only one other large land animal in the open country, the so-called "Barren Ground" grizzly.

The caribou live mainly on grass in summer and mainly on lichens in winter. The ovibos lives mainly on grasses and sedges. The grizzly lives also mainly on vegetation. The grizzlies hibernate from October to April. Their range is confined to Canada and Alaska. There are smaller bears in Arctic Siberia, but in recent geologic times none is known to have inhabited the islands to the north.

The other animals of the Arctic prairies are spermophiles (a kind of burrowing rodent not unlike the gopher or ground squirrel), lemmings, shrews, two kinds of weasels, musk-rats, wolverines and wolves. Of these only the wolf, the lemming, and the smaller of the two weasels are found in the islands. The musk-rat and wolverine seldom go far beyond the edge of the forest ; they are really forest animals.

Polar Bears and White Foxes

In the woods and mountains south of the open country the land animals are more numerous, the moose, mountain sheep, marten, mink, otter, beaver, squirrel, porcupine, fox (red, cross and silver or black) and several others.

On the surface of the sea are two animals, the Polar bear and the white fox. The Polar bears spend 95 per cent. of their time at sea, coming ashore only rarely, and as if by accident, although they are sometimes found as far as one hundred miles inland. They are wonderful swimmers and are also found occasionally in the ocean out of sight of either land or ice. They cannot sink, and therefore rest in the water when they like. Their maximum swimming speed is variously estimated at from six to nine miles per hour.

Animal Life in the Arctic Ocean

Polar bears live on seals, which they can capture only among broken ice, or when the seals are basking on top of the ice in spring. Their inability to get seals through unbroken ice leads to their comparative rarity or absence over half or three-quarters of the Arctic Sea.

Most of the white foxes spend about three-quarters of their time at sea, although there are a few that live the year round on land. All these foxes come ashore in the spring on some land where they have their young, and live the summer on birds' eggs, fledgling birds, lemmings and the like. A few of them continue to eke out a living on the land throughout the winter, depending then mainly on ptarmigan. Those that go to sea are parasitic followers of the Polar bear.

Even a hungry bear will not eat more than, say, 50 pounds at a time, but the seals he kills are frequently from 100 to 150 pounds. Having had his meal, the bear goes off 100 yards or so and sleeps. It is then that the foxes come in for a feast. When you find the trail of a Polar bear you frequently find also the tracks of from one to a dozen foxes following.

Further study will probably show that the Arctic Ocean is as well supplied with animal life as any ocean. It has long been well known that there are unbelievable quantities of seals, walruses and various whales on the fringes of the Arctic. The Eskimos fish by primitive methods from the beach and still have good catches. Herring are known to run in shoals, and there are codfish, but it is only by inference that we conclude that these are in large quantities. There are also many other sorts of fish in both river and sea.

Breeding Ground of Countless Birds

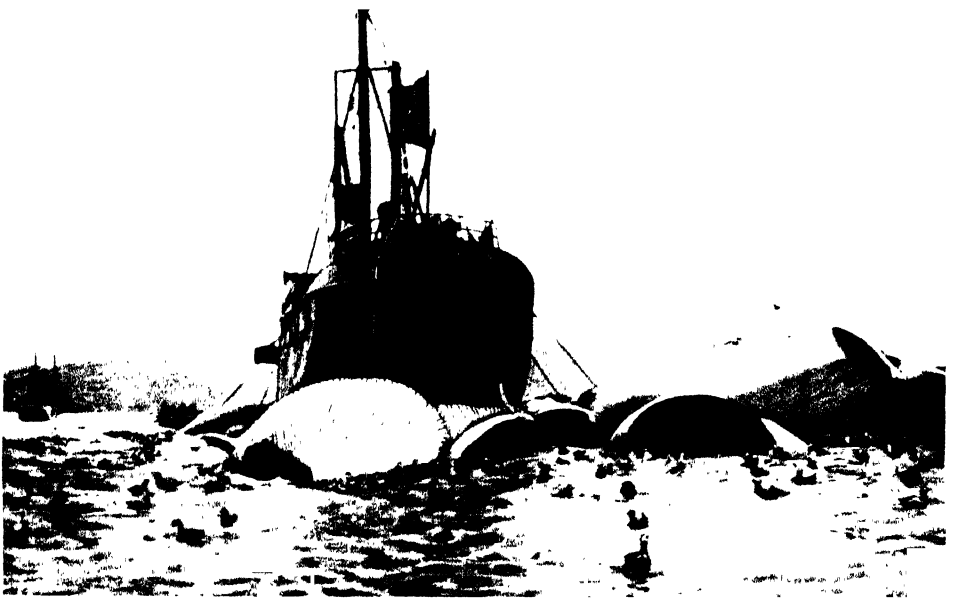
In summer the Arctic regions are the breeding place of millions of birds belonging to more than two hundred species. They are sea birds and land birds—sparrows, sandpipers, plovers, many species of both ducks and geese, cranes, swans, gulls, terns, ravens, owls and hawks. Only one bird, the ptarmigan (several species), makes a real habit of wintering beyond the forest, and even of these more than half cross southward into the woods, sometimes going as far in the western hemisphere as to the northern limit of the United States.

A large percentage of the owls remain well into the winter. I have seen them 300 miles north of the Arctic Circle as late as January, but I do not recall ever seeing owls in February or March. Most of the ravens go south, but a few spend the whole year in the Arctic, some of them, at least, as far as 500 miles beyond the Circle. Some birds, especially the snow buntings, come in spring long before the snow goes away,

but these usually leave in the autumn. Sea-gulls are found in the open water of the polar ocean well into the autumn, and they come back again in the spring while the frost is still well below zero. On the whole, the Arctic peoples make little use of the birds.

Potatoes, turnips, lettuce, carrots and many similar roots are cultivated a little beyond the Arctic Circle in

It has been found that reindeer prosper better the farther north they go. The most successful ranching is now being done between Kotzebue Sound, which is on the Arctic Circle, and Barrow Point, which lies about 250 miles farther north. There are millions of domestic reindeer in Arctic Siberia, and it seems likely that as transportation improves Siberian reindeer meat will



NORWEGIAN WHALERS AND THEIR MIGHTY CATCH

Spitsbergen is among the most exploited of the Arctic lands. Though many miles to the north of the coast of Norway, it has been for several hundred years a resort of whaling vessels. One of these is seen above with a number of carcasses, partly inflated for the sake of buoyancy, moored alongside. The islands of the group contain good coal, asbestos, oil shale and iron ore.

Alaska, Canada and Siberia, and cereals have been produced in a more or less experimental way. It seems to be generally agreed, however, that the people who colonise the Arctic are likely to import their vegetables and cereals from the south, getting them in exchange for minerals, fish, furs and especially for the meat which is already being produced on a commercial scale in Alaska (reindeer meat). The reindeer industry has also been started in Baffin Island on a commercial basis and other enterprises are on the way in Labrador and elsewhere.

begin to appear in considerable quantities on the European market.

Coal has been found on nearly every island north of Canada, as well as in large quantities in Arctic Canada and Arctic Alaska; the like will doubtless be true of Arctic Siberia when it is further explored. The American Navy has set aside as a government oil reserve the western half of Arctic Alaska, and oil has been produced in an experimental way on the Lower Mackenzie just around the Arctic Circle. Signs of oil have been reported from many other places. Great copper areas are known

GRIM MONUMENT TO THE POWER OF THE ARCTIC WINTER

Not infrequently has it happened that traders visiting the archipelago of Spitsbergen have been caught by the sea freezing earlier than usual, and thus have been forced to winter there. Cairns like this mark the graves of those who failed to survive. Food is scarce, for the game has suffered from wasteful hunting

to exist, the chief, perhaps, around the Coppermine river, Coronation Gulf and southern Victoria Island. There has been extensive gold mining just south of the Circle, notably around Nome in Alaska and Dawson in the Yukon. Further prospecting may show precious minerals in paying quantities to the north, where indications of them have already been found. Similarly there is gold mining in sub-Arctic Siberia, and it is likely that this will spread into the Arctic proper. Indications of iron have also been found in many places.

From a mining point of view, no strictly Arctic country is at present so far advanced as Spitsbergen, the south tip of which is about 600 miles north of the Arctic Circle. Coal has been produced there on a commercial scale, and the engineers in charge of the work expect that the Spitsbergen mines will eventually supply the growing needs of northern Russia and Finland. Some enthusiasts assert that mining can be done so cheaply there that import of Spitsbergen coal into the British Isles is a probability of the near future.

Golden Age of the Whaling Industry

The search for minerals has been taking Europeans to the Arctic intermittently for several centuries, and continuously during the last half century, and people who go north in search of gold frequently remain as trappers, fishermen or reindeer ranchers.

Commercial fishing has been in progress in the Arctic for centuries. Spitsbergen was an important Arctic centre of this industry from the time of Hudson's voyage, which gave England a claim to the country. A great whaling industry was also conducted in Greenland waters, in Baffin Bay and Hudson Bay. The whaling in the Arctic north and east of Bering Straits was chiefly for whalebone. At the highest market the 2,000 pounds of whalebone obtained from a single bowhead gave £2,000. I have talked with an American whaling captain who secured sixty-eight bowheads in a two-year voyage. Although the price of "bone" was then somewhat lower, this voyage must have given the owners a net profit of £20,000 or £30,000 for the voyage, even after the shares of all the whalemen had been paid.

Trading Corporations in the Arctic

Fortunes were being rapidly made in bowhead whaling as late as 1904. But about that time there were put on the market certain commercial substitutes for whalebone, which brought the price down from anything like ten shillings to twenty shillings per pound to sixpence or one shilling - a drop which changed a fabulously profitable enterprise into a definitely losing one.

At present there are whaling stations in the Aleutian Islands and Iceland, where Arctic and sub-Arctic sea animals are converted into oil and fertilisers. Some of the lean meat is dried until it can be ground up into a meal similar in appearance to cocoa. This is put in bags and sold for cattle and horse feed, evidently very profitably.

The commerce of the Arctic is carried on by a few great corporations and a large number of small private traders. The greatest of all the Arctic traders is the Hudson's Bay Company with a successful history of more than 250 years and a volume of business to-day which ranks it among the great trading corporations of the world.

Development of Meat Production

In the beginning, furs and fisheries were the only concern; mining and trading with miners have developed more recently and most recently of all the meat producing industry (domestic reindeer). With regard to the reindeer the biggest commercial operator has been the United States Government. A large private company, the Lomen Reindeer and Trading Company, owned 50,000 head in 1922. It is said that in northern Siberia numerous native owners have more than 10,000 head each. The Hudson's Bay Company has started into the business in southern Baffin Island, where they

GOOD ANCHORAGE FOR LINERS IN SPITSBERGEN'S GLACIER-FLANKED FJORDS

Long fjords indent the coasts of Spitsbergen, and, like placid rivers, give fine anchorage for the largest ships. The mountains tend to give a false idea of the breadth of this sheet of water, but the apparent size of the great liner, which is comparatively close to the nearer shore, shows the real width. A glacier can be seen directly over the boats with its flanking ranges of snow-streaked peaks. This fjord is known as Smeerenburg-fund, and is situated in the northern part of the archipelago. Spitsbergen has been made the base for several expeditions to the North Pole

landed about 300 Norwegian reindeer in 1921. It seems likely that the largest Arctic trading developments of the next few decades will be in connexion with meat export—except in Spitsbergen, where mining is certain to be for a long time of chief importance. Most of the trading is carried on by ocean-going ships and by river steamers on the Yukon, Mackenzie and the great rivers of Siberia.

The developments in wireless and flying will doubtless have a considerable influence on commerce and colonisation. There are already numerous Arctic and sub-Arctic wireless stations. Admiral Moffett, Chief of the Bureau of Aeronautics, U.S. Navy, has stated that he does not consider trans-Arctic flying more dangerous or difficult than voyages of similar length over the Atlantic Ocean or over tropical lands, and expects that within a few years there will be regular mails by air between the various Arctic lands and between England and Japan—the last by a trans-Arctic route running north from England and then south to Japan.

Prospects of Trans-Arctic Flying

General Sir Sefton Brancker, Director of Civil Aviation for Great Britain, said at Sheffield before the Institute of Transport, June 14, 1923, that he considered the carrying of mails from England to Japan by dirigible over the Arctic as a probability of the next ten years. This route is several thousand miles shorter than those at present used for carrying mails by steamer and rail.

From the point of view of the colonist and trader the Arctic is almost wholly a new country. It therefore has all the same transportation problems that any new country may have, and in addition that of dealing with the ice, of which there is more or less in the ocean in most places at most times of the year. But the fact that in northern North America the lakes and rivers are frozen over for about seven months each year makes sledge travel on a great scale more feasible than it has been in any country. Sledges are much used already, whether drawn by dogs, horses or reindeer.

Caterpillar Tractors in the North

It seems probable that the caterpillar tractor will find great usefulness, since the snowfall in the Arctic is light and since tractors are already in successful winter use in countries of much heavier snowfall and about equal cold, such as Manitoba. It seems likely that even heavy freighting for considerable distance can be successfully done in most Arctic lands in winter by tractors hauling trains of sledges over roads which lead chiefly over the lakes, crossing from one lake to another where the divide between them is narrowest, somewhat as canoes are portaged in the summer months.

Generally speaking there are as yet few cities in the Arctic except in the Scandinavian countries and European Russia. The trading posts along the coasts of Siberia, Alaska and Canada consist usually of native villages, and from one to half a dozen or a dozen dwelling-houses occupied by white men.

At present many Eskimos live in houses built of lumber purchased from white traders in exchange for whalebone, furs or reindeer produce. The natives of Siberia are as yet keeping more to their original house-building customs, which is fortunate, for it is generally agreed that the considerable increase in tuberculosis and other diseases of recent years among Eskimos is due chiefly to the introduction of white men's houses and housekeeping methods modified of necessity by the ignorance and conservatism of the natives.

Healthy and Happy Eskimos

The anthropologist, Diamond Jenness, has said of the "uncontaminated" Eskimos of Coronation Gulf who live entirely in native style both as to food and houses—the food being more than 99 per cent. flesh, either meat or fish—that they "have no diseases." After

living among the same people—four years before Mr. Jenness—I had said of them in a book that they were on the average the healthiest and most contented human beings I had ever seen.

Injurious Effects of Civilization

When this is contrasted with the general verdict of travellers that the "civilized" Eskimos are less healthy than ordinary Europeans, we see that the effect of the change in housing, which is usually agreed upon as the main cause, is serious. Other causes for decline in health are the adoption, in deference to fashion, of white men's clothes, which are less suited to an Arctic environment; the adoption of white men's food, which is frequently badly cooked and for various reasons unwholesome; the importation of white men's diseases; and, to a rather less extent, alcoholism.

Before the coming of the white man the Eskimos had various kinds of winter dwellings: snow houses (never "ice houses"), earthen houses with a framework of wood, earthen houses with a framework of whales' bones and rock, and beehive-shaped houses made of a basketry-like framework of willows with a covering of moss and skins.

All of these native houses had the great advantage of being practically impervious to cold. They were therefore heated to a comfortable temperature with a minimum of fuel. This was usually the fat of some animal burnt in native lamps which the women trimmed so carefully that there was neither odour nor smoke.

Advantages of the Native Houses

The snow house is unknown to the Eskimos of Siberia and of Alaska, and unknown also in the southern half of Labrador and in most of Greenland. The snow house is known, but used only in emergencies, in North-West Canada west of Cape Parry, and in those parts of Greenland where this form of building is not quite unknown. The most northerly Eskimos—those around Cape York, Greenland (frequently mentioned by Peary and other travellers)—live in earthen houses although they frequently use snow houses on journeys. The only region where the snow house is the main winter dwelling is the Canadian mainland between Hudson Bay and Cape Parry and the islands north of Canada.

Even where snow houses are used, their season is shorter than commonly supposed. In summer the (uncivilized) Eskimos live in skin tents. In the autumn they still live in tents until the temperature gets to the vicinity of zero F. which in such places as Coronation Gulf would usually be in October, although in 1910 it was not until early November. In the restricted areas where snow houses are the main winter dwellings they will then be used through the months November–March.

Indoor Temperature of Snow Houses

Taking Coronation Gulf again as an example, in 1911 all the Eskimos lived in houses of snow until the middle of April, when some of them began to use composite dwellings—snow walls with caribou skin roofs. Before May 1 they were all living in tents—when the snow was beginning to disappear.

The Eskimos usually keep their dwellings hotter than would seem agreeable to Europeans. It is not possible to keep the interior of a snow house very warm unless the weather outdoors is very cold, the colder the weather the warmer the house if the fuel supply is adequate. This is because the amount of fuel that can be burnt without melting the house depends on a balance between the outer cold and the inner warmth.

If the temperature outside a roof four inches thick is 40° F. below zero, but inside the roof 50° F. above zero, then the outdoor temperature is about 70° F. below freezing and the inside temperature about 20° F. above freezing. The outer cold penetrates through and meets the house temperature at the inner side of the roof, thus preventing the snow from thawing.

Sometimes the Eskimos intentionally overheat the house—to, say, 70° F. or 80° F.—for half an hour or so until the four-inch roof melts down to a thickness of say two inches and a half, whereupon they decrease the heat, allowing the interior of the house, which is then soggy snow, to turn into ice. This glazing strengthens the house and makes it safe to touch the wall which is no longer crumbly snow but ice, in its texture somewhat similar to glass. When the roof has thus been thinned down the interior temperature can be correspondingly increased—up to, say, 55° F. or 60° F. above zero, if it is 40° F. below outdoors.

If a higher temperature than 60° F. is desired within a snow house, it is lined with a sort of skin tent supported by strings from the roof. It can then be brought up to any desired warmth. Such lined snow houses, as well as the earth or moss houses, are frequently heated to 80° F. or 90° F., and sometimes up to 100° F.

Tropical Heat in Arctic Winters

In most districts the Eskimo children play around naked within doors. In Greenland and some other places the older people sit completely stripped, rivers of perspiration running down their bodies. In the Mackenzie district and northern Alaska, the custom up to about fifteen years ago was that both men and women within doors sat stripped below the knees and above the waist. Just before going out they would rub themselves dry with some sort of towel, slipping on their clothes and running out in a hurry so as not to become damp with perspiration.

Since the skin clothes of the Eskimos are practically coldproof, this means that throughout the winter they are exposed to almost tropical heat; for it obviously does not count how cold it may be outside of your clothing if you have a tropical heat (80° F. or 90° F.) between your clothes and your body. This is probably the chief reason why Eskimos mature about as early as the peoples of the tropics. Eskimo women have been known to have their first child before they are eleven, and children before the age of thirteen are common. Such women are grandmothers at twenty-five and appear as old at sixty as English people do at eighty or ninety; seventy-six is the highest age that I have ever been able to verify for an Eskimo. This is a somewhat difficult point, however, for they take no interest in their ages.

When Travelling is General

In certain districts the Eskimos cannot count above six. In other districts they count to 400 (twenty twenties), but in either case the age of all but the youngest children has to be determined by reference to some event known to white men, such as the arrival of the first whaling ship or the introduction of firearms.

The Eskimos generally live in villages. There is usually a communal or club house where songs are sung and stories told, and where dancing and religious ritual are carried out. In those parts of the Eskimo country that are north of the Arctic Circle there is only a short period of daylight about noon in midwinter. It is therefore difficult to hunt or do regular work, and so this has naturally become the vacation period when whole families or groups of families make long journeys to visit distant relatives or friends, sometimes travelling two or three hundred miles. Journeys of as much as 1,000 miles and requiring a year to make are for trading purposes and usually begun in March or April with a return either that autumn or the following spring.

Racial Qualities of the Eskimos

The winter houses have varied locations. In Alaska and on the Mackenzie they are sometimes in the forest, but more usually the people hunt towards the forest in summer, moving out upon the open coast in winter. In Alaska the winter villages are therefore usually on the coast, but

in such parts as Coronation Gulf they are nearly always out on the sea ice at from five to twenty miles from land.

More than two-thirds of the Eskimos can be fairly considered a coastal people. Some live exclusively on caribou and other inland game and fish, but most of them either come down to the sea at some time or else import a little sea food —at least seal and whale oil. There are small communities where seal is almost the exclusive food, and others where seals are unknown. In certain districts, such as the deltas of the Yukon and Kuskokwim, fish was the only important article of diet.

Most authorities consider the Eskimos as merely one kind of North American Indian, although a few maintain that they must have come from Asia more recently than the rest of the North Americans. A fairly general view is that between one and two thousand years ago they were at a centre between the Mackenzie and Hudson Bay from which they spread westwards into Alaska and eastwards into Greenland.

It was formerly believed that when they began to spread they were ignorant of pottery-making and that only the Alaskans learnt this art when they came in touch with pottery-making Indians. It has been one of the results of my own expedition to show that from Coronation Gulf westward, pottery was in common use among the very earliest inhabitants of whom we have any archaeological traces. Pottery-making is therefore an art which the Eskimos generally have lost at some period during the last thousand years.

Without pretending to offer an opinion as to any fundamental superiority of brain of one race over another, my own observation has been that the Eskimos, whether children or adults, have about the mental alertness and other qualities which I would expect to find among people of European blood if brought up in an equally isolated manner and in a similar environment.

Some travellers insist that the Eskimos are more optimistic, more universally happy than Europeans would be in the same circumstances. My view here is that this happiness is, generally speaking, the result of exuberant good health. Nearly all Europeans observe in themselves similar optimism and cheerfulness in the Arctic, but I will simply remark that it is difficult to be miserable under conditions of perfect physical fitness.

ARCTIC LANDS: GEOGRAPHICAL SUMMARY

Natural Divisions. Lands approximately within the Arctic Circle forming the land portion of the Arctic basin in contrast with the Antarctic continent. Usually lowland with a gentle rise inland from the coast. Greenland and other islands are elevated.

Climate. Two types—coastal and continental. Continental with great extremes of temperature and little precipitation either as rain or snow towards the areas of North America and Eurasia remote from any ocean. Coastal with a cold climate sometimes on the average for the year below freezing point, a small range of temperature and considerable precipitation, largely influenced by the ocean currents, North Europe being considerably warmed by the west wind drift of warm Atlantic water. Long spells of sunlight during half the year, and little sunlight during the northern winter.

Vegetation. Tundra or Arctic prairie with a frozen subsoil, many species of flowering and other plants of small size and rapid growth. Bounded on the south by coniferous forest, but containing, wherever local conditions are favourable, northward projections of forest growth. The tundra provides sustenance for ovibos and caribou, the latter distinct from the woodland caribou of the forest. Reindeer pastures promise a future addition to the world's meat supply.

Natural Outlets. Although continuous voyages have been made along the Eurasian and North American coasts, sea traffic is practically limited to short coastal stretches near the openings to the Atlantic and Pacific Oceans. Natural outlets are overland, chiefly along river valleys.

Outlook. Although with great trouble cereals and vegetables can be grown, progress will depend upon the marketing of reindeer meat and fish and upon the discovery and exploitation of minerals such as Spitsbergen coal. Natives provide furs and skins for the great fur-trading companies of America and Siberia.

ARGENTINA

Land of Vast Pampas and Far Horizons

by F. A. Kirkpatrick

Author of "South America and the War," etc.

LA REPUBLICA ARGENTINA—the Silver State; El Rio de la Plata—the River of Silver. The sonorous titles, reminiscent of illusions cherished by early explorers, evoke an imaginative curiosity. To-day these phrases may be interpreted figuratively. The lands traversed by the great river are rich in everything but the precious metals, and its broad waters convey to the sea the products, not of the mine, but of the soil. For Argentina is pre-eminently the land of the Pampa, the prairie of South America.

From the Tropics to Arctic Seas

It is true that the area of the Republic exceeds 1,150,000 square miles—more than nine times the extent of the British Isles—and stretches through a length of 2,300 miles. From its widest part, nearly 1,100 miles, it thrusts a broad rectangle northwards into the tropics; southward it tapers to the point of the continent and to icy island cliffs battered by Antarctic seas; to the west tower the volcanic snowy peaks of the Cordillera. Yet these remoter regions, though partly colonised long ago from Peru and Chile, may to-day be regarded as extensions from the central region, the level treeless plain of the Pampa.

The term "River Plate" is commonly applied to the sub-continent comprising that part of Spanish America which lies between the Andes and the Atlantic, and owes a certain unity to the vast water system of the rivers Paraná, Paraguay and Uruguay, whose united streams form the River Plate estuary. All these regions belonged to the Spanish viceroyalty of Buenos Aires. But upon winning independence, the provinces of Uruguay and Paraguay, marked off by distinct water boundaries, broke away to form small independent republics. The Andean province of Upper Peru—now Bolivia—was also detached. But the fourteen provinces, theoretically autonomous states, which finally constituted the Argentine Confederation, formed a distinct area in a geographical, a historical and an economic sense. They cover the area stretching west and north-west from the River Plate estuary. For southwards the frontier held against savage Indian tribes was hardly 200 miles from the capital. Through the campaign known as the "Conquest of the Desert" in 1878-9, and the subsequent advance of white settlement, the territorial claims of the Republic became a reality and demanded a series of agreements defining the frontiers. The most important of these was the arbitration of King Edward VII. which fixed the Andean boundary in 1902.

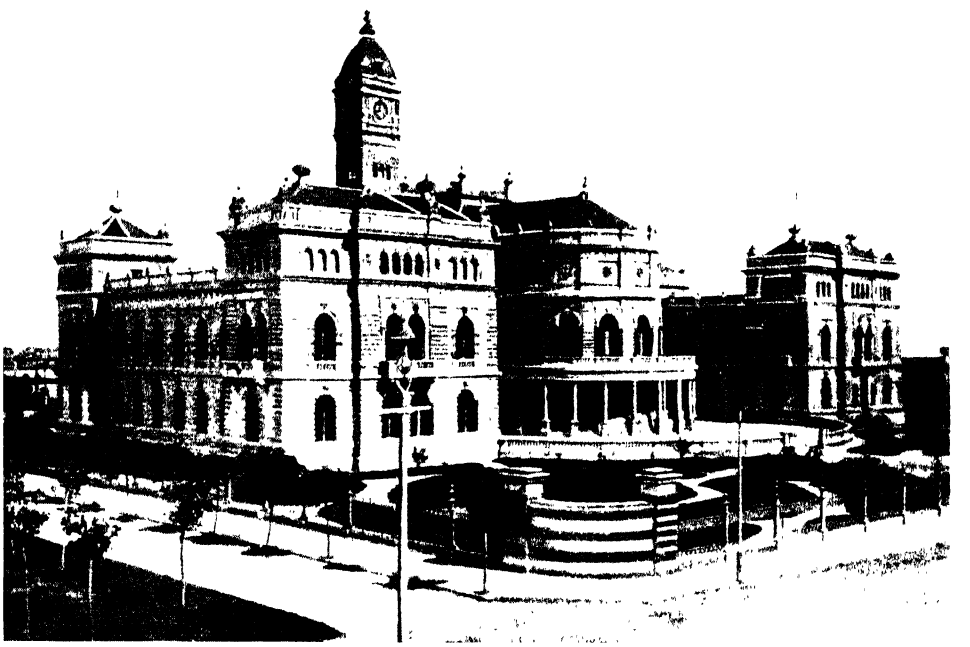
Unity Due to the Great River

The Argentine Republic is bordered on the west for nearly 2,000 miles by the gigantic barrier of the Cordillera, and on the east for 1,500 miles, in its southern part, by the Atlantic. Farther north it is separated from Uruguay by the river of that name and by the River Plate estuary; from Paraguay by the river Paraná and its affluent, the Paraguay; from Brazil by the river Uruguay and by affluents of that river and of the Paraná. The river Pilcomayo separates the Argentine part of the Gran Chaco from the Paraguayan part. In the mountain masses of the far north and north-west, where natural boundaries are not

distinct, the Bolivian and Chilean frontiers have been fixed by agreement. In the south of Patagonia and in Tierra del Fuego the boundary is an artificial one, fixed by a treaty based on historical and national considerations which leaves in Chilean hands the shores of Magellan Straits. The country has thus achieved a recognized unity.

Argentina also possesses a distinct economic and political unity due to the great river. For to the older and more settled parts, which formed the original Argentina, the only channel of commercial, social and diplomatic intercourse with the outside world is by the estuary of the River Plate through or past the port of Buenos Aires. This unavoidable connexion with Buenos Aires has been the determining factor in frustrating provincial efforts at division and preserving the unity of the Argentine Confederation.

Former discontents in the other provinces concerning the predominance claimed by the city and province of Buenos Aires were allayed by the separation of the capital from the province of Buenos Aires. The city of that name since 1880 has formed a Federal district belonging to the nation, to the fourteen provinces, and not to any one province. By the settlement of the Rio Negro district about the same time and by later advance both southward and northward, the Republic has taken effective possession of its own territory which now embraces, in addition to the fourteen provinces, ten national territories (gobernaciones), which cover two-thirds of the area of the Republic, although they contain but a fraction of the population. They are administered directly by the Federal government, and have not been erected into constituent members of the Confederation. Four of these territories lie in the extreme north; one territory, that of La Pampa, is in its general character an extension of the province of Buenos



MUNICIPAL BUILDINGS OF A MODERN ARGENTINE CITY

The growth of La Plata has been remarkably rapid. In 1882 it consisted of a few wattle and daub huts in a barren waste a few miles from the village of Ensenada, on the southern shore of the La Plata estuary. Less than three years later it had a population of 30,000, and nearly 4,000 houses were completed or in course of construction. In 1922 its inhabitants numbered approximately 131,000 persons.



ARGENTINA: THE FAR-SPREADING PAMPA 'TWIXT CORDILLERA AND ATLANTIC



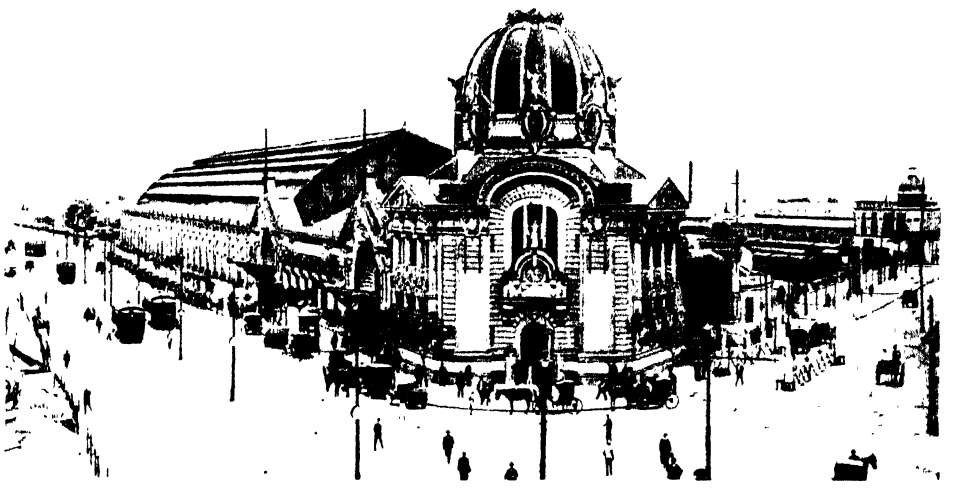
THE "WHITE BAY" CITY: PANORAMA OF BAHIA BLANCA, A GROWING SEAPORT OF ARGENTINA

The city of Bahia Blanca is rapidly developing in size and prosperity, due, to a great extent, to its deep and well-protected harbour which has made of it a seaport and naval station of no mean reputation. It lies on the Naposta, three miles and a half from its mouth in the bay and 425 miles by railroad south-west of Buenos Aires. It is the focus of several important railway lines and has excellent facilities for handling cargo. The town is well planned, attractively built, and has hospitals, parks, electric lighting and a wireless station; it has a population of approximately 150,000

Aires and of its western neighbours; the remaining five, south of the river Colorado, are described in the chapter on Patagonia and Tierra del Fuego.

Thus the natural avenue leading to the capital and to the most characteristic parts of the Republic is the broad estuary of the River Plate. From its low flat shore stretches the vast plain of the Pampa formerly covered with coarse grass and supporting only scanty Indian tribes. This savage period was followed by the reign of the half barbarous gaucho, the mounted cowboy, tending vast herds on unenclosed lands, the forerunner of the modern age, the age of fenced estates, machinery, tillage, and neat estancia houses. From Mar del Plata in the east the plough could be driven, meeting no obstacle but the rivers, 700 miles towards Mendoza and almost as far towards Córdoba. About 200 miles south of the capital, the level is broken by hills, the Sierras de la Ventana and de Tandil. Beyond these hills the plain, though less uniform, continues its general character to the basins of the rivers Colorado and Negro, where irrigation has turned lands once dry and sterile into rich farms and orchards, and to the limits of Patagonia The Pampa, to the eye, presents an unbroken flat immensity, as interminable and undisturbed as the sea, with something of the majestic monotony of the sea. The traveller, day after day, seems to be surrounded by the same landscape and the same horizon, except when, under the blazing summer sun, the mirage creates the illusive image of cool waters and leafy groves. In reality the land is not dead flat, but sweeps in long gentle undulations, with frequent lagoons and swampy places. Moreover, the Pampa slopes, rising imperceptibly westward towards the Sierra de Córdoba and the foothills of the Andes. In the west of the province of Córdoba the soil, less deep and rich, is covered with low scrubby wood. But the far more extensive treeless plain, with its deep fertile soil, always moist below the surface, provides 250,000,000 acres of arable land—the famous cereal zone which stretches from the river Salado in the north to the Colorado in the south.

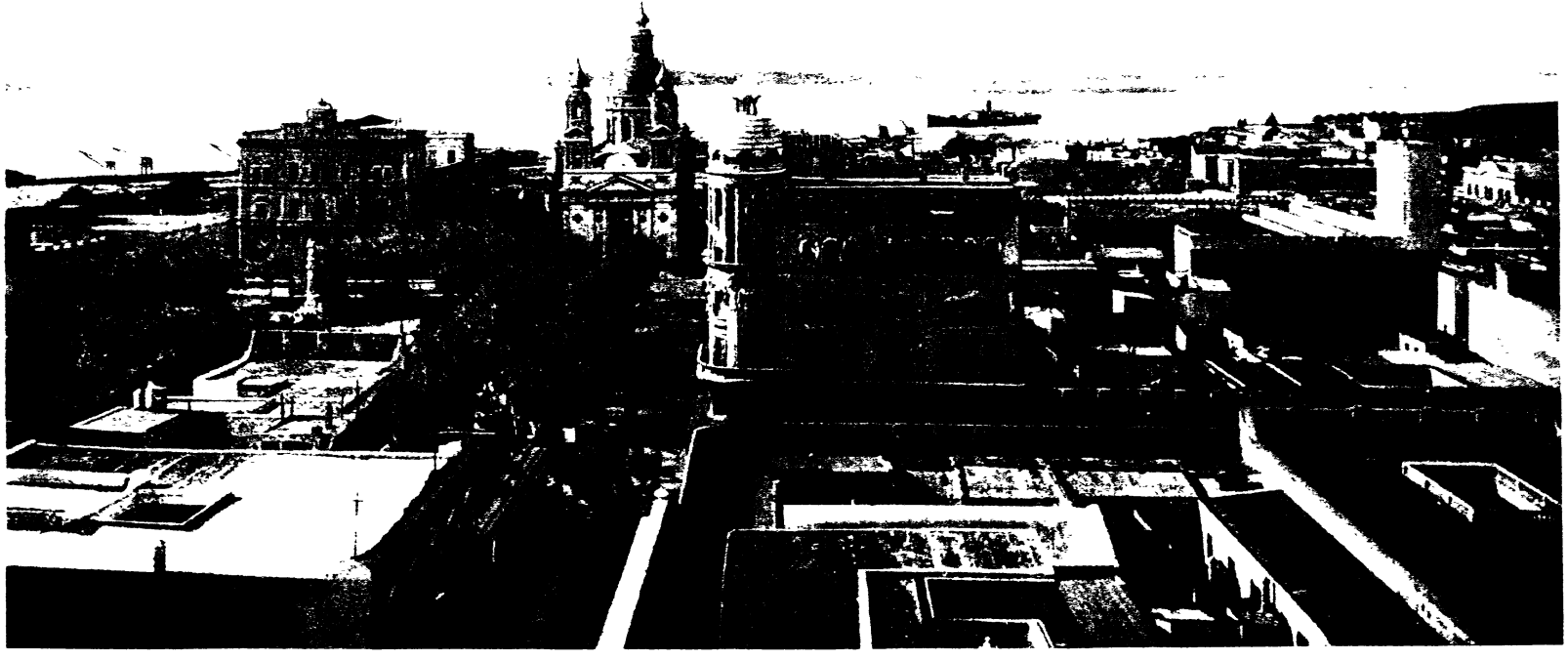
This open plain has been the making of modern Argentina. But there is much more; the country comprises every habitable altitude and every



R M S P Co

IMPOSING STATION OF THE FERRO CARRIL DEL SUD AT LA PLATA

The handsome and well-kept city of La Plata, laid out on the same plan as Washington, boasts many public squares and parks. The fortunate situation of this port, which is connected by railways with nearly every province of the Republic, has brought to it much prosperity. Among its principal buildings are the cathedral, university, museum and Southern Railway Station



EASTERN END OF ROSARIO, A BUSTLING RIVER PORT OF ARGENTINA, VIEWED FROM THE JOCKEY CLUB TOWER

On the Parana river's right bank, 175 miles by railway north-west of Buenos Aires, stands Rosario, the capital of the province of Santa Fé. Many railway lines radiate from the town connecting it with all parts of the Republic and traversing territory rich with produce and commercial opportunities. Until the middle of last century Rosario was a mere village: its growth has been rapid, and it is now the principal port of the north provinces, its wharves being reached by ocean as well as by river vessels. It is an important commercial centre with an extensive export and distributing trade, and contains the largest sugar refinery in the country

latitude from the Tropics to the Antarctic, with endless varieties of relief, soil, aspect, products and general character. Before examining these, a broad division into mountain and plain may be indicated. The mountains are: the Andes, in the west; the Sierra de Córdoba, midway across the continent, with its extensions north and south into Santiago del Estero and San Luis; the hills of Tandil and La Ventana; and lastly the remote, almost detached territory of Misiones, which belongs geographically to the Brazilian uplands. The plain, treeless in the south, wooded in the north, stretches from the north frontier to the river Colorado.

Mountain Ranges and Broken Plains

But sub-division is necessary; besides the central region or Pampa—already described it remains to treat (*a*) the northern extension of the Pampa through the subtropical and tropical region of forests and streams, (*b*) the Andean and sub-Andean region in the far north-west, (*c*) the western region, that is to say, the strange broken country between the Sierra de Córdoba and the Andes; with the slopes, valleys and plains lying at the foot of the Andes from La Rioja to Mendoza. Lastly, the Andean Cordillera extends along the whole length of the Republic, possessing a general mountainous character of its own, but passing through every zone and every gradation of snow-line.

The path to the north leads by river steamer up the stream of the Paraná and of its chief affluent, the Paraguay, with their chain of river-ports, past the provinces of Santa Fé, Entre Rios, Corrientes and the territories of Misiones, the Chaco and Formosa. Entre Rios, the Mesopotamia of Argentina, is an extension of the Pampa but is more undulating, wooded and varied in character; it is still largely pastoral; tillage is increasing and finds outlet for its produce by the two great rivers which embrace the province.

Most of Santa Fé belongs to the cereal zone, but the province stretches far north into the forest region which covers Corrientes, and extends—here more tropical in character—over the Chaco. The plain is still unbroken, but is now wooded, rich in varied and abundant timber, intersected by innumerable streams, dotted with many swamps or lagoons, and interspersed with stretches of open savanna.

Tropical Luxuriance of the Chaco

The Chaco teems with tropical luxuriance and colour, and with the multitudinous life of beasts, reptiles, saurians, fishes, birds and insects. Its muddy streams with devious shifting courses spread out into frequent pools and marshes, the haunt of innumerable water-fowl. To-day the open spaces are grazed by cattle; the timber is being cut, particularly the great and hard quebracho, rich in tannin; and the chimneys of tannin-extracting factories vomit their smoke among the primeval woods.

Many of the native Indians work as peons in those industries, but in remote thickets lurk scanty tribes, untouched by the oncoming wave of civilization. The south-west part of the Chaco, remote from the rivers, is a dry region, extending across Santiago del Estero where occasional bañados or flooded lands admit pasture.

Fertile Regions and Salt Deserts

Westward again rises the hilly country, partly wooded, partly bare, of the sub-Andean and subtropical north-west, enclosing in its midst the rich sugar district of Tucumán, where the soil is kept moist by mountain mists and irrigation increases the cultivated zone. Further yet stretch between the Andean peaks the bleak heights where Argentina divides with Chile and Bolivia the desert plateau of Atacama, rich in borax and copper.

Between the Sierra de Córdoba and the Cordillera lies a confused and fantastic region of broken hills interspersed with salt deserts and lagoons,

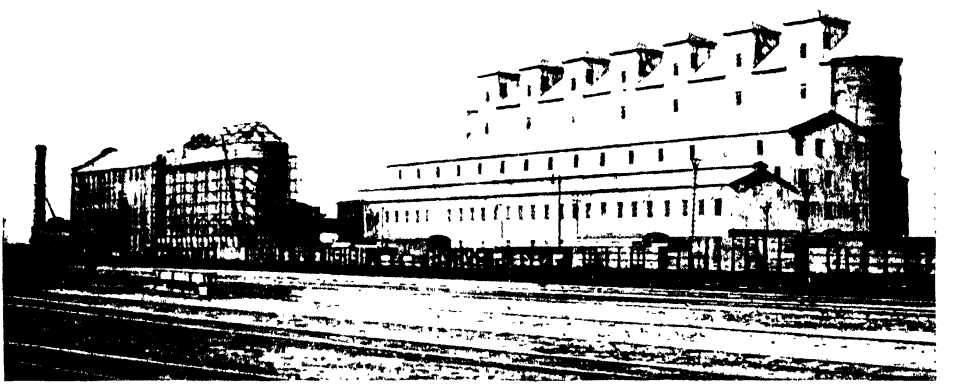


JAGGED MOUNTAIN WALL OF THE MIGHTY CORDILLERA THAT INTERSECTS THE WESTERN REGION OF SALTA PROVINCE

Salta, the northernmost province of Argentina, is very mountainous in the west, the highest peak rising to 20,000 feet; while in other parts extensive salt swamps, fertile valleys, woodland tracts and pastures give variety to the landscape. Rich mineral deposits abound in the mountains, and include gold, silver, copper, iron and lead. In some of the drier desert regions huge cacti are to be seen like "weird skeletons, gaunt and stark," standing about the sandy slopes and dry plains. Crops are planted and thrive according to the altitude; in the lower fertile districts maize, alfalfa, sugar, coffee, tobacco and fruit are produced

also with plains and valleys varying in character but mostly excessively dry. Here are several separate systems of lacustrine or interior drainage, the rivers disappearing in the sandy soil or in the salt lagoons. Parts of this country are being fertilised by irrigation, and there is also promise of mineral wealth. Moreover, close under the Andes lie at intervals, forming veritable oases in this dry country, rich valleys and wide fields watered by mountain streams and clothed with vineyards and orchards. Famous among them is the rich irrigated land about the town of La Rioja. The towns of San Rafael and San Juan dwell upon more extensive irrigated ground But most famous of all is the far-stretching wine-growing land of Mendoza where innumerable water-cuts, bordered by rows of poplars, intersect the vineyards Where suitable conditions offer, the vineyards and orchards lie beyond the irrigated lands.

Every one of the regions thus briefly described embraces great diversities which baffle detailed treatment. Moreover, the volcanic range of the Andes, which extends along the whole length of the Republic, although it forms a distinct mountain system, or, rather, part of a continental mountain system, obviously in its great length through thirty degrees of latitude varies much in character from the beautiful wooded alpine and lake country in the south to the bleak desert plateau of the north. The part stretching from Southern Patagonia to the snow-clad peak of Aconcagua, 23,000 feet, which towers above Mendoza, is on the whole a clearly marked single range, though spreading out into many spurs and outlying heights. North of Aconcagua the Andes divide into two or even three lofty ranges enclosing between them a plateau which widens northwards towards Bolivia and falls partly within the Argentine territory of Los Andes and the adjoining provinces. From the foregoing general description it will be evident that in considering the nature of soil, climate, vegetation, animal life and human occupation, emphasis must be laid upon the diversities of latitude, altitude and comparative distance from the sea.



ELEVATORS FOR GRAIN STORAGE AT PUERTO GALVAN, BAHIA BLANCA

Bahia Blanca is charmingly situated at the head of a bay of the same name in the province of Buenos Aires It is a busy seaport, and the seat of a considerable foreign trade. Its harbour is rapidly growing in importance, and serves the rich farming area of the neighbouring provinces by exporting cereals and wool, and claims one of the largest wheat shipments in the world

The great cereal zone, the most populous and cultivated region of the Republic, is deeply covered for the most part with loose, fertile and easily worked soil. The land, once half desert and clothed with coarse native grasses, is now traversed by a network of railways and divided by wire fences into estates farmed after modern and scientific methods. The flocks of sheep have been pushed southward and wool is no longer



PLAZA SAN MARTIN OF CORDOBA, SHOWING THE SPANISH CATHEDRAL AND THE MUNICIPAL GOVERNMENT HOUSE

Founded by the Conquistadores in 1573, thirty-eight years after the foundation of Buenos Aires, Córdoba, the capital of Argentina's central province, is the fourth city of the Republic in point of population and importance. It is surrounded by beautiful mountain scenery, and is famous for its university—one of the chief educational centres of the country, established in 1613 by the Jesuits whose stronghold the city once was—its Gothic cathedral well over three hundred years old, and its national observatory, which constitutes the "Greenwich" of Argentina. It is also the see of a bishop and is an important railway junction

the chief source of wealth. The pastures, much improved by years of grazing, support cattle of the finest breeds, and the far-stretching fields are rich with crops of wheat, maize, oats, flax and alfalfa. The climate of this central region, as generally of the lands lying west of it, resembles that of southern Europe and is congenial to immigrants from the Mediterranean lands. Near the Atlantic coast the cold never exceeds a slight frost, disappearing at dawn, and summer heat, though sometimes oppressive enough, is less extreme.

The interior has a more continental climate, with intenser heat in summer and occasional cold storms in winter and spring, sometimes even driving snow which melts as it falls. The cereal region suffers sudden great variations of temperature when the hot and moist north wind gives place to the cold rush of the pampero, the wind which sweeps from the south-west over the plain with something of the freshness, the force and the tonic properties of a sea gale. Notwithstanding its chilly force its coming is welcomed as a health-giving boon from the Pampa.

Climate of the Settled Regions

The climate of the more settled regions, even beyond the Pampa, varies less than might be expected in view of the range of latitude. The mean temperature of the twelve chief towns from Tucumán (Lat. 27°) to Bahia Blanca (Lat. 39°) varies between 60° and 70° F., and their maximum temperature between 100° and 111°. It is true that the interior cities, especially in the north, enjoy a considerable elevation, and those figures do not include the snowy south nor the low-lying northern forests. Yet the figures show that the more populous parts do not differ very widely in climate. Though the heat is sometimes extreme, Argentina enjoys a dry and therefore a healthy climate.

Alone of the southern continents, South America thrusts itself far down through the temperate zone; and most of this southern region belongs to Argentina, which has been described as a temperate land in a tropical continent, a temperate land designed by nature for the seat of a populous and prosperous civilization.

Recurring and Destructive Droughts

The central or cereal region is visited at irregular intervals by two plagues, drought and locusts. The rainfall is irregular and uneven, with no distinct rainy season, although rain is more abundant in summer. During the occasional periods of drought, which have lasted for three years or even more, the underground water never fails, and can still be raised by windmills, which are a familiar feature in the present-day landscape, or by more primitive methods. But the pasture turns to dust and the beasts die from want of herbage. Sandstorms, even during a short drought, sweep across the Pampa and penetrate the streets of the capital, darkening all the air and driving the people indoors.

The increasing dryness of the climate is evident from the fact that several rivers in Córdoba dwindle and disappear without reaching the river Paraná, into which they once flowed; and in the south-west there is an extensive basin of inland drainage, where formerly the more abundant waters flowed into the river Colorado, and so to the Atlantic. The rainfall diminishes westward; in western Córdoba many artesian wells have been sunk to remedy the scanty rainfall; and in the yet dryer sub-Andean region farther west, cultivation generally depends on irrigation.

Havoc Wrought by Plagues of Locusts

At irregular intervals—about once in seven years, say the country people—hosts of locusts from the far tropical interior fly over the land in dense clouds which shut out the sky. Wherever they descend to earth they devour all vegetation; and where they deposit their eggs a new generation of young



PLAZA SAN MARTIN IN MENDOZA CITY, THE SCENE OF MANY HISTORICAL HAPPENINGS

Mendoza, capital of the fertile province bearing the same name, was founded in 1559, and became later the chief town of the former Spanish province of Cuyo. It has many historical associations, and was the point from which San Martin, the skilful and patriotic South American soldier, whose memory is much revered by the people of Argentina, led his men in their celebrated march over the Andes in 1817 to glorious victories over Spanish authority. Mendoza is the chief centre of trade between Argentina and Chile with which it communicates by the trans-Andean railway extended in 1910 to Valparaiso



CALLE SAN MARTIN, ONE OF MENDOZA'S PLEASANT STREETS, FRINGED BY LOW HOUSES AND LUXURIANT FOLIAGE

Situated on the slope of the Andes at an altitude of 2,300 feet above sea-level, Mendoza presents a very pleasing appearance against its rugged background. Entirely destroyed by earthquake in 1861, when 13,000 people perished and only 1,600 survived, the town rapidly rose again on its ashes, and, thanks to the prosperity of its surrounding agricultural and mineral resources, quickly re-established itself as a commercial centre. The houses are built low and of whitewashed adobe brick, the trim and roomy streets being set off by tall, finely-foliaged trees. Mendoza is especially noted for its fertile vineyards and prosperous viticulture



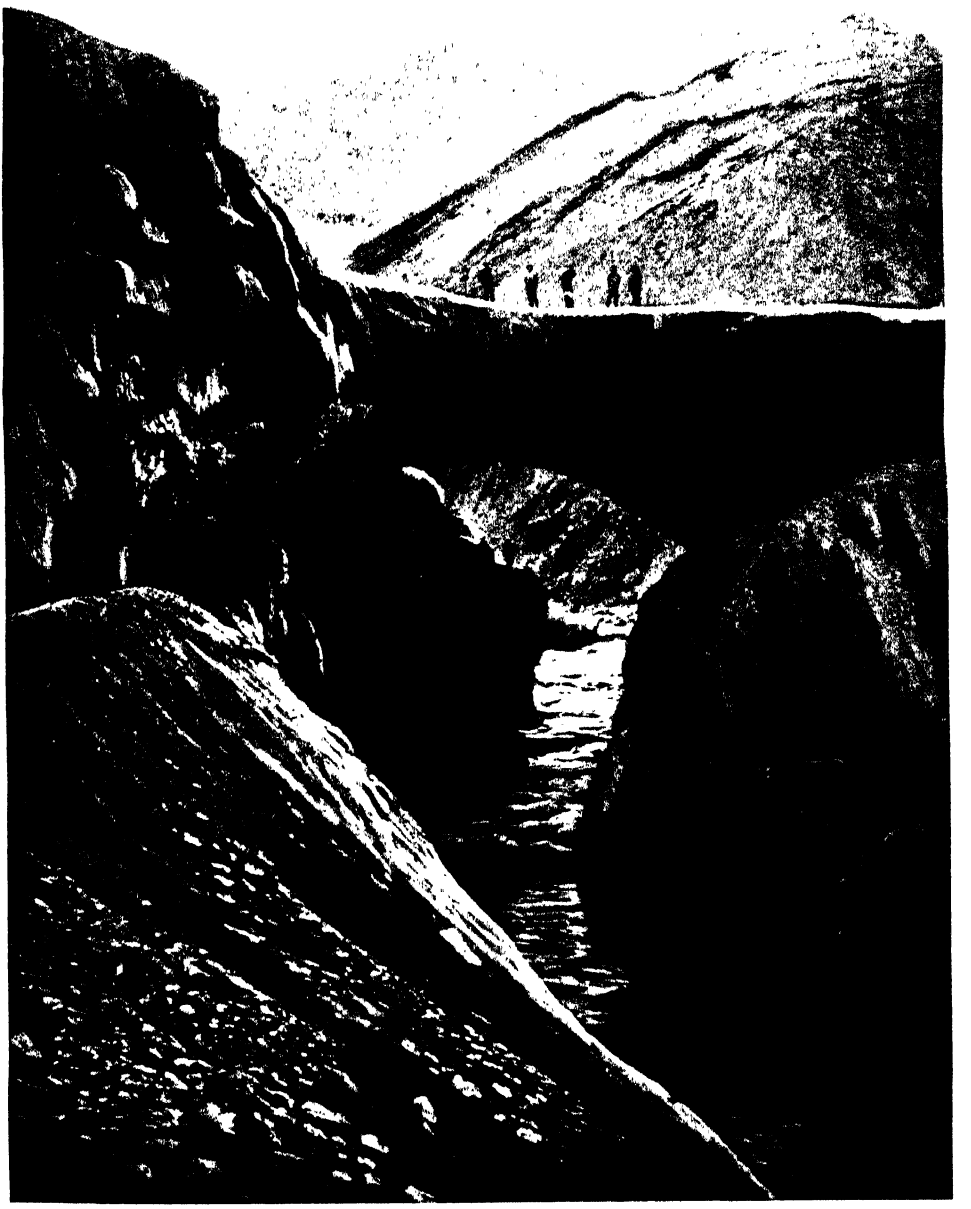
RACK RAILWAY AMONG THE HIGH PLACES IN THE ANDEAN REGION

The trans-Andean railway connects Argentina with Chile. At its highest point, under the Uspallata Pass, it attains an elevation of 10,521 feet; it is constructed on the metre gauge, but, owing to the steepness of the gradients, the rack system has been adopted over a length of nearly twenty-two miles. The total length of the railroad from Buenos Aires to Valparaiso is 888 miles.

locusts or "hoppers," not yet winged, advances along the ground in destroying armies. The struggle against these insect invaders has been undertaken by the government as a national duty, and means have been devised to minimise the plague, chiefly by destroying the young "hoppers." These trials and difficulties of the farmer and vine-grower demand due mention, but not excessive emphasis. They have interrupted but have not seriously impeded the progress of the country.

The outstanding fact is the great recent creation of new wealth through the extension of scientific farming, both pasture and tillage, a development which means prosperity of the most valuable and durable kind, founded upon the working of the soil. The pioneers of this work had to contend with difficulties more constant and more familiar than drought or locusts; their trials were such as beset all who lead the way through new lands: fatigue, exposure to heat, cold and rain, hard diet and hard lodging, danger in dealing with untamed beasts and with savage or half-savage men, primitive and precarious transport, remoteness from the conveniences of life. In the central region these obstacles have been overcome. In the remoter parts they are now being met and overcome.

The far north presents the difficulties characteristic of tropical forests: heat, moisture, sickness, distance from centres of life, barriers of dense interlaced vegetation, traversed with much labour in canoes along shifting and winding rivers and creeks obstructed by changing mudbanks and fallen timber, plagues of insects, and, in some degree, the hostility of untamable savages. The



PUENTE DEL INCA, THE NATURAL ROCK BRIDGE OF ARGENTINA

Puente del Inca is a frontier military post of the Argentine Republic, lying about seventy miles west of Mendoza on the route of the Andean pass of Uspallata between Argentina and Chile. It contains a railway station, hotel and medicinal baths, and takes its name from its famous natural bridge spanning the river Mendoza, which rises near Aconcagua and falls into Lake Guanacache

PASTORAL SCENES ON ARGENTINA'S GREAT PLAIN, THE CAMPO ON WHICH THE REPUBLIC'S PROSPERITY IS BUILT

Extending from the Atlantic in a gentle upward slope to the foothills of the Andes, where the altitude is about 2,200 feet, lies the great Pampa or prairie of Argentina. On this illimitable plain, grassy, treeless, except along the course of the rivers, and almost level, countless herds of cattle and sheep are pastured, tended by gauchos, the cowboys of the Pampa who are content to pass their lives in the saddle amid the silence of the boundless grasslands. It is these herds and flocks that supply the Republic with its main wealth, and furnish the meat, hides and wool that form its chief exports

ESTANCIAS OLD AND NEW THAT BREAK THE MONOTONOUS ASPECT OF THE PAMPEAN PLAIN

As contrasting with the plain in which they stand, the estancias of the cattle raisers of the Argentine prairie are usually surrounded with plantations of trees; and here, apart from the crowded haunts of men, as may be seen from a glance at these two photographs, the march of progress is manifest. While long, one-storeyed buildings such as that illustrated in the upper photograph still hold a dominant place, the old primitive homesteads of an earlier day are slowly giving way to more substantial, commodious and better appointed structures similar to that seen in the lower view



WORLD-FAMOUS GRANITE ROCKING-STONE OF ARGENTINA

This enormous massive boulder, weighing 700 tons, so precariously poised that it rocks in the wind, and said to be the largest rocking-stone in the world, is found among the sierras of blue granite at Tandil, 250 miles south of Buenos Aires. Readily swayed by hand pressure, it is so perfectly poised that it can actually crack a nut without crushing it

result is that the industrial conquest of the Chaco is to-day adding to the wealth and varied prosperity of the Argentine Republic.

In the more accessible and more settled parts of the forestal region, south of the Chaco, cultivation of sub-tropical as well as temperate crops is increasing. Extensive lands, especially in Corrientes, invite cotton cultivation, if sufficient labour were available. In the north-western region the pioneers of the sugar industry and of tobacco planting have overcome the early trials of fevers, local droughts, difficulties of labour and of transport.

On the whole, recent advance in the northern parts of the Republic is a striking example of the world movement which carries the European wave into lands formerly regarded as hardly within the range of white settlement.

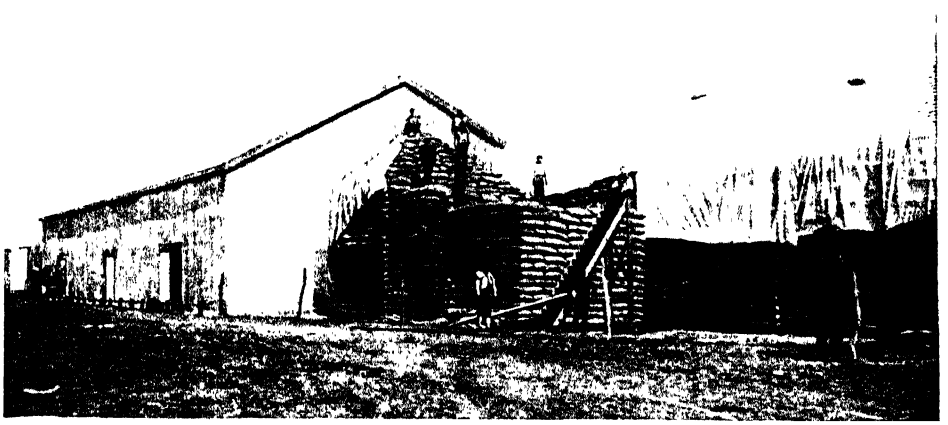
The western region, partly hilly, partly flat, mostly dry but in parts traversed by mountain streams, is much diversified. It is also less accessible to transport than the eastern plains. This western region is sometimes visited by the earthquakes which shake all the Andes. But its irrigated vineyards and orchards are striking examples of the taming of nature by man and of the replacement of a scanty, coarse and primitive vegetation by the elaborated products of a process of scientific and experimental cultivation.

The same process, which may be almost called the education of the soil through an evolution or revolution in its vegetation, embraces the whole Republic, and falls broadly into two divisions: the central plain and the northern forest. As to the latter, little need be added; here the taming process consists in the invasion of the primeval woods rather than their transformation. The forest, in general, maintains its pristine character both in vegetation and in animal life. Not so the Pampa. The transformation

here effected is one of the wonders of our time. The plain was originally covered with coarse herbage, bright with flowers in spring and interspersed in the damper parts with the feathery and beautiful but unprofitable pampas grass. The monte or low woods of Córdoba cover the western part. This almost derelict and semi-desert plain has become one of the great granaries of the world. Its far-stretching fields are covered with alfalfa and with various grains, among which maize ("Indian corn") alone is of American origin. Wheat, flax and oats are introductions from Europe, as also the vine and various fruits which are grown for the solace of a population also mainly European in origin.

Equally striking has been the transformation of animal life. Horses, horned cattle and dogs, introduced from Europe, multiplied rapidly and took possession of the Pampa in a wild or semi-wild state, now swept away by the advance of the modern farmer. From Europe, too, came sheep, now numbering many millions, swine and domestic fowls. The hare, introduced in the early nineties, has increased to undesirable excess. Yet the animal life of earlier days, though displaced and diminished, is not extinct.

Most notable was, and still is, the teeming abundance of bird life throughout every part of the country, from the gigantic condor and the "South American ostrich," or rhea, down to the humming-birds, which, tiny though they are, move southwards in summer over the Pampa region. The 500 kinds of birds baffle description or even enumeration, but perhaps the most characteristic sound of the Pampa is the ubiquitous and unceasing cry of the tero-tero, a species of plover, and one of its quaintest sights is that of the owls who sit gazing at the passing traveller. Mammals are abundant and distinctive, but include nothing comparable to the great beasts of Asia and Africa. The largest creature really native to the Pampa is the guanaco, for the carnivorous puma and jaguar were probably attracted southwards by the introduction of sheep and cattle. Small deer of several kinds abound, many rodents, foxes, opossums, the skunk with his beautiful fur and his offensive weapon of defence, the gregarious



GARNERED GRAIN FROM THE EXPLOITED SOIL OF THE PAMPA

The cereal region of the Argentine Republic embraces a large portion of the Pampa territory. The annual decay of the vegetation has produced a fertile soil which, in certain parts, yields abundant crops even without irrigation or fertiliser. The Pampa, thanks to the remarkable transformation wrought by ploughshare and locomotive, has become one of the great granaries of the world

burrowing viscachas, water-hogs, otters, and the quaint armadillos.

These last little creatures, with the sloth and the ant-eater, are as it were, dwarfed descendants of the uncouth monsters which, as their fossil remains show, haunted in long-ago ages the swamps and the low shores of lagoons, which were the diminishing remnants of the Pampean sea.

Vast Land Areas That Once Were Sea

For, in a yet earlier age the whole Argentine plain, both forest and Pampa, lay beneath the waters of a vast inland sea which extended from the limits of Patagonia northwards through tropical regions far beyond the present frontier. The Sierra de Córdoba and the Sierra de la Ventana, ancient rock formations, then much loftier than to-day, rose up as islands. While the younger Andean system was slowly pushing upwards in the west, the inland waters gradually shrank until their vast expanse was replaced by the vast expanse of a low fluvial basin whose deep soil to-day nourishes the forests of the north and the crops of the cereal zone. The fruit-growing delta of the Paraná and the land along its banks for 100 miles further inland are recent rich alluvium, where the great inlet once penetrated far into the continent.

Wealth in Mines and Manufactures

Though Argentine products are mainly rural, various and abundant minerals, chiefly in remote hills and mountains, await population and transport. The Cordillera conceals much wealth, from the borax and copper of the north to the gold of the far south. The Sierra de Córdoba and its offshoots are storehouses of future riches. Scientific exploration and improved transport—such as the aerial cable which already serves some of the mines in La Rioja, are aiding the efforts of miners. But any extensive development is hardly to be expected for some time, in view of the prior attractions of other pursuits in the Argentine and the greater mining facilities enjoyed by the Andean countries which border on the Pacific.

The chief industrial establishments are those closely connected with the primary occupations of tillage, pasture and forestal exploitation. The 50,000 factories set down in statistics include flour-mills, dairies, wine-presses, sugar-refineries, tobacco factories, tannin-extracting factories, meat-freezing establishments and even the old-fashioned "saladeros," where carcasses of beef are dried in the sun for export to Brazil and the West Indies manufactures, in short, which denote an agricultural country, an exporter of foodstuffs and raw materials rather than a manufacturing country. But restriction of imports during the Great War gave impetus to an interesting movement of manufacture, notably in textiles and leather. Adequate skilled labour was available, and Argentina is adding to her other occupations manufacture for the home consumption of her nine million people.

Internal and External Transport

The needs of trade are served by many lines of steamers linking Argentine ports with those of Europe and, in a less degree, with those of the U.S.A.

Telegraph and cable services are excellent, and the Argentine railway system is connected with those of Brazil, Chile, Paraguay and Bolivia. The great river also serves as a channel of commerce with adjoining republics and of internal trade as well.

Internal transport is twofold: (1) northwards by the navigable rivers Paraná, Paraguay, Uruguay, apart from which there is little interior navigation; (2) by the 21,000 miles of railway, the great system which radiates from Buenos Aires intersecting the Pampa in all directions, and gathering to a second nucleus at Rosario and a third at Bahia Blanca. The flat Pampa is an ideal country for laying sleepers and metals, but the government is now pushing forward state-owned railways in more difficult country, both in the far

south and in the sub-Andean region of the north-west.

The Pampa resists the making of roads. Owing to the deep, soft soil and the scarcity of stone, made roads hardly exist apart from the neighbourhood of cities. A country road is merely a track between parallel wire fences. Wet weather turns it into a swamp, into which the wheels sink deep. But, as elsewhere, motor traffic has had the effect of inducing efforts to improve roads.



SUN-CURED BEEF IN STORAGE UNDER TARPAULIN COVERS

These stacks are composed of "jerked" beef, or charqui: thin strips of meat with all the fat removed which have been thoroughly dried in the sun, a method of preservation widely adopted in many parts of tropical America. If cut from animals in sound condition this meat will become sun-dried before decomposition can set in, and may be preserved for an indefinite period

Notwithstanding the rural basis of life, more than half the population inhabits towns. This conglomeration is partly due to the needs of commerce, of railway administration, of the whole business of government: cabinet, parliament, law courts, official departments; of education and science, universities, museums, colleges and schools. And all this professional activity requires in addition a large working population. Yet, after all allowances, it is evident that the towns are supported not by their own industries but by the land and that many who live by the land do not live on the land. In a new country, whose relations with the Old World are largely material and commercial, there is a tendency among some of the wealthy to spend ostentatiously and to regard the external adjuncts of civilization as constituting civilization itself. Against this tendency may be set the more substantial culture visible in the museums and universities, in the organization of educational facilities from the primary school up to the university, and in a literature and dramatic art which are developing a distinctly native tone and character.

The towns, so far as the ground permits, are all built on the chessboard pattern prescribed in the sixteenth century, the rectangular streets enclosing equal "squares" or blocks of

houses which possess no garden or open space unless the patio or interior courtyard is preserved. The rectangular city plan atones for its monotony by an impression of deliberate design, of solid, permanent dignity and completeness; and in a new country a well-understood and uniform method of town planning has distinct merits. Modern estancia houses and villas near the towns vary much in style according to the nationality and tastes of the owner. Village life can hardly be said to exist, for even the smallest pueblos are distributing centres for wide areas and have the character of towns. Public hygiene is now well administered in the large towns, but the people generally require to be educated in this respect.

Rosario (250,000 inhabitants), the great grain port, the second city in the Republic, is a fine city of growing importance and activity. The towns of Paraná, Santa Fé, Corrientes, Concordia, are smaller links in the chain of river ports. La Plata (151,000 inhabitants), capital of the province of Buenos Aires, represents, in its broad streets, handsome buildings and neighbouring port, the pride and ambition of the premier province. Bahia Blanca (150,000) is the seat of the naval arsenal and a growing port. Of inland cities the chief is Córdoba (160,000), a picturesque and an ancient place; it is the seat of the oldest Argentine university. Tucumán (100,000), seated on subtropical hills, looks out over the sugar plantations. To Mendoza (65,000), set at the foot of the Andes and facing eastwards towards the plain, the vineyards and watercourses give a distinctive character.

ARGENTINA: GEOGRAPHICAL SUMMARY

Natural Divisions. Eastern lowland—Gran Chaco, the interfluvial region between the Paraná and Uruguay and the Pampa. Plateaux of Atacama and Patagonia (q.v.) and the Central Highlands. In the west, the slopes and crests of the Andes.

Climate. Central continental climate of extreme temperatures, rainfall in summer and the south-west wind, the pampero; here the range of temperature is smaller than in the interior of other continents. North-west, an arid region with tropical temperatures affected by the altitude, cf. Atacama with the Kalahari and the Sahara.

Natural Vegetation. Grass land—the pampa; cf. the prairie of North America. Tropical forest in the north. Temperate forest in the south.

Rivers. Paraná and Uruguay in a trough parallel with the Brazil Highlands, cf. the Mississippi. Pilcomayo, Colorado, etc., flowing from the Andes eastward; cf. the Arkansas, etc., in U.S.A. No important rivers drain 250,000 square miles of pampa.

Chief Industries. Almost all the industries are based on the land. Sheep are reared south-east of the line from Buenos Aires to Bahia Blanca; they yield one-eighth of the world's wool. One-fifteenth of the world's cattle are reared in the interfluve Santa Fé and Buenos Aires provinces. Except U.S.A. and Hungary no country produces so much maize. The tilled Pampa yields more than half of the wheat grown in the southern hemisphere. Alfalfa for fodder is a valuable crop. Sugar cane, tobacco, and cotton are grown in the warmer north.

Railways. Railways converge upon the ports Rosario, Buenos Aires, and Bahia Blanca, where ocean-going steamers can berth. The Pampa is covered by an extensive system based on these ports, only the main lines can be shown on the accompanying map. The trans-Andean line crosses the continent and connects Buenos Aires with Valparaiso and the main railway of Chile.

Natural Outlets. The Plate Estuary is the main outlet, since it forms the southern end of the riverine trough. Andean passes are used by cattle drovers. The Uruguay and Paraguay provide routes into Brazil and Paraguay. A railway gives an entry into eastern Bolivia.

Route Towns and Trade. Most urban centres have arisen at route crossings or route junctions where railways meet rivers or other lines. As the granary of South America Argentina has a considerable trade in foodstuffs with neighbouring lands, but this traffic is eclipsed by the export of meat and cereals to the manufacturing districts of western Europe.

Outlook. Even in the east of the country, which produces nearly all the cereals and contains most of the farm animals, less than one-fifth of the area is under cultivation. Over 90 per cent. of the exports are farm products, hence the future lies in the extension of scientific agriculture based upon an increased stream of immigrants from Latin Europe. Cattle will increasingly displace sheep.

ARMENIA

Historic Highlands of Western Asia

by W. Llewelyn Williams

Author of "Armenia Past and Present"

ARMENIA (Old Persian "Armina," Armenian "Hayasdan") was the name of a kingdom which at its zenith extended from 37° to 49° E. long., and from 37½° to 41½° N. lat. In 95-55 B.C., under Tigranes the Great, "King of Kings," it was the mightiest monarchy in Asia. Armenia has fallen from this high estate. Before the Great War this large area was divided between three empires Turkey, Russia and Persia, whose territories met at a point on Little Ararat. The term "Armenia" had then a more extended connotation. Turkish Armenia consisted of the six vilayets (provinces) of Erzerum, Bitlis, Van, Sivas, Diarbekir and Kharput. In these districts were found the bulk of the Armenians under Turkish rule.

Cockpit of Contending Empires

East of Erzerum, Bitlis and Van stretched other portions of the old Armenian land notably territory taken by Russia after the Russo-Turkish War in 1878 and formed into the Russian governments of Kars and Erivan

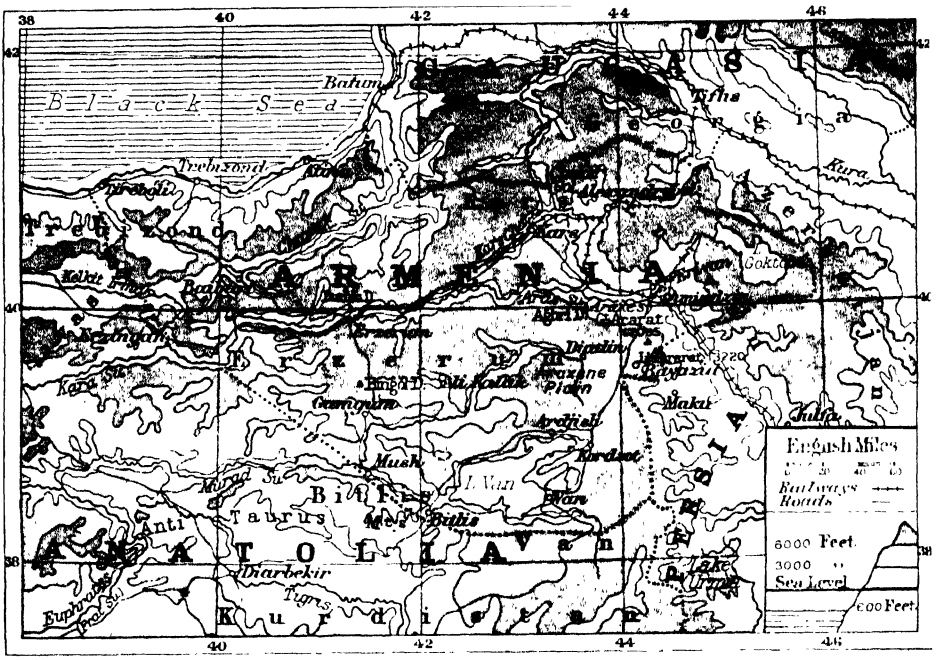
These pages deal with an area including Erzerum, Bitlis, Van and Trebizond with Kars and Erivan – a total area of 81,383 square miles – about equal in size to England Scotland and Wales It forms the extreme eastern portion of Asia Minor, and is bounded on the north by the Black Sea, on the north-east by Caucasia, on the east by Azerbaijan, on the south-east by Persia and on the south by the plains of Mesopotamia. Historically this area has been the homeland of the Armenian race for 2,500 years. It has been termed "the cockpit of Asia," where contending empires from the remotest times have fought for the possession of the great highway 'twixt East and West – the bridge between Europe and Asia.

The march of events in the Great War saw Russia in effective possession of the whole of this area in 1916, but the Russian Revolution in 1917 wrought bewildering changes. The Russian forces were withdrawn and chaos ensued Nationalisation for a short period triumphed Republics were formed in Transcaucasia, notably by Georgians with Tiflis as capital, and by Armenians with Erivan as capital, the latter assuming control of Kars. After the armistice, Turkish forces reoccupied the abandoned vilayets of Erzerum, Bitlis and Van, and later cooperated with Soviet Russia. By the Treaty of Kars (1921) the Turks regained possession of their old territory in Kars, and the Armenian and Georgian Republics became members of the Union of Soviet Republics in more or less friendly relations with Moscow. In the territory of the Armenian Republic are concentrated such remnants of the Armenian race as escaped massacre, deportation and all the horrors of famine following the Great War.

Mountain Home of Lawless Nomads

Geographically this area is a continuation westwards of the great Iranian plateau which stretches as far east as the Indus river and even to Afghanistan Above the general level of the plateau some 6,000 feet—rise bare mountain ranges which culminate in the famous Mount Ararat (17,055 feet). Due north a considerable range of mountains runs from east to west, parallel with the Black Sea, at no great distance from the coast. In the south, running almost

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ARMENIA'S NETWORK OF MOUNTAIN CHAINS ABOUT GREAT ARARAT

due east, is the Anti-Taurus range. Hence the whole area is exceedingly mountainous, making it difficult of access and tending to keep it what it has been from the very dawn of history, a pastoral country inhabited by a people in the main nomad and lawless.

Geologically Armenia consists of archaic rocks, upon which to the north are superimposed palaeozoic, and towards the south later sedimentary rocks. Volcanic action at some remote period has pierced these and formed the deep gorges which constitute so marked a feature of the area. The chief rivers are the Euphrates (1,600 miles long), the Tigris (1,150 miles), the Aras Su (the ancient Araxes), the Choruk Su and the Kelkit Irmak. These all have their headwaters in the lofty plains of Armenia. "Both branches of the Euphrates," says Lynch, "wind their way by immense stages at the foot of these mountains, in the lap of these plains; the eastern branch, called Murad Su, rising in the neighbourhood of Diadin, near the base of the Ararat system, and traversing Armenia almost from one extremity to the other. The more westerly channel is composed in its infancy of two streams, one descending from the Dumlu-Dagh, and flowing sluggishly through the plain of Erzerum; the other springing in the neighbourhood of the sources of the Choruk in the elevated district of Arajik. The Kelkit and the Choruk are both in their upper courses typical Armenian rivers." The most important lake is Lake Van, 5,100 feet above sea-level, with an area of 1,300 miles, or six times as great as Lake Geneva. This lake is salt. Lake Goktcha or Sewan (5,870 feet) discharges into the Aras Su, and the Chaldir Gol into the Kars Chai.

The aspect of these lofty uplands is dreary and monotonous. The valleys are wide expanses of arable land. The hills for the most part are grass covered and treeless, the forests that at one time abounded having been ruthlessly destroyed and wasted. The gorges of the Euphrates and the Tigris are unsurpassed in grandeur and wildness. The climate is very varied. The

winters are long and severe; the summers dry and hot. Temperature ranges from 22° to 84° F. The rainfall is not heavy—about 10 inches annually; in summer the plains are scorched and need irrigation. Snow sometimes falls in June, and in July the wells near Erzerum are occasionally thinly frozen over. The sources of the many streams are fed by the heavy snow accumulations on the lofty mountain ranges. Variations of temperature, daily and annual, are very great. Still, Lynch declares that, despite all drawbacks, "Armenia might easily become an ideal nursery of the race. The strong highland air, the rigorous but bracing winters, the summer when the nights are always cool, a southern sun, great rivers, immense tracts of agricultural soil and an abundance of minerals" are features he dwells on in his description of a land he loved deeply and knew intimately. Most of Armenia's few towns lie high, from 4,000 to 6,000 feet above sea-level. Villages are generally built upon the gentle slopes of hills, into which the inhabitants, to-day as 800 years ago, burrow as a protection against the severity of the weather. Many of the early towns were on or near the river Aras. Among their ruins are remains which throw much light on ecclesiastical architecture in the East.

The soil shows volcanic products, especially in the vicinity of Maku, in a narrow valley which extends from the Araxene plain, near Ararat, towards Lake Van, and also in the country round Goktcha. Vegetation varies according to locality. Cereals and hardy fruits grow on the higher ground while rice and cotton can be grown in the hot, well watered valleys of the Aras. The vine, fig, orange and



HAIRPIN BENDS ON THE MILITARY ROAD FROM ERIVAN TO KARS

Erivan stands over 3,000 feet above sea-level and from it the military road winds down in long zigzags to the vale seen in the distance with harsh-featured hills dominating it on either hand. At the end of the road, 80 miles away, is the fortified town of Kars, where carpets, felt and coarse woollens are made. The trade of Erivan is mainly in pottery, cotton and leather

WHITE SUMMIT OF GREAT ARARAT, NOAH'S TRADITIONAL LANDING-PLACE AND ARMENIA'S HIGHEST PEAK

H. F. Reid

Ararat is the name inaccurately given to two lofty peaks of a district of the same name in Armenia. Though tradition makes "Mount Ararat" the resting-place of the ark, the Bible gives no authority for this, the text referring to "the mountains of Ararat," meaning a region in the province of Erivan in eastern Armenia. Of the two peaks in the latter, that on the left is Little Ararat, and that on the right Great Ararat, their heights being 12,840 and 17,085 feet respectively. The twin peaks in the photograph [illegible] in the Massis, the Persians knowing them as Koh-i-Nuh—Noah's Mount

pomegranate are among the fruits; the cedar, evergreen oak, Aleppo pine and cork among the trees. Agriculture is in a backward state; forestry is entirely neglected. The forests, which once existed in profusion, have almost disappeared. Along the Black Sea coast they are to be found, but from the mountain lands they have vanished.

zinc and copper, coal and iron in many places. Rich oil-bearing areas are known to exist which may prove to be as productive as Baku or Mosul. At Kordzot (Van) a rich oilfield was discovered and partly developed in 1875-77, but the outbreak of the Russo-Turkish War ruined the works. Mineral springs, hot and cold, abound. These



FORTIFIED MONASTERY OF ECHMIADZIN UNDER THE ARARAT PEAKS

Behind this sacred building rise the two peaks of the Koh-i-Nuh, the Persian name for the summits called Great and Little Ararat. The monastery of Echmiadzin is the seat of the Armenian Primate, who is known as the "Catholicos." The walls are loopholed and strengthened by towers for defence against marauders. In the library are some priceless tenth century manuscripts of the Gospel

The fauna is not in any way remarkable. Wild animals, e.g. the wolf, bear, hyena, lynx and the wild boar are found. In the rivers trout abound, and in Lake Van a fish resembling the herring is caught. The uplands afford pasture land and from the earliest times have supported the flocks of the Kurds. Horses and mules bred on those high plateaux were celebrated in ancient times. No attempts have been made to improve any stock. Nor have any organized efforts been made to grow cotton. But vast quantities of raw materials for both textile industries could be secured if only energy and enterprise were shown.

Armenia is exceedingly rich in mineral wealth. Gold and silver are found, also vast natural resources have been very imperfectly explored and hardly any development has taken place. Under Turkish rule every industry was blighted and all enterprise killed.

Other industries are small compared with the staple industry—agriculture. Carpets, shawls and silks are woven, and some cotton goods are also produced. Exports are mainly confined to those products together with cereals, fruit and tobacco. According to Lynch, industry, as a whole, was chiefly maintained by the Armenian element. Hence the policy deliberately adopted in 1914 by the Turkish Government of extermination of the Christians in this area must have altogether destroyed any economic life the area possessed. Great



TREBIZOND'S HOARY WALLS: THE EASTERN RAVINE AND RAMPARTS

Trebizond is still surrounded by its ancient Byzantine walls, which run parallel with the sea and then climb the hill behind. Towards the summit a cross wall gives an inner protection to the keep. This is yet further protected by two deep ravines running down to the sea, one of the east seen above, where it is spanned by a viaduct. The grimness of the old walls is now veiled in festoons of creeper

districts in the vilayets of Erzerum, Bitlis and Van have been denuded entirely of Armenian and other Christian elements. The Turkish population suffered deep privations and losses during the Great War. Consequently, no estimates can be formed of either population or economic conditions and possibilities. Over the old Russian frontier Armenian refugees flocked in uncounted thousands, glad to escape with their lives. This also has to be taken into account, for it affects the problem of reconstruction. It was from this element that were drawn not merely the manual workers but the professional and educated classes—bankers, lawyers, doctors, civil servants. Upon the Armenian and the Greek fell the whole burden of promoting the intellectual life of the state. They were the educationists, the journalists, the literary and scientific people. It is evident, therefore, that the policy has dealt the state an economic, intellectual and social blow from which it cannot recover for generations.

Roads and means of communication are wretchedly bad. It is true that the world's most famous and most ancient highway runs through Armenia along the line Erzerum - Erzingan - Sivas - Angora - Brusa. In ancient times Asia Minor and Armenia were covered with a network of well made, well kept roads. They have mostly vanished. Until recently no metalled road existed between Erzerum and Trebizond, the two chief centres in Armenia. Intercourse and commerce are hindered, are difficult, costly and slow. The only railroad is in what was Russian territory, the Tiflis-Alexandropol Erivan Julfa line, a branch runs to Kars and Erzerum also. Otherwise, the means of transport are



H. F. B. Lynch

LOOKING DOWN ON A GORGE OF THE RIVER ARAS, NEAR ERZERUM

Rising south of Erzerum, the Aras, anciently known as the Araxes, flows eastward through Armenia and the southern parts of Caucasia, where it forms the boundary with Persia. Eventually, after a winding course of about 600 miles, it enters the Caspian Sea south of Baku. Formerly it united with the river Kur, but in 1891 cut out a fresh channel to Kizil Agach Bay



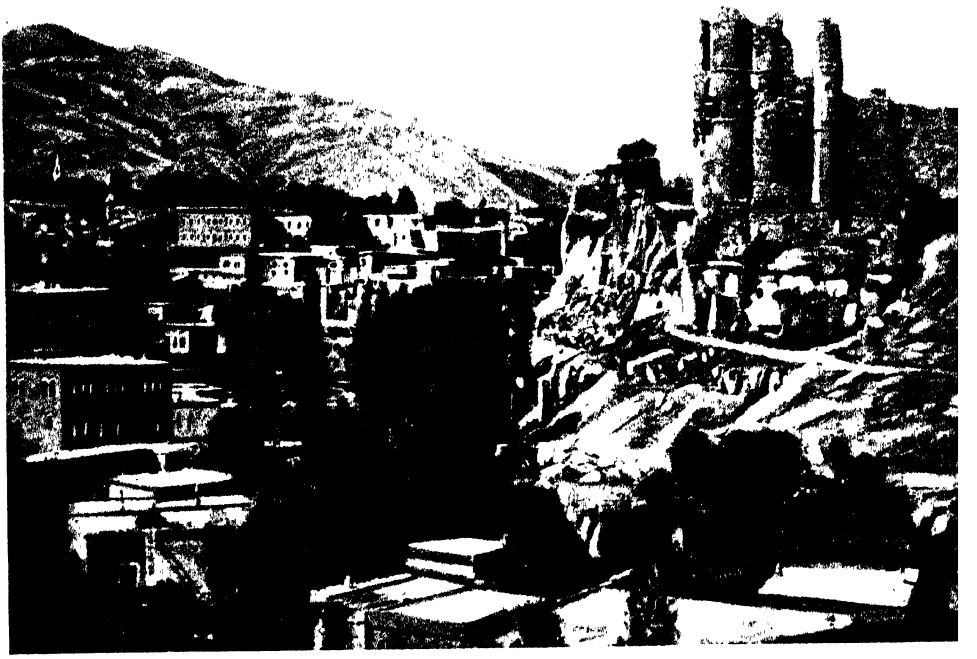
WHERE THE YOUNG ARAS WINDS ITS WAY THROUGH THE HIGHLANDS

South of the great Caucasus range a network of mountain systems spreads itself across Armenia. The river Aras has its twisted course among them, and the scenery is often as bleakly grand as seen here in a remote valley south of Erivan. The huge sweep of the mountains and their steep slopes indicate the enormous changes which this part of the earth's surface underwent in early geologic times



ABOVE THE ROOFS AND MINARETS OF HILL-GIRT ERZERUM—

Within the curve of a sickle-shaped line of summits stands Erzerum, city of the plain. On the south-west, west and north stretches a wide treeless expanse, 6,000 feet above sea level, through which flow a number of streams that fall into the Kara Su, an important headwater of the great Euphrates. Five miles to the north-east of the town is a great marsh where thousands of wild-fowl have their home.



BITLIS AND ITS CASTLE FOUR THOUSAND FEET ABOVE THE SEA

Sixty miles south-west of Lake Van is Bitlis, capital of an old Turkish vilayet of that name. The place is built about a narrow valley, almost a ravine, through which flows the Bitlis Chai, an affluent of the Tigris. The town presents a fine spectacle with its well-built houses interspersed with trees, its mosques and busy bazaars. The principal industries include the manufacture of cotton fabrics and firearms.



—HUB OF ARMENIA'S ANCIENT AND FAR-FLUNG TRADE ROUTES

Caravan routes from all Armenia and Caucasia converge upon Erzerum. Trebizond, on the Black Sea, is in direct communication and other roads go through Kars both to Alexandropol, connecting with Tiflis, and to Kutais in Georgia. Nearly all the road transport for the trade between Caucasia and Persia has passed through Erzerum for centuries. The town has tanning and jerked beef industries



H. F. B. Lynch

BROKEN BULWARKS OF ANI, CAPITAL OF A VANISHED EMPIRE

In the tenth century the city of Ani was the capital of the Bagratid kings, who held sway over Armenia. It was destroyed by the Seljuk Turks in 1063, and its extensive ruins, including those of a church, stand in an almost impregnable position some 25 miles south-east from Kars. This double line of walls defended by round towers, and with a moat in front, guarded the east and most accessible side



MIXED ARCHITECTURE OF AN ARMENIAN CHURCH

The conical roof which crowns this church on Aktaman Island off the south-east coast of Lake Van conceals a hemispherical dome in the interior, a characteristic of Armenian ecclesiastical architecture. The porch is Byzantine Romanesque

those of bygone centuries and civilizations. Trebizond is the only port of any importance. Batum has diminished in prosperity and importance. On the whole, it must be concluded that the commercial prosperity of Armenia is bound up intimately with the control of the machinery of government by men capable of exercising their powers wisely and vigorously.

Social conditions leave much to be desired. Conditions for the cultivators in this area were never very good. Small holdings are the rule. The villages on the gentle slopes of the hills are partly subterranean and there is little or no attempt at sanitation. Hence disease reigns everywhere. The few towns of any size and importance are little better from this point of view. Improvements are due usually to some foreign element. Kars and Erivan, controlled by strong and cultured Armenian inhabitants, show signs of their influence and intelligence.

Trebizond, the ancient Trapezus, is one of the natural outlets of North Persia and Kurdistan. Before the Great War the population was 40,000. Erzerum, capital of the vilayet of that name, occupies the centre of the Armenian plain. It is commanded by a citadel founded in the fifth century by the Emperor Theodosius the Younger. The fortress was regarded as impregnable, but it fell to the Turks in 1517 and to the Russians in 1878 and in 1916.

Kars, the capital of the Russian government of the same name, ceded by Turkey to Russia in 1878, and ceded back again to Turkey by the Soviet Russian government, was the capital of an independent Armenian kingdom in the ninth and tenth centuries. In modern times it was rendered famous by its magnificent defence by the Turks, under General Williams, against the Russians in 1855. Its population was about 21,000.

Erivan is the capital of the Armenian Republic established in 1921. Russia captured the place in 1827. It had of recent years become increasingly the centre of Armenian nationalism. The population of the city is normally about 30,000, but this number has been enormously swollen by refugees, said to be about 400,000, who swarmed into the city and surrounding districts.

The Republic, which in area is about 10,500 square miles, has now a population of nearly two millions.

Van, with an estimated population of about 30,000, is one of the oldest and most famous cities in the Near East. It is dominated by its citadel which stands on an isolated ridge.

Echmiadzin, a few miles to the north of Ararat, is worthy of mention as the true centre of Armenian ecclesiastical and political life. When the Armenians lost finally their separate political existence, the Catholicos of their Independent Church became the mouthpiece of the people. Their recognized head since the fifth century, the Catholicos of the Church, has resided here in a monastery which, with the cathedral, is among the oldest Christian buildings in the world.

Armenian Population Wiped Out

The question of the population throughout this area presents unusual difficulties. No reliable census has ever been taken, so that estimates are all we possess. That given by the Armenian Patriarch was accepted in the early part of 1914 by Russia and Turkey as a basis of negotiations then proceeding. It gave Erzerum a population of 630,000; Van, 350,000; Bitlis, 382,000, and of the total it was claimed that 45.2 per cent were Christians; 45.1 per cent. were Moslems, and 9.7 per cent. sundry races Kurds chiefly. This means that in the three vilayets there would be some 580,000 Armenians out of a total of 1,302,000. Turks were estimated at 327,000. To-day an Armenian population virtually does not exist.

The Armenians have their own faults, partly due to their character, but even more directly traceable to their economic and political environment. These have largely determined even their physical appearance. The highlanders of Cilicia differ widely from the plainsmen of the eastern vilayets. The former are tall, handsome, keen featured, while their compatriots are of middle height, thick set, coarse featured, with thick, straight, black hair and the hooked nose which tells of Oriental blood. Again, the isolation of the valleys and the long and severe winters have tended to keep them apart, and to emphasise their peculiar characteristics.

The Only Hope for Asia Minor

Alien races again and again swept over the Armenian plains. But the Armenians dwelt apart and kept almost unimpaired nationality and faith. None can deny their sobriety, frugality, industry and intelligence. Lord Cromer termed them "the intellectual cream of the East." They are intensely conservative in manners, faith and customs, and yet are instinctively progressive. On the other hand, they are jealous, suspicious, quarrelsome, full of intrigue, greedy – characteristics which explain their unpopularity. Despite all, they were the main hope of any regeneration of their homeland indeed, Asia Minor can only know a revival of its old glory and prosperity through the resurrection of this virile and tenacious race.

ARMENIA: GEOGRAPHICAL SUMMARY

Natural Divisions. Plateau criss-crossed by a tangle of ridges of alpine character and magnitude, volcanic activities manifest near Ararat. Lake littorals and valley floors form narrow stretches of lowland.

Climate and Vegetation. Elevation keeps the temperature low, the plateau is snow-bound for at least three months, and the passes for a longer period. Rainfall is slight. The original forests have been destroyed; the plateau provides alpine pastures.

Rivers. Chief rivers are the upper streams of the Euphrates, the Aras and Murad, deeply intrenched in the plateau.

Outlook. An intricately mixed pattern of peoples with nomadic tendencies, inhibited by an inclement climate and isolated by the elevation of the plateau, placed on the isthmus of the peninsula bridge between Europe and Asia. Primitive farmers with starveling flocks and inadequate harvests, the population has no immediate future.



ASIA: RELIEF MAP OF THE WORLD'S GREATEST CONTINENT

ASIA

The World's Greatest Continent

by Demetrius C. Boulger

Editor of the "Asiatic Quarterly"

ASIA, the largest of the five continents of the world, has always exercised over the human mind a strange power of fascination which even in these prosaic days has not departed. We know all of it, but it has not grown stale. The ancients knew but a small part of it, peopling the vast unknown spaces with strange animals and stranger human beings roaming over hyperborean wilds. Behind the veil in those days of Greek and Latin culture lay the marvellous civilizations of India and of China in their full splendour and luxury, with which the travellers of the Middle Ages were the first to make us acquainted, but only at the period of their decline.

From west to east, the limits being the Suez Canal and East Cape on Bering Strait, the continent stretches for 6,700 miles and from north to south, Cape Chelyuskin (Severo) and a point near Singapore, 5,300 miles.

Early Process of Upheaval

Extending from parallel 25° of east longitude to parallel 170° west, and from 77° 23' of north latitude to 11° 23' south, it includes regions which lie within the Arctic Circle on the one hand and in the Tropics on the other. In size it is computed to cover an area of 16,050,000 square miles, but, as the islands and archipelagoes off its shores are not included in that figure, the true total is probably a million square miles more. In shape the continent presents a solid mass, an impressive parallelogram with prolongations in the peninsulas of Arabia, India, Indo-China and Kamchatka.

The structure of the continent reveals two distinct geological formations separated from each other by incalculable periods of time. That part of Asia which lies north of the Altai range reposes on strata of crystalline rock and other primitive formations, but with the Himalayas we reach much more recent formations belonging to the tertiary period. The most remarkable feature in the creation of the continent has been the process of upheaval which must at an early period have been very marked if not rapid, and which even now has not been arrested. The only exceptions to this movement have occurred at a few points along the southern coasts and more particularly in various islands of the Indian Ocean which, as in the case of the Chagos group, reveal a tendency to disappear.

On the Roof of the World

While the tundras of North Siberia are low-lying wastes, exposed to the full force of Arctic storms and unprotected by any intervening barrier, the Siberian highlands nestling in the Altai range mark the northern limit of cultivation. They form the first protection provided by nature against the rigour of the north, and under their shelter the fertile grasslands of Siberia make their appearance. Their fertility becomes more exuberant as the valley of the Amur is reached, stretching far to the east till it falls into the Pacific after marking in its course the old limit of Chinese domination.

South of the Tian Shan, which is parallel with the Altai, we reach in the very centre of Asia that elevated table-land, ranging from 10,000 to 17,000 feet in altitude, which extends from the Pamir or "roof of the world" on the west to the Gobi Desert on the east. The Himalayas form its southern boundary,

while the Kwenlun range intersects the intervening space in an irregular form and direction. To the east the tableland falls to 4,000 feet in the Gobi Desert. To the west the subsidiary Iranian plateau descends from the Pamir in a south-westerly direction until it attains the Persian Gulf. The true geographical Central Asia represents a natural fortress dominating the rest of the continent, but fortunately of too extensive a character for the most thickly peopled of empires to provide an adequate garrison.

Civilizations Under the Sands

This immense tableland is a region of mystery. Was it at one time an inland sea? The lakes are salt, deposits of salt abound; the theory is at least plausible. But the evidence is stronger that long after it ceased to be water it had become the home of civilized nations and the seat of powerful empires. Who and what were they? Were they the Tangutans about whom the early Chinese annals say so much that is only vague and perplexing? The solution of this puzzle may not be far distant. At an uncertain date this region was visited by the violent sand storms which blotted out and covered up these scenes of human activity and, if tradition is to be believed, of vice. But while the sand destroyed it also preserved. The secrets that lie beneath it have already begun to be dug up, and in the course of time they may serve to enlighten us about a phase of human existence of which we are at present in almost complete ignorance.

Dividing Line of the Himalayas

The Himalayas, which mark the southern limit of this arid region where the dearth of water does not allow of the cultivation of grain, are the true dividing line between northern and southern Asia. They are the political and military defence of India, and they are also nature's sure expedient for separating two extremes of terrestrial cultivation and ethnographical development. To the north everything seems uninviting; to the south lie the fairest regions of the earth.

To the north humanity retains all the vestiges of barbarism; to the south we find human culture in its most advanced and attractive forms. There are deeper causes for the difference than would have occurred to the older philosophers. To the north all is dry and parched; to the south are some of the wettest regions of the globe. There vegetation is abundant, cultivation is easy, man relies for his sustenance on cereals, vegetables and fruit. The same difference is shown in clothes. For skins and furs beyond the Himalayas, men use south of them cotton, linen and silk. They inhabit houses and palaces while the denizens of the steppes and sand plains occupy huts or tents. Civilization displaces barbarism.

Mighty Mountains and Waterways

Mention has been made of the several ranges which in more or less parallel lines demarcate the successive gradients of central Asia. They culminate in the impressive range of the Himalayas, the Abode of Snow, which contains the loftiest peaks on the globe. Not only that, but in its western prolongation in the Karakoram and the Mustagh are also to be found a group of pinnacles rising almost as high towards the ether. Mountains in their fullest sublimity are indeed the dominating feature of Asia. The Hindu Kush, the Caucasus, the Urals, Ararat in Armenia, the Taurus of Asia Minor—all appeal for one reason or another to the imagination or the interest of man.

Not less impressive and useful are the rivers, those of Siberia with sluggish currents and mouths closed by ice for nine months in the year are the least important, but in eastern Asia the Amur and its numerous tributaries play a rôle of ever increasing importance. China possesses in the Yang-tse-Kiang the longest and most important river in the continent. There are ports on its banks at a distance of 1,500 miles from

the sea. Its chief tributary, the Han, maintains communications with the north-west. The Canton or West river is scarcely less important as a means of access to Yunnan. The Hwang-ho may some day be restored to its old importance by modern engineering science.

The rivers of India are hardly less important than those of China. The Brahmaputra, doubly interesting since its upper course has been identified with the Tsan-po of Tibet; the Ganges with its numerous tributaries; the Indus rising in Tibet and fed by all the streams of the Punjab are among the mighty rivers of the world. The Irawadi, the Salween and the Mekong in Indo-China are hardly in any sense their inferiors. Then there are the Tigris and Euphrates, the Amu and Syr-Darias to swell the list. Of rivers of the second order the number is unlimited, especially in India. Lakes are the only natural feature in which Asia is deficient. Those of Turkistan are small and unimportant. In Siberia Baikal is the only one of any size and it is also remarkable in that its water is fresh in contrast with all the others which are salt.

Pilgrims March Where Soldiers Fail

The Himalayas have been a military defence for India and her neighbours against aggression from the north; her plains have never been reached by an invader coming from that quarter. The Mongols when they came had to turn the position from the north-west through Afghanistan. The Chinese inroad into Nepal in 1792 had no precedent or sequel. Not until 1904 did British forces violate the integrity of Tibet, and their experiences there do not encourage a repetition of them. But if the Himalayas baffled the soldier and the political adventurer they failed to exclude the religious devotee and fanatic. They did not hold back Siddhartha when, driven from India, he went to establish the fame and the power of the living Buddha over the regions of central Asia from the Tsan-po to the Amur. They did not restrain Chinese pilgrims, like Hiuen Tsiang, who wished to see the shrines and sacred river of the holy man who had brought them a new light.

In this connexion it must not be forgotten that the hold Asia has always exercised upon the minds of men of the old world at all epochs has been largely due to religious influences. Asia was the original home of all the religions flourishing to-day throughout the civilized world. Judaism, Christianity and Mahomedanism rose to pre-eminence in the west; Buddhism, Brahmanism, Shintoism in the east. None of the other continents produced a religion that had any ethical appeal.

Trackless Deserts China's Defence

China possessed in the deserts that extended for a thousand miles beyond her western frontiers a defence hardly less effective than the Himalayas were for India. Her conquerors came from the north-west or the north. The Mongols descended upon her from the Upper Amur and its tributaries, the Manchus from the fertile province that gave them their name. But across the deserts no foemen presumed to march, and that is why the Great Wall ceased at their meeting point. China, like India, was thus during countless centuries able to live her own life unperturbed by the troubles and revolutions of the outer world, and even when conquered she succeeded in absorbing and assimilating her conquerors so that they became quite as much Chinese as her own people.

Unforeseen Perils From the Sea

While India and China were thus by nature protected on land, and so completely separated from each other that their destinies never merged together, Providence had left them exposed to perils from the sea that their wisest statesmen had never anticipated. In the Middle Ages the European nations, cramped in space, dissatisfied with their meagre resources, pining to possess themselves of the fabulous riches of the Orient, broke through their narrow

bounds and traversed the high seas. The Portuguese led the way, having discovered the Cape route at the close of the fifteenth century. They established themselves on the coasts of Persia, India and China and secured a monopoly of trade with Japan. But at the beginning of the seventeenth century new and more formidable claimants appeared with the Dutch, the English and the French. At first all came to trade for the spices, silks and treasures of "the gorgeous East," but in the next two centuries the Dutch and the English became conquerors, with the intention of remaining so, the one in the Sunda Isles and the other in Hindustan. In China the same process commenced and continued to a certain point, but it has been less rapid and complete and may now be regarded as arrested. With difficulty the Portuguese acquired Macao in the sixteenth century; with still greater difficulty the English acquired factories at Canton and Amoy, but it was not till almost the middle of the nineteenth century that Europeans obtained the privilege of owning concessions or settlements exclusively reserved for themselves. Following earlier example it is to trade that reflecting minds will turn more and more for the true and durable bond of union between Asia and the other divisions of the world.

ASIA: GEOGRAPHICAL SUMMARY

Natural Divisions. Relic of ancient continent of Angaraland in the north-east, now a low lying dissected plateau, the tableland of Mongolia in the middle and the Chinese plateau in the south. The whole Pacific coast of Asia is the fractured edge of this ancient land mass, and is remarkable for its island festoons, of which the Japanese archipelago is the largest. Relic of ancient continent of Gondwanaland in the south, now the plateaux of Arabia and the Deccan. These ancient lands were separated by the Middle Sea, or Tethys, which disappeared when the great fold mountains of Eurasia were uplifted. These mountains enter west Asia as the Taurus and Caucasus, enclose the basins of Iran and Seistan, form a knot in the Pamir, the "roof of the world," continue east as the Himalaya Mountains and the Kwenlun Mountains, between which is the plateau of Tibet and as the Tian Shan Mountains north of the Tarim basin. The relics of the Tethys depression are Mesopotamia, the Indo Gangetic plain and the Siberian plain in west Siberia, the relics of the Tethys itself are the Caspian Sea and the Sea of Aral.

Rivers. Arctic Lena, Yenesei-Angara, Ob-Irtish, flow from the north east plateau. *Pacific* Amur, Hoang-ho, Yangtse, Canton, Mekong, flow east. *Indian.* Irawadi, Ganges-Brahmaputra, Indus, Euphrates and Tigris flow to the Indian Ocean from the southern system of fold mountains. Oxus, Jaxartes, Ili and Tarim belong to basins of internal drainage.

Climatic Regions. Arctic insular region, heavy precipitation of snow. Arctic continental region, great extremes. Verkhoyansk, the pole of cold (v. Arctic Lands). Central Asia, extremes of temperature, slight rainfall in winter. Mountain region, relic fold mountains, slight precipitation, hence glaciers only on the greatest heights, cold, except in the depressions during the summer. Desert regions—Arabia and the Thar desert in India, cf. the Sahara. Monsoon region, India, three seasons:—hot, dry early summer, hot, wet monsoon season with heavy rains, warm, dry, cool season. Pacific region, relic China and Japan, summer rains, hot summers, cold winters in the north, warm winters in the south.

Vegetation Regions. Tundra in the north, forest next, high mountain flora on the mountains, deserts in the intramontane depressions, e.g. Gobi, and near the tropic of Cancer, e.g. Arabia; steppe fringing the deserts, e.g. west Siberia, jungle forest in the heavy summer rain areas.

Products. One-eighth of the world's wheat, from India and Siberia chiefly, little oats, barley, rye, or maize. More cattle, chiefly in India, than in any other continent except Europe, large numbers of sheep and goats, animal products of relatively little importance, some wool, very little meat, many hides and skins. A quarter of the world's cotton, India and China, one third of the tobacco, one half of the cane sugar, almost all the world's rice and tea. About five per cent. of the world's coal, mined in India, Japan, and China. Petroleum, manganese, and mica in India, tin in Malaya and the Malay Archipelago. Minerals, such as Chinese iron, are yet to be exploited. Hemp, jute, silk, plantation rubber, copra, coir, pepper, tapioca and camphor are other products.

Railways. Trans Siberian railway in the north. Indian system local. Constantinople Bagdad. A few lines in China.

ASSAM

Hill-Cradled Land of Tea Plantations

by Sir Bampfylde Fuller, K.C.S.I., C.I.E.

Author of "The Empire of India," etc.

TO most people Assam is merely a word of the tea-table. But to those who have lived there -and come away- it may be a very pleasant dream. For in this corner of India the dry season loses its dusty squalor; we are in a region of perennial green, contrasted with the glittering surface of huge rivers, and tiers upon tiers of blue mountains, forest-clad or dominating the plain with precipitous cliffs that are festooned with waterfalls. The dry winds of the Indian cold and hot seasons cease on the threshold of Assam, and it is for this reason that the tea plant flourishes there.

Geographically Assam is a backwater of Bengal in which it was administratively included until constituted a separate province in 1874. In 1905 it was reunited with Eastern Bengal to form the new province of Eastern Bengal and Assam, but, seven years later, it was again separated and reconstituted on an independent footing.

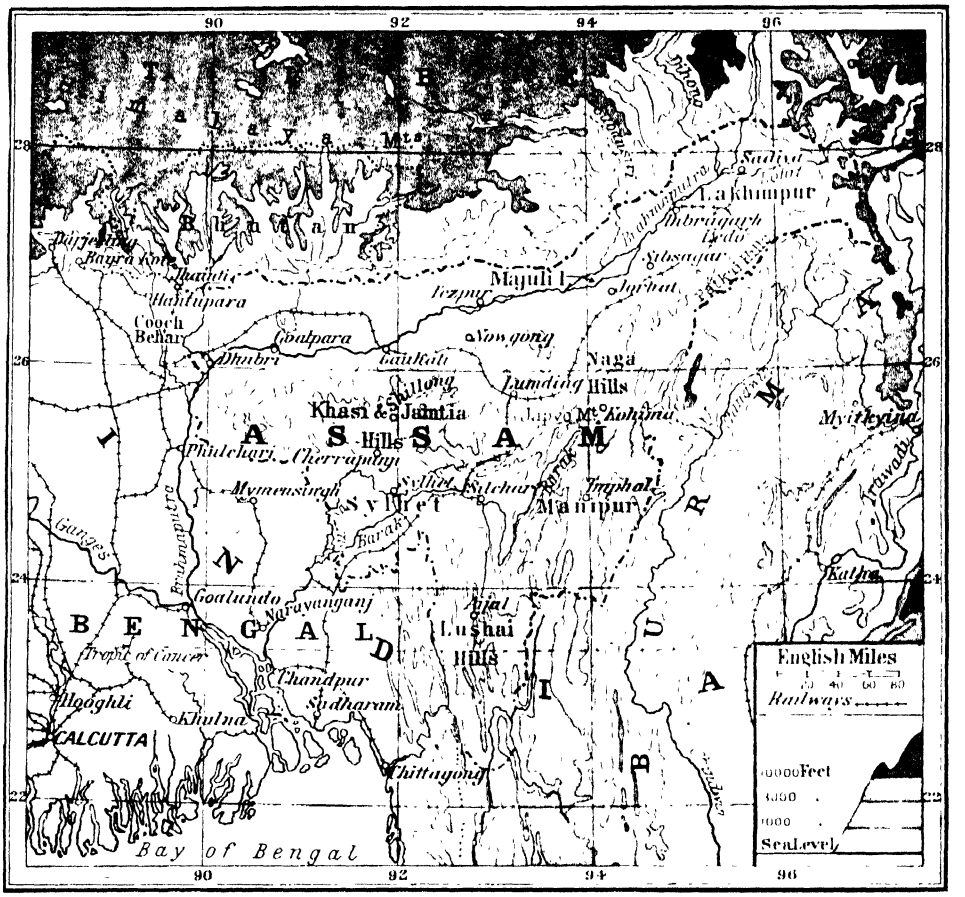
Valleys and Highlands of Assam

Including the protected Native State of Manipur, the province covers an area of 61,475 square miles, half of which, however, is very sparsely inhabited. It consists of two broad valleys, those of the Brahmaputra and Surma rivers, with an intervening mass of lofty hills that runs, like a wedge, into the great plain of Bengal out of the confused welter of mountains that lie between Tibet, China and Burma. The northern boundary of the Brahmaputra valley is the Himalayan chain; the southern margin of the Surma valley is formed by the hill ranges that, running north and south roughly at right angles to the abutment of the Himalayas, are the backbone of Burma and the Malay peninsula. The name "Assam," properly speaking, applies to the Brahmaputra valley only, but in its administrative sense "Assam" covers both the valleys and the hill-country between them; and it bears this connotation throughout this account.

Vast System of the Brahmaputra

The Brahmaputra (Assam) valley has a length of about 450 miles from its head among the hills of the Chinese frontier to the point where it debouches into the great plain of Bengal. Its average breadth is about 50 miles, at least a tenth of which is occupied by the river bed, its islands and its backwaters. Followed directly up its course, the river dwindles into the Lohit, from which, however, it receives a much less volume of water than is poured into it from the north by the Dihong, which forces its way through the Himalayan barrier and falls at right angles into the main stream. This river, as the Tsan-po, rises on the high plateau of Tibet far to the north-west and flows eastwards, on the farther side of the Himalayas, for 1,000 miles before its waters turn south and, in the channel of the Brahmaputra, flow in a precisely contrary direction. Between Lhasa and the point of junction its waters descend some 9,000 feet.

Farther down the Brahmaputra stream another large river, the Subansiri, flows into it from the Himalayas. Its outflow from the mountains is extraordinarily picturesque—rapids of deep, clear water swirling between rocky banks that rise into precipices crowned with forests. The spot has another attraction. It is one of the best localities for the large



THE MOUNTAINOUS PROVINCE OF ASSAM: A BACKWATER OF BENGAL

river carp known as the "mahseer," the game fish of India, which runs up to a weight of 50 lb. and over and readily takes a spoon bait. The Brahmaputra receives over thirty minor affluents from the north during its course down the valley; and streams falling into it from the south are hardly less numerous. The main waterway is navigable up to the inflow of the Dihong, and opens up the province to commerce.

The bed of the river has a pronounced fall, and its current is swifter than those of the other rivers of eastern India. Nevertheless, during the rainy season its waters spread to a width of several miles and at its lower end cover so much space that from a point in mid-stream neither bank is visible. Where the current flows rapidly sand is deposited; where it is backed, fine silt; and, since the main stream is constantly shifting its position, sand may be covered with silt and this again with sand in a single season. Islands are numerous; one of them, the Majuli, covers 485 square miles. The river is generally fringed by marsh land, formed of fresh alluvium which, as it rises in level, merges into reddish soil that runs up to the foot of the hills on either hand. This is the land upon which the tea-plant flourishes. In places this red soil runs down to the river bank, ending in abrupt bluffs; and in three localities outliers from the southern hills encroach upon and cross the river bank, forming river passes of exceeding beauty.

The Surma valley is rather a bay in the hills than a valley, with a length of 125 miles, and half this in breadth. Its river, compared with the Brahmaputra,

is merely a tortuous system of canals. The surface of the stream at low water is but 22 feet above sea-level, and hence the current flows slowly in a meandering course and cannot discharge the immense volume of water which is received during the rainy season.

The rainfall on the northern watershed of the valley is astonishingly heavy, in some localities amounting to 30 or even 40 feet per annum. A great part of the valley is consequently flooded during the summer months. Steamers of light draught may leave the river bed and steer across country over the fields. Viewed from the top of the hill scarps to the north, the district is at this season a lake upon which clusters of houses seem to float like wasps' nests adrift. The villages present this appearance because they are built at the top of mounds, natural or artificial, that rise above flood level; and thus cramped for space the houses are closely packed together. The people live an amphibious life, spending their time in boats or in the water, fishing or gathering water-grass for their cattle. In these curious conditions a peculiar kind of rice has evolved that can lengthen its stalk as the water deepens, up to seven or eight feet and even more.

When the rainy season is over and the floods subside, the country is a sea of bright green rice from which the villages stand out as brown hummocks. Much tea has been planted along the margin of the plain and the valleys that run into it; but over an area only half that in the Brahmaputra valley.

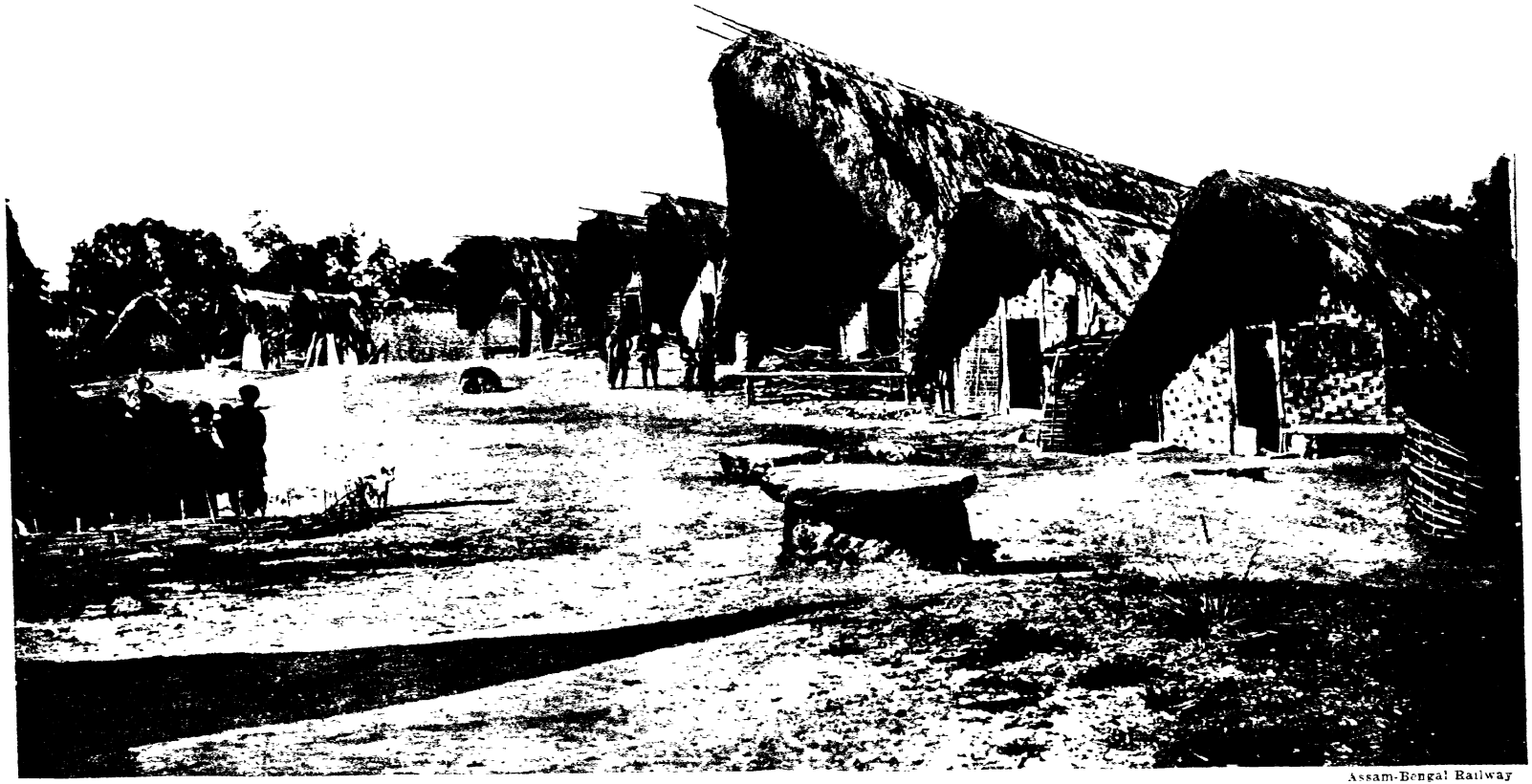
The so-called "hill districts" which lie between the two valleys would be called mountains elsewhere. Much of them lies at 5,000 feet above sea-level and one peak (Japvo) rises to 9,795 feet. On the east the hills rise sharply from deep and narrow valleys and are densely forested, although much of the growth is bamboo. To the south-east, before reaching the Burmese frontier, they retire upon themselves to form the upland valley of Manipur, a broad and very fertile oasis of cultivation encompassed by mountains. It was formerly a vast lake and much of its surface is still under water. As one advances westwards, jungle gives place to grass on the hilltops, and



Major General D Macintyre

STEEP PITCHED DWELLINGS OF A HILLSIDE VILLAGE IN ASSAM

Abor villages, perched on steep hill slopes, are mainly a compact collection of grass-thatched roofs supported by props of stout bamboo. Each village is ruled by a kebang, or village council, and levies a tax on goods and strangers passing through, all being done by barter



Assam-Bengal Railway

MAIN STREET OF A NAGA HAMLET IN THE HILL COUNTRY SOUTH OF THE BRAHMAPUTRA RIVER

The Naga Hills form a district of eastern Assam, comprising a section of the mountainous tracts on the borders of Burma and covering an area of 3,070 square miles, practically none of which is cultivated. They are occupied by the Angami, Lhota, Ao, and Sema Naga peoples, and their language and customs differ in the most startling manner, although the villages are almost within sight of each other. Much ingenuity is displayed in the building of their houses; the small poles and bamboos are drawn from the surrounding forests, which, where they are not under strict conservation, are exploited at pleasure by the tribes



Dr. W H Furness

IN A VALLEY AMONG THE NAGA HILLS OF EASTERN ASSAM

Besides growing rice, millet, chillies, cotton, yams and Indian corn in the cultivated plots at the foot of their hills, the Naga tribes keep pigs, poultry, cattle and dogs, all of which they eat, and prepare salt from the brine springs found among the ranges. These natives are dragging a large boulder into their village, where it will be set up as a monument to commemorate a tribal feast

towards the western end of the highlands there are long stretches of open downs diversified here and there with low, wooded hills. The administrative capital of the province, Shillong, is situated on a pine-clad slope just below the edge of these down-lands.

The northern slopes of the hill-country, fringing the Brahmaputra valley, are sloping and well forested, but its southern margin overhangs the Surma rice plain in a line of precipitous scarps the summits of which receive the heaviest rainfall in the world. The monsoon current from the Bay of Bengal sweeps up to them across the low country, must suddenly mount 4,000 feet, is rapidly cooled in the ascent and precipitates its moisture in cataracts of rain. Over a foot of rain may fall in the course of a night. But the days are not uncommonly clear, even during the height of the rainy season. With an air so well washed the locality is very healthy and the village of Cherrapunji, on the edge of the cliff, was used for some years as a military sanatorium. Scarps of limestone at the foot of the cliff have for centuries supplied eastern India with its lime, the river affording an economical means of export. On the slopes of its ravines there are gardens in which oranges, betel nuts and pineapples grow luxuriantly.

The hills of Assam lie in an angle formed by mountain chains which,



Dr W. H. Furness

AMONG THE MOUNTAINS OF ASSAM: VIEW OF NERHAMA, A VILLAGE OF THE ANGAMI NAGA TRIBE

Assam is a province of mountains and valleys, with many forests and extensive rice fields and tea gardens. It is sparsely inhabited by a mixed population and its highlands afford an asylum for numerous primitive tribes, chiefly of the Tibeto-Burman stock. Peaks and ranges are rarely absent from the landscape; they are generally uneven and may be described as wild and forest-clad, though the vegetation varies and in some parts there is dense, impassable jungle. The hill tribes have their villages dotted about the slopes and on the flat-topped summits of the mountains, sometimes at a considerable altitude

running west and east, are suddenly twisted north and south; and it seems likely that they were forced up by the pressure of this torsion. The configuration of the opposite (western) corner of upper India is very similar, and there also a group of hills—the Salt Range—lies in the angle. In both localities earthquakes are of frequent occurrence, resulting, it seems, from a gradual relaxation of cross-pressure.

In the Brahmaputra valley the annual rainfall averages about 80 inches; in the Surma valley it considerably exceeds 100. The rainfall of Assam is at least three times the Indian average. But its value lies in its distribution rather than in its amount. The long drought which generally in India succeeds the storms of the winter months is broken in Assam by spring showers which are of the utmost value to the crops. Moreover, during months when no rain falls there are thick morning fogs which provide growing vegetation with the moisture that it requires.

Bamboo Jungle Sprung from Ashes

The natural vegetation of the lowlands is a dense growth of elephant-grass, often rising to a height of eight or ten feet. They are treeless except for scattered examples of the Bombax malabaricum which fortunately yield wood that is peculiarly well suited for the making of tea-boxes. As the land slopes up from the rivers, dense forest commences composed of a great variety of trees, some of which attain a great height, set in a thick undergrowth of prickly cane that is almost impenetrable. Bamboo jungle clothes much of the hillsides, its spread having been encouraged by the habits of the people. They periodically cut down and burn their forests to cultivate crops upon the ashes. Such a clearing is fruitful for two or three years only; it is then abandoned and relapsing into wilderness grows bamboo in place of its original timber. Above 3,000 feet pine trees appear of a kind (Pinus Khasia) that is characteristic of the Assam hills, and higher up oak trees grow abundantly.

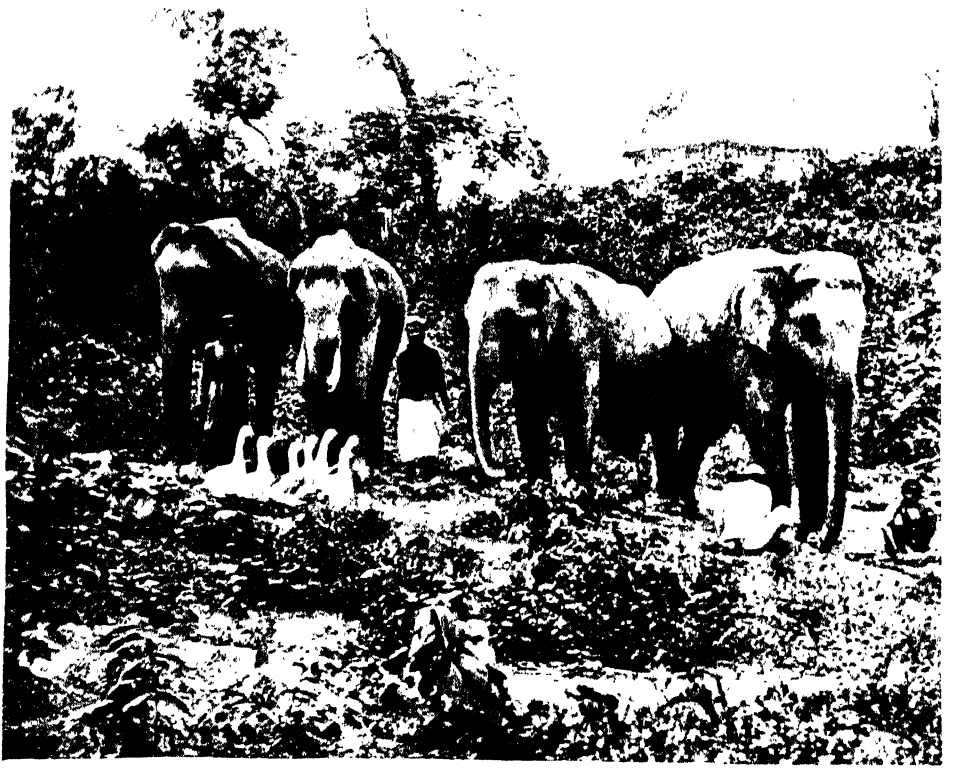
Most of the hill forest is of little commercial value. But towards the western end of the Brahmaputra valley there are valuable forests of sal (Shorea robusta) which are conserved by the Forest Department. Many of the trees are brightly flowered and in the spring throw up clouds of colour upon the dark green of the hillsides. Nor should a reference to the orchids of Assam be omitted; they festoon the trees, or overrun their branches, up to a considerable height above sea-level. At an altitude of more than 4,000 feet, in country resembling an English park, the trees bear magnificent bunches of the lovely blue vanda (V. coerulea).

Big Game in Valley and Forest

The most distinctive wild animals are the elephant and rhinoceros. The former haunts the marsh lands and the lower valleys in large herds and causes much damage to the rice and sugar-cane crops, although it is caught and tamed in its hundreds. The rhinoceros is becoming rare and the government has established some sanctuaries for its protection. On the border of the Surma valley a smaller two-horned kind marks the overlap between the faunas of Malaya and India. Wild buffalo abounds in some parts of the Brahmaputra valley. There are deer of several kinds in the forests. Tigers are fairly numerous but afford less chances to the sportsman than in the open jungles of Central India. In the Surma valley they are sometimes trapped in nets.

Living Clouds of Myriad Insects

The birds of the province naturally include a great variety of water-fowl; jungle-fowl, very similar to the domestic bantam, abound in the lower hills. A characteristic bird of the hills is the hornbill, whose black and white feathers are used to decorate the hill warrior, arranged to stand out round his head like a gigantic aureole. Snakes are numerous; the king-cobra is dreaded by



Assam Bengal Railway

FOREST LEVIATHANS TRAINED TO THE SERVICE OF MAN

In Assam wild elephants abound and many are annually decoyed into traps in the forests, and are either killed for the ivory which they furnish or taken alive into captivity, where they are quickly tamed and trained to hard labour. Economically the Indian elephant is valued chiefly for its qualities as a draught animal. Large numbers of these tamed beasts are exported from Assam

the tea-pickers, and in the forests the python threatens larger animals with strangulation. But the most insistent of living things are the insects. During the rainy season they emerge in clouds and as evening falls will smother a lamp, and those who sit near it, unless excluded by mosquito netting.

Of cultivated plants rice is by far the most important to the life of the people, occupying three-quarters of the cropped area. A rice diet must be supplemented with nitrogenous food, which in most Indian provinces is supplied by a great variety of pulses. The people of Assam depend very largely upon fish for this element. Some pulse is grown, but under unfavourable conditions. Rice may be sown in spring and reaped in July before the season of high flood, or be set out laboriously in seedlings during the summer and gathered in late autumn. The latter is by far the most productive method of cultivation.

The lowland rice crop is in danger of being swamped even in tracts lying away from the big rivers, since, when these are in flood, the water of their affluents is held up and spills across country. Their overflow must be controlled by embankments which were freely constructed during the days of native rule, but have very commonly fallen out of repair.

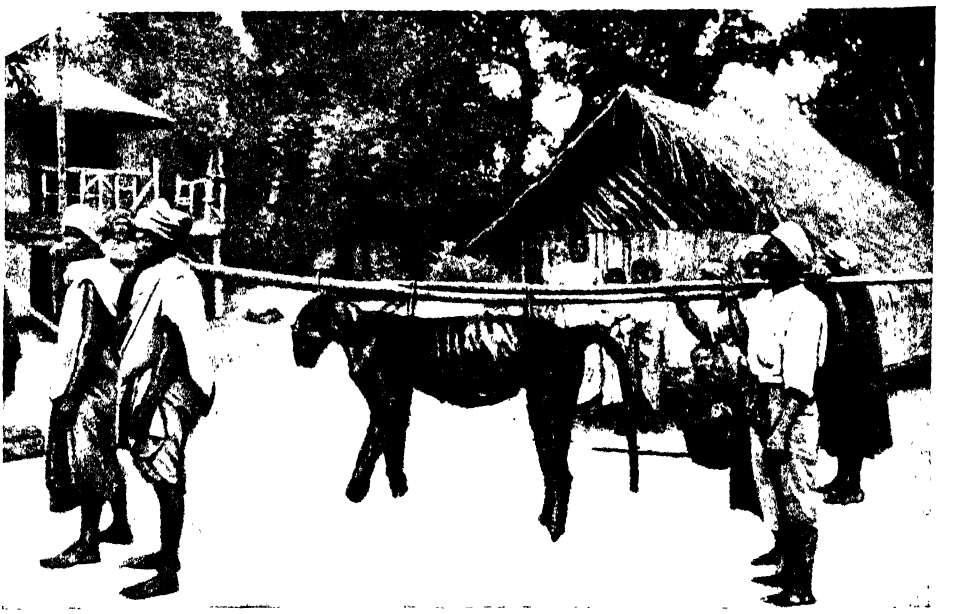
On higher ground the dead level of the rice fields is broken by gardens and fields of sugar-cane, and in the Surma valley tall crops of jute stand out. In the Brahmaputra valley much mustard is grown during the cold



Noel Williamson

VIEW OF THE UPPER LOHIT, AN AFFLUENT OF THE BRAHMAPUTRA

The Brahmaputra, which ranks next to the Ganges and the Indus among the great Indian waterways, traverses the Assam Valley for 450 miles, and many tributaries from the adjoining mountains flow into its waters. The Lohit, together with the Dihong and Dibong rivers, passes into the Brahmaputra near the town of Sadiya, in the north eastern extremity of Assam



SAVAGE VILLAGE RAIDER BROUGHT TO HIS LAST ACCOUNT

Of the numerous wild animals—elephants, tigers, leopards, bears, rhinoceroses, buffaloes, etc.—with which Assam is infested, the elephants make serious depredations from time to time on the villages, but the deadliest foe of the villager is the man-eating tiger. The killing of one of these beasts, for which a government reward is granted, is the occasion of general rejoicing

weather months on islands in the river bed, and on low lands that are flooded during the rains, covering thousands of acres with a sheet of bright yellow. A product peculiar to this valley is silk of the kinds known as eri and muga. The caterpillars of the former are fed under cover with leaves of the castor oil plant. Those of the muga are left to feed themselves upon tree-laurels of several species but require much attention in the scaring of birds.

The tea plant grows wild on the eastern hills of the province, often attaining the height of a moderately-sized tree. Its discovery a century ago induced the government to undertake experiments with the Chinese plant, Chinamen being imported for the purpose. But it was found that Assam seed was by far the more productive, and the Chinese strain now persists only as an element in a hybrid.

The cultivation of tea involves much labour in reclaiming, hoeing, pruning and leaf picking, and, in consequence of the prices at which the tea could be sold in Calcutta, it was necessary that the labour should be cheap. The Assamese could not be induced to work at the wages offered, and are perhaps constitutionally disinclined to continuous and monotonous labour. Coolies were therefore imported from northern and central India, the planters being secured against risks of their absconding on arrival by a law that enabled them to engage coolies under a four years' contract, renewable from time to time on the gardens, and authorised them to arrest absconding coolies and make them over to the authorities for summary punishment. On the other hand, the law safeguarded the labourers' interests by providing for a minimum wage, the maintenance of hospitals and the periodical inspection of gardens by the local magistrates. Recruitment under these conditions has raised an army of foreign labour. During the thirty years from 1871 the strength of the imported force of coolies rose from 50,000 to half a million. But the tea industry will always be haunted by the labour problem. Higher wages can only be offered by increasing the price of tea to English consumers or by decreasing the profits of the agents and brokers

through whose hands it passes on its way to the retailer.

During the last half century the output of tea has risen from 11,000,000 lb. to 182,000,000 lb. and over, commanding in the London market over £9,000,000. The area under tea is now 418,000 acres, two-thirds of which are in the Brahmaputra valley. The number of gardens has risen to nearly 900

Coal beds occur at many places in the hills, but are too inaccessible to be worked on a commercial scale. At the eastern end of the Brahmaputra valley there are seams of surprising thickness which have been tapped by the railway and are actively exploited. They provide fuel for the fleet of river steamers and for the tea-firing houses throughout the valley, with an annual output of about 300,000 tons. In this locality, and also at the eastern end of the Surma valley, there are oil wells producing ten million gallons a year But the subterranean reservoirs upon which they draw do not appear to be very extensive.



Dr W H Furness

PORTAL POSTS OF BACHELORS' BARRACKS

Many ritualistic objects appear before the entrance to a morang, the barracks of the unmarried men of certain Naga tribes. These quaint wooden posts have undoubtedly a totemic significance, the front one is known as the male post and the other as the female

Railways run into and through the province from two directions. From the northern railway system of Bengal a line crosses the Brahmaputra at Gauhati and continues up the valley on the southern side of the river. From the seaport of Chittagong another line traverses the Surma valley, crosses the hills with a northward bend, descends into the Brahmaputra valley and, joined at this point by the line from runs up the valley to the eastern limit of its cultivation. Assam, however, always enjoyed good natural communications in its waterways, and these are still used very extensively. A large fleet of steamers plies regularly on the Brahmaputra.

The total population of the province is 7,990,240, distributed 3,855,892 in the Brahmaputra valley, 3,068,569 in the Surma valley and 1,065,785 in the hill districts, including the Native State of Manipur. There are no towns with a population as large as 20,000 and only four (Dibrugarh, Gauhati, Shillong and Sylhet) contain as many as 16,000

inhabitants. The people are essentially agricultural, and live near their fields. Save for the Khasis, the oldest racial strain in the province is the Tibeto-Burman. The hill tribes have preserved many striking and peculiar customs. The valley population has been profoundly modified by foreign immigration and conquest, and by the influence of foreign religions and social ideals.

The people of the Brahmaputra valley are fairer complexioned than the Bengalis, and under easier conditions of life are less actively industrious. They are of agreeable manners and very pleasing appearance in their straw-coloured silk. They speak a language of the same origin as Bengali, with peculiarities of which they are proud. It is sometimes urged to their discredit that they are the largest eaters of opium in the world. This is so. But the consumption of opium varies directly with local unhealthiness, being highest in the belt below the hills, where bowel complaints are exceedingly rife; and it may be inferred that the drug is used as a defence rather than as an indulgence. The fatal disease of Kala azar, or blackwater fever, is the scourge of Assam. It is apparently endemic, but periodically breaks out with dreadful intensity. Its origin is still unknown. But an antidote has been discovered in injections of tartar emetic.

The inhabitants of the Surma valley are for the most part Mahomedans. The country is densely populated and since life involves effort the people are energetic and enterprising. They have begun to migrate to the Brahmaputra valley and make new houses on its waste lands. They speak the language of Bengal.

The people of the hills, collectively known as Nagas and Kukis, comprise a score of tribes differing markedly in dress, manners and language, but not essentially in race. In the past they have given trouble by raiding villages and tea-gardens across their borders and for their control a force of military police is maintained at various points.

The Khasis inhabiting the western highlands are a strange survival of a race that has almost passed away. In language and manners they have no Indian affinities and their relations are with far-distant peoples in Burma, Cambodia and Annam. Their family system is matriarchal. The men are industrious workers, although what is rare in India they enjoy hunting and fishing for sport's sake. They have made a greater advance towards the civilization of Europe than any other hill people of India.

Finally there is the tea-planting community. The imported labour force now adds about a million and a quarter to the population, if families are included which have left plantation service and have settled on the land. The Englishmen in control, with their families, do not number more than 1,200 and are only sojourners in the East. But the enterprise that they represent has completely transformed the face of the whole country.

ASSAM: GEOGRAPHICAL SUMMARY

Natural Divisions. North, narrow valley floor of the Brahmaputra. Centre, wider valley floor of the Surma. Hill country between the valleys and along the Burmese boundary.

Climate and Vegetation. Monsoon climate, with special features, excessive heavy summer rains. Cherrapunji is one of the rainiest places in the world, slight rains during the rest of the year. Jungle forest at the foot of the slopes. Bamboo secondary forest in areas cleared of the primeval trees. Treeless plains with elephant grass. Parkland or downs on the lower heights.

Rivers. Brahmaputra and Surma, both highways of traffic.

Industries. Tea planting for the world. Growing native food grains and fishing. A little mining. Chief product, tea. Coal in the north-east.

Natural Outlet. No outlets to Tibet or Burma. Communications are limited to Bengal by rail, water and road.

Outlook. The future lies with the tea industry and the supply of coolies from other parts of India.

ATHENS

"Violet-Crowned" Capital of Greece

by A. J. B. Wace

Late Director of the British School of Archaeology at Athens

LIKE many other famous cities, such as Constantinople or Naples, Athens is best approached by sea. As the steamer rounds the eastern end of Salamis the traveller has a wonderful panorama before him. Directly in front lies Piraeus with its harbour and its factories, while to the east the white villas and hotels of Phalerum stretch along the shore of a sandy bay which makes an ideal summer resort. Inland to the north some four or five miles from the coast a tall, pyramidal hill crowned by a white chapel attracts attention.

This is Mount Lycabettus, and round its western, southern and eastern slopes lies the Athens of to-day. At first, in contrast to the dark green pines that clothe the foot of the hill, the white houses of Athens dazzle the eye, but soon, rising from among the modern buildings, the rugged rock of the Acropolis dwarfs all else.

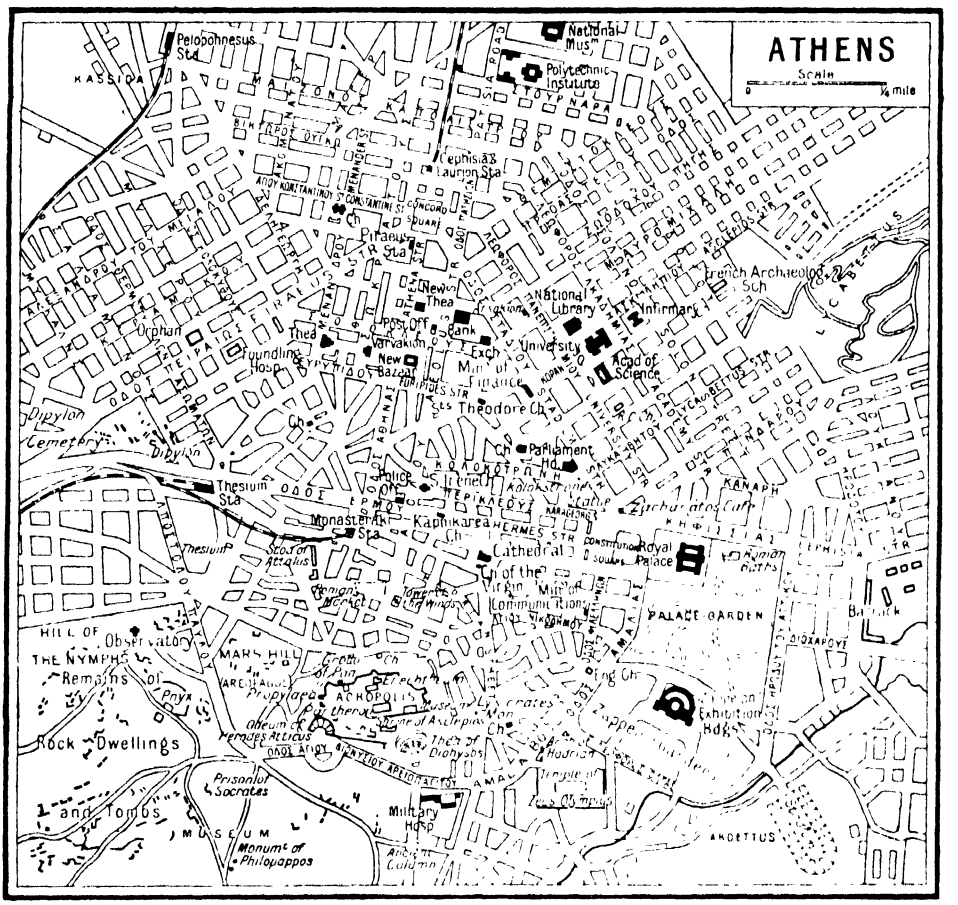
Classic Shrines Seen from Piraeus

On its summit, defying time, still stand the marble columns of the Parthenon the temple of the virgin Athena, goddess of wisdom, and the most perfect ever built - and by them are the ruins of three other marble buildings, the Temples of Erechtheus (an early mythical king of Athens) and of Victory, and the Propylaea, the wonderful marble portico that forms the approach to the sacred rock. Below the Acropolis the modern streets radiate in all directions round Lycabettus and where the houses cease the vines and olives begin, broken here and there by stately groups of cypresses. Farther afield rises the trinity of famous mountains that guard Athens from the north and east -Parnes, Pentelicus with the white scars of marble quarries shewing whence the blocks of the Parthenon were hewn, and Hymettus, "a blue and barren hill" of indescribable charm in which is the Grotto of Pan

Through Phalerum to the City

Soon the ship casts anchor in the safe but crowded harbour of Piraeus. A crowd of shouting boatmen surrounds the ship and, formalities ended, dashes on board in loud competition for the passengers. The uninitiated might at first fancy the ship was being captured by pirates. Once safe on shore, the traveller need pay no attention to Piraeus, which has little to recommend it and, though strenuous efforts are being made to improve its appearance, still seems overcrowded, dirty and no different from any other ordinary Levantine port. Leaving Piraeus by some narrow and unattractive streets and crossing two inconvenient bridges over the electric railway which unites Athens and Piraeus—the most efficient service in Greece—we reach New Phalerum. Here are good hotels and restaurants, a promenade, a pier and bathing-cabins.

On summer evenings when the band plays it is crowded with Athenians who come to seek refreshment in the cool sea air after the hot and dusty day. An electric tram in addition to the electric railway connects Athens with New and Old Phalerum, which lies on the other side of the bay and is equally frequented. On summer mornings the trams to and from Phalerum are crowded with bathers of both sexes carrying bundles of towels and



PLAN OF THE GREEK CAPITAL AS IT IS TO-DAY

swimming-suits, for sea bathing is extremely popular with all classes.

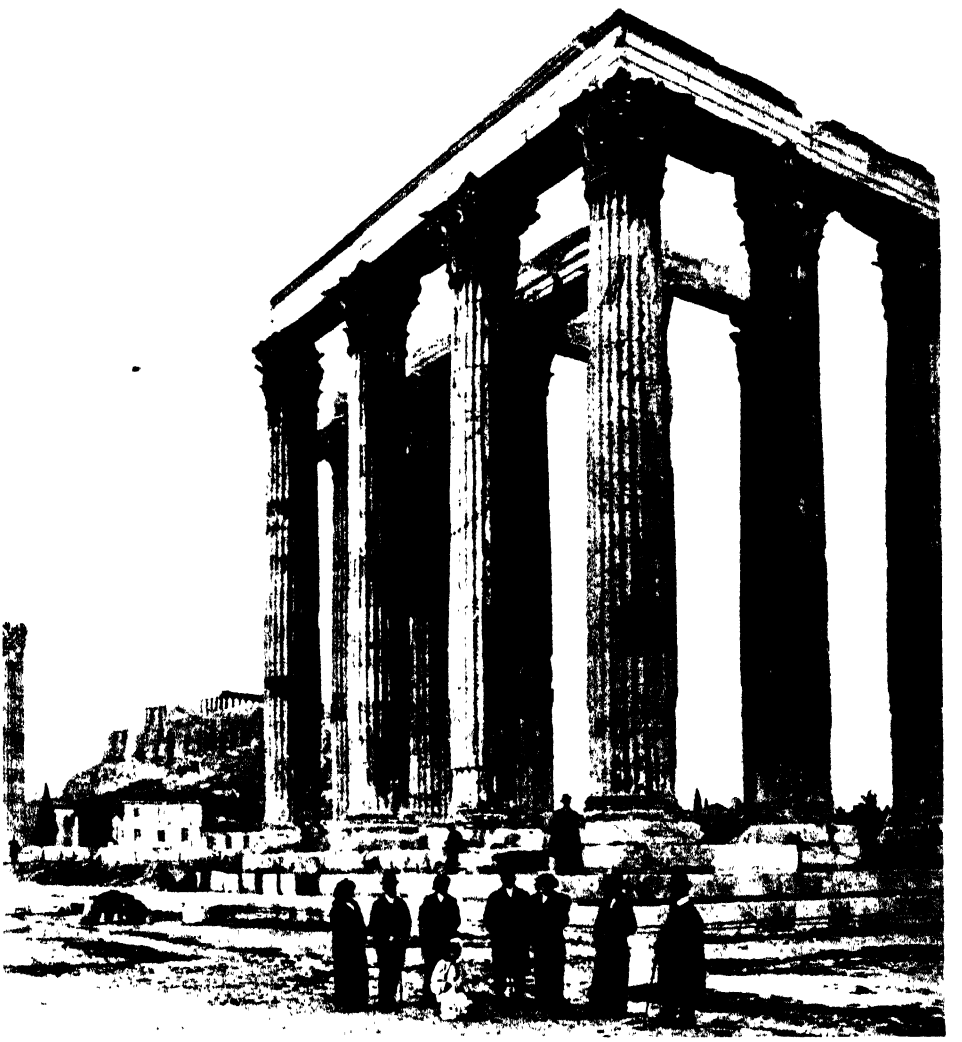
For a short distance the road runs along the shore of the bay, and then turns inland and heads straight towards Athens. About halfway we pass on the east a new church of S. Saviour erected by King George I. as a thank-offering for an escape from assassination; round this a settlement for refugees from Asia Minor is being constructed. Soon we enter the outskirts of the city, and passing a large brewery, belonging to a foreign firm, we turn to the left and enter Athens. To our left rises the Acropolis and at its foot to the south is a new residential quarter in course of development. On our right stands the Arch of Hadrian—showing where the limit of Athens once was—with the noble columns of the Temple of Zeus Olympus just beyond.

This temple was begun by the Tyrant Peisistratus in the sixth century B.C., almost finished by Antiochus Epiphanes in the second century B.C. and finally completed by Hadrian in the second century A.D. Its building thus was spread over seven centuries. Behind it, in a fold of a wooded hill, lies the Stadium of glittering white marble, rebuilt on the ancient foundations through the generosity of George Averoff. Athletic sports and displays are frequently held here, while the existence of a gymnasium and of tennis courts near by shows that the youthful Athenians of to-day are taking up athletics of all kinds.

We now pass along the Boulevard Amalia. One side is lined with fine private mansions mostly of marble, while on the other side lie the Zappeion and Palace Gardens. The latter with

its shady walks and gay flowers are frequented by Athenians of all classes in search of rest during the day. In the centre of the Zappeion Gardens is an exhibition building now used as an orphanage for refugees and by its side are a café and restaurant. From the café, which is extremely popular on sunny afternoons in winter or cool summer evenings, one of the finest views in Athens is obtained looking over the Bay of Phalerum, the Saronic Gulf and the island of Aegina. The violet lights at sunset over sea and land here produce a truly magic effect.

Beyond the Palace Garden our road enters Constitution Square and we are in the centre of the city. All life in Athens is based on a triangle of streets. The base is Stadium Street, which unites Concord and Constitution Squares, while Hermes and Aeolus Streets form the two sides. Constitution Square is the resort of the upper classes, Concord is the people's centre. Similarly, Hermes Street with the end of Stadium Street



E. N. A.

MAGNIFICENT FRAGMENTS OF THE TEMPLE OF OLYMPIAN ZEUS

One could imagine no sight more impressive than that which is presented by these tall, stately Corinthian columns standing majestically before the Parthenon crowned Acropolis; here the only incongruities are the modern buildings on the left and the dress of the visitors. Such great relics as these columns make Athens a city whose treasure is coveted of all the world's nations

nearest the Constitution Square is the Bond Street of Athens, while Aeolus Street with the other end of Stadium Street is the humbler citizen's shopping ground. In Constitution Square is the Royal Palace, used as a centre of refugee organization; in the square before it stands a long line of cars for hire, and at one corner a collection of stalls supplying cheap, popular refreshments. In the same square stand the principal hotels where the cosmopolitan life of the Levant may be studied in all its aspects, the Ministry of Communications, a handsome modern building; the best bookshop; and, most important of all, the Zacharatos Café. This last is never shut; intelligent citizens may be seen seated at its tables tirelessly discussing politics at all hours of the day and night. It reflects at once every throb of the political pulse.



John Bushby

ATHENA NIKE'S ACROPOLIS SHRINE

Mellow Pentelic marble is the material from which this beautiful Ionic temple was built; it stands on a bastion of the Acropolis to the south of the Propylaea. Restoration was carried out in 1835

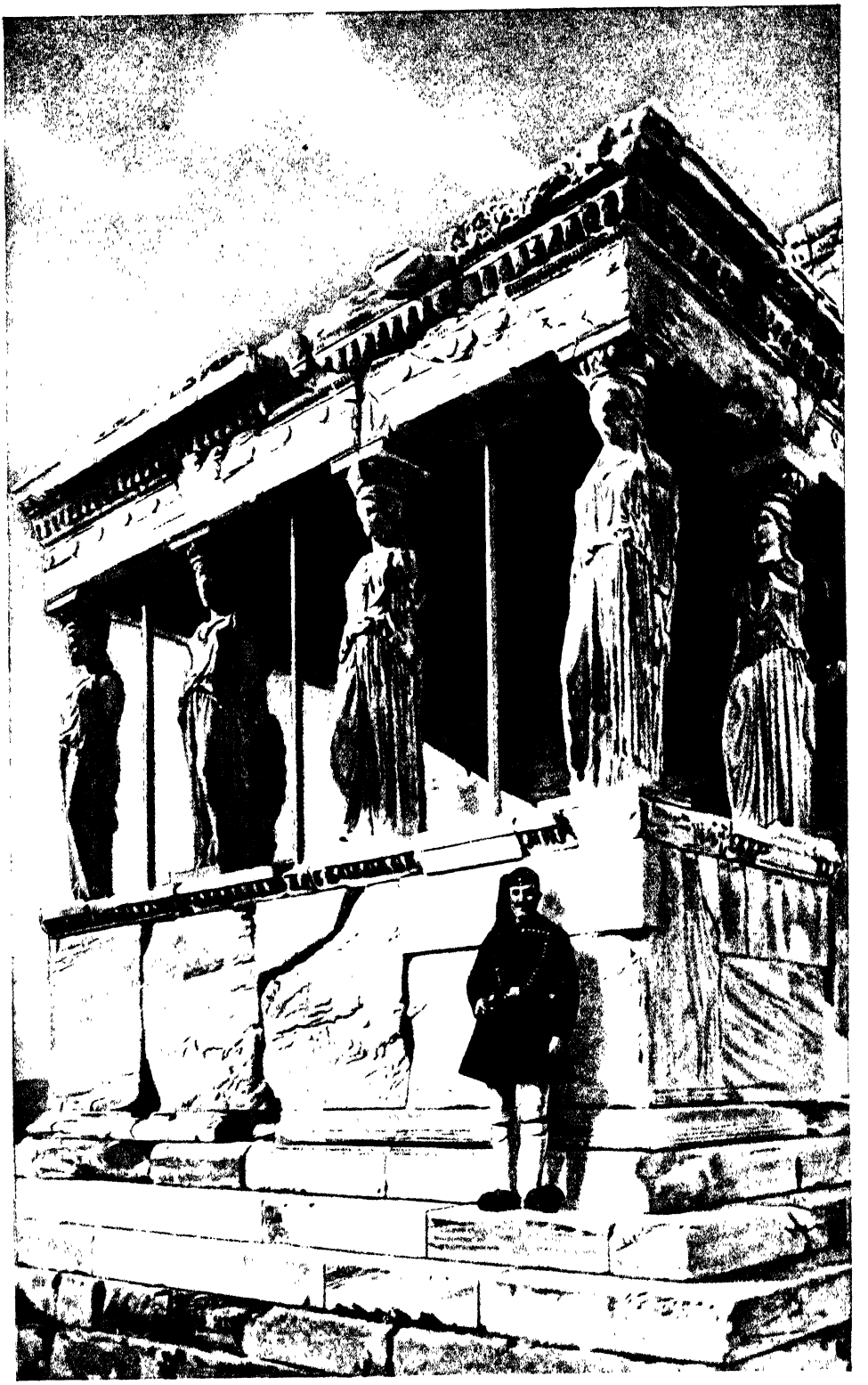
On sunny days in winter and on summer evenings the café tables extend into the square, where at night the moving pictures flicker. The modern Athenian loves his café—it is his club; but most of all does he love to stroll slowly on holiday afternoons or clear evenings across the crowded square or along the busy Stadium Street. Through the throngs run the newspaper boys, who have even been known to penetrate into a garden party to supply the guests with the latest news, and with them go the boot-blacks. These latter, a characteristic feature of Athenian life, are now slowly being replaced by shoe shine parlours in the American fashion. Those seated at the café tables are approached by itinerant venders of pistachios, salted almonds and similar delicacies, consumed to "pass the time" as their ordinary name implies.

As we go along Stadium Street towards Concord Square we pass few important buildings, as those we see are mostly shops or hotels. A short distance along the street is a small square with an equestrian statue of Kolokotronis, one of the heroes of the War of Independence. On one side of this is the Parliament House (Chamber of Deputies), a small and unpretentious but graceful building of marble with a pleasant garden. Farther on are the Ministries of Finance and Interior Affairs, large dingy buildings behind which is a small square with the church of S. Theodore, a gem of Byzantine architecture of the eleventh century. Next we come to Sophocles Street, the Wall Street of Athens where the principal banks are and the Stock Exchange. The streets round the latter are crowded with excited brokers speculating on the pound or dollar.

Round Concord Square are the cafés of a more popular type—this is the centre of the night life of Athens—and several theatres. The latter are summer theatres, roofed only with a canvas awning, and prices are not high. They have been very severely affected by the competition of the cinemas, but the theatres still attract. Comedies and musical pieces are usually played and in the



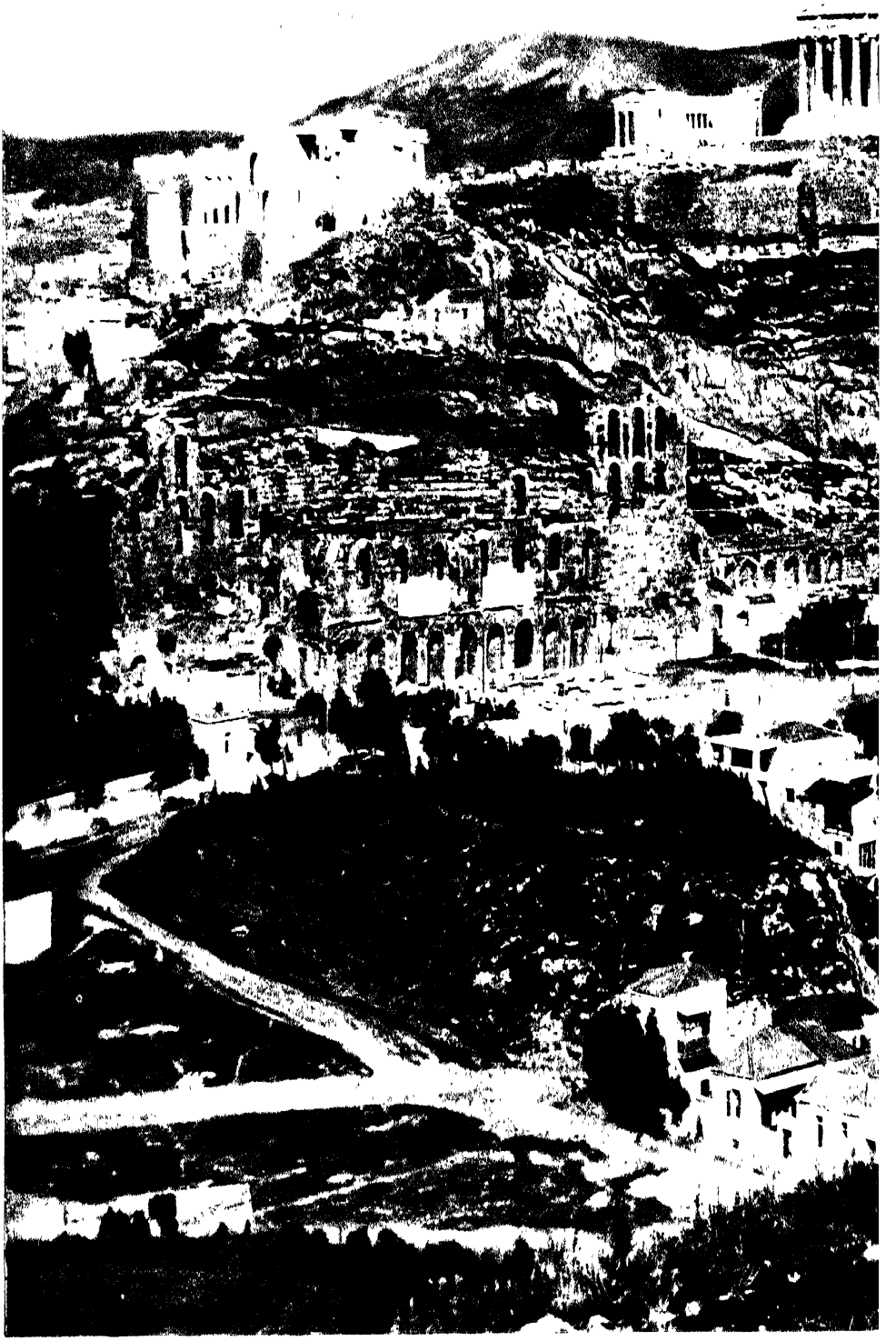
ATHENS—Though scarred and weather-worn the western columns of the Parthenon still preserve the superb harmony of their proportions



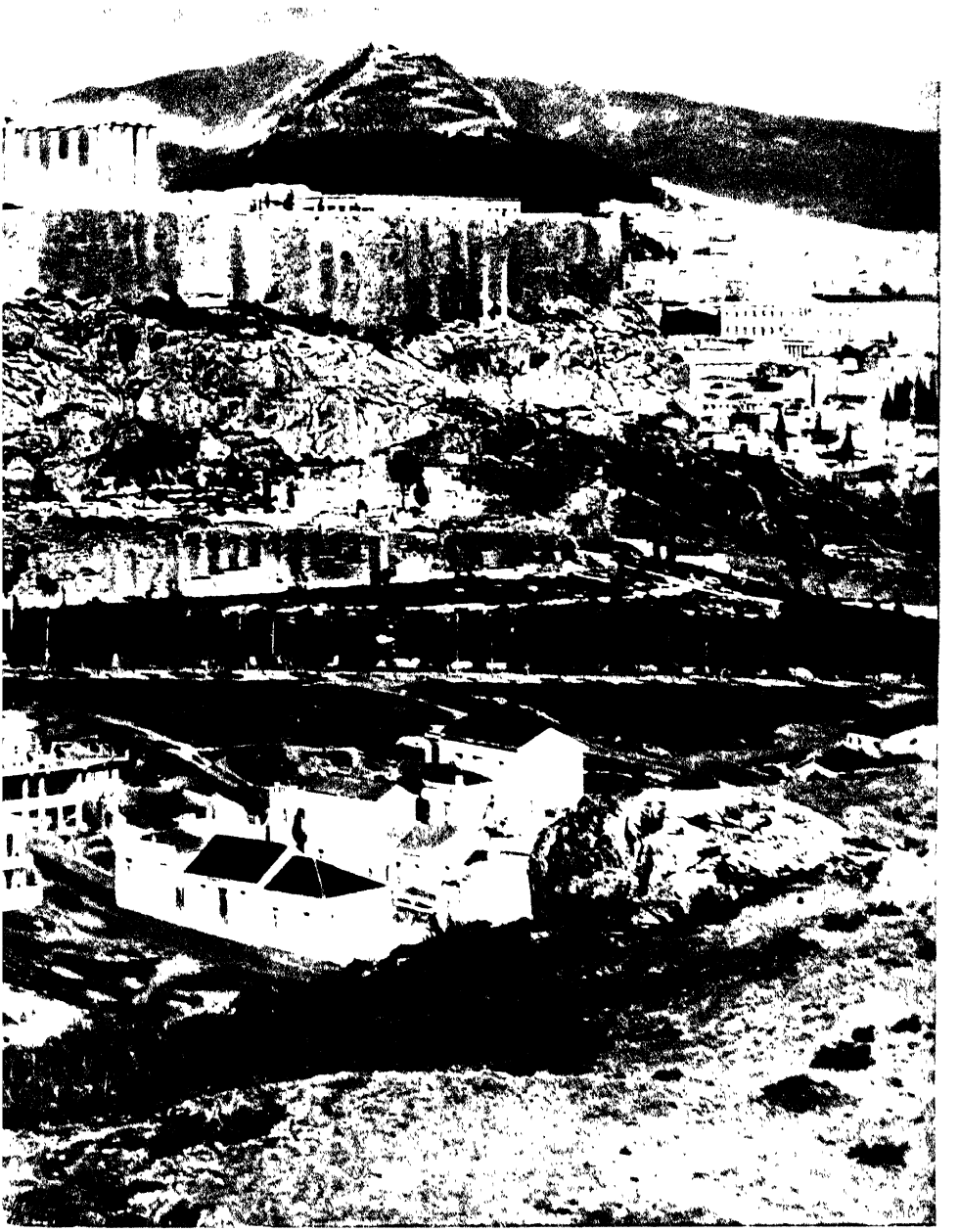
ATHENS—*Patient grace is embodied in these caryatid figures that carry the roof of the porch on the south wall of the Erechtheum*



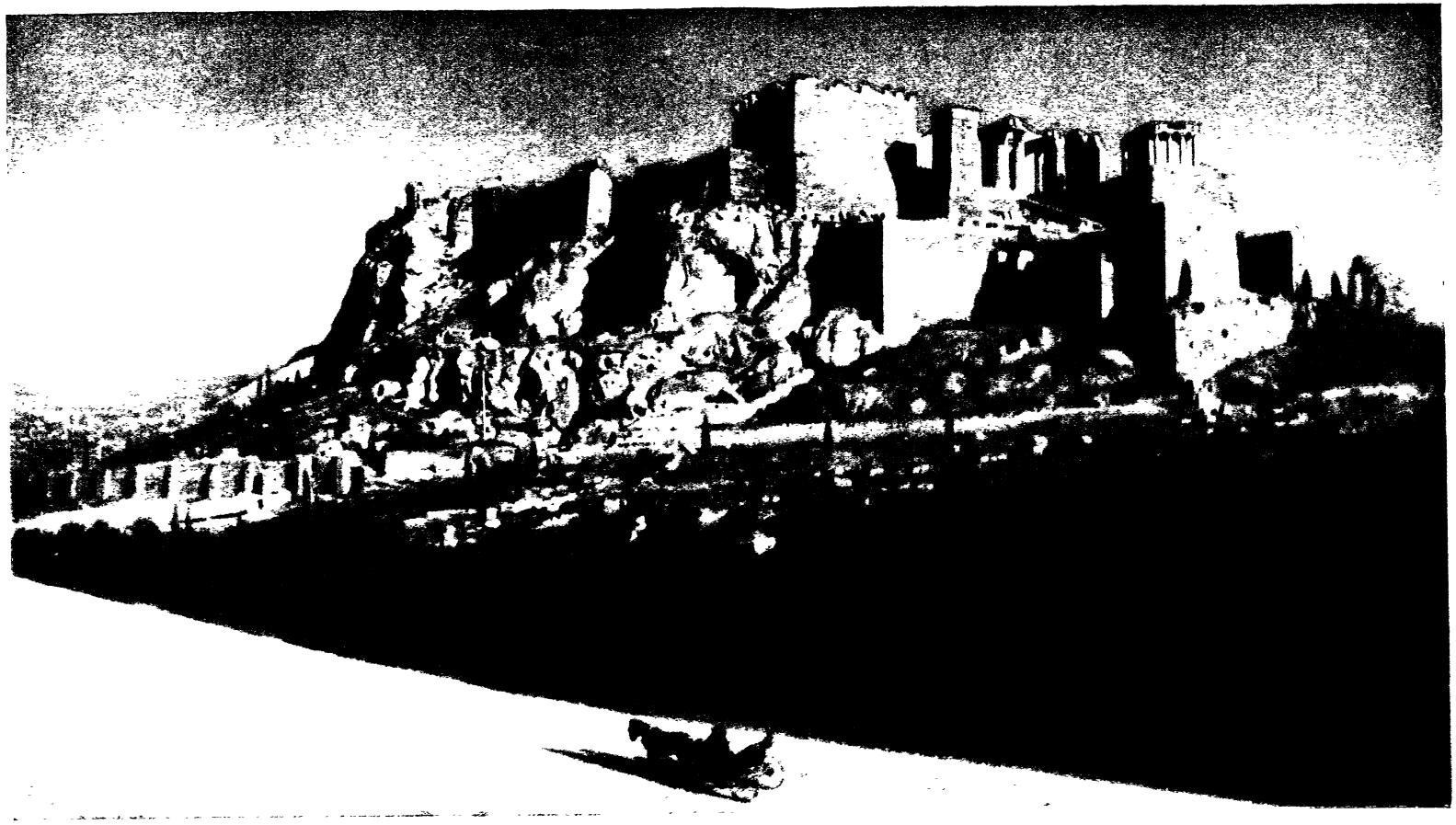
ATHENS. *Not only the Parthenon but every shattered stone on the Acropolis height has a tale to tell of the city's ancient greatness*



Athens.—With the great crags of Mount Lycabettus and distant Pentelicus as a background for the Acropolis, command the entrance



Below is the Odeum of Herodes Atticus over which towers the Propylaea in a line with the Temple of Erechtheus and the Parthenon



ATHENS. *How seen from the north-west, the stately bulk of the Propylaea dominates the Acropolis height; but the fairy grace of the Temple of Athena Nike on the right shows up well against the sky*



ATHENS. *Time worn but beautiful the Erechtheum (left) looks down from the northern ramparts of the Acropolis on the Theseum and the western quarter of the modern city, and so out to the Parkelon hills*

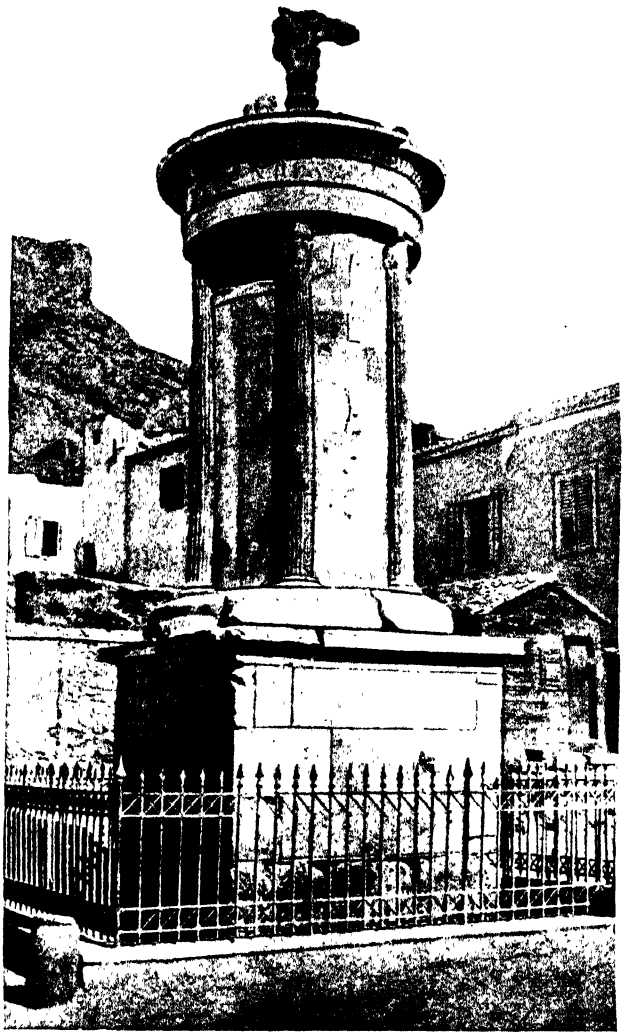


Nimes.—Examples of the columns of the Pantheon, seen over its flanking bastion, through the ancient arch of Roman Hadrian

latter sentimental songs or songs with Greek music are usually well applauded.

Revues full of topical allusions appear every summer, and their comments on current politics are often very witty and much to the point. One curious feature is that although all the front seats may be full, front seats can still be secured by hiring at a higher price chairs which are put in the open space between the stalls and orchestra.

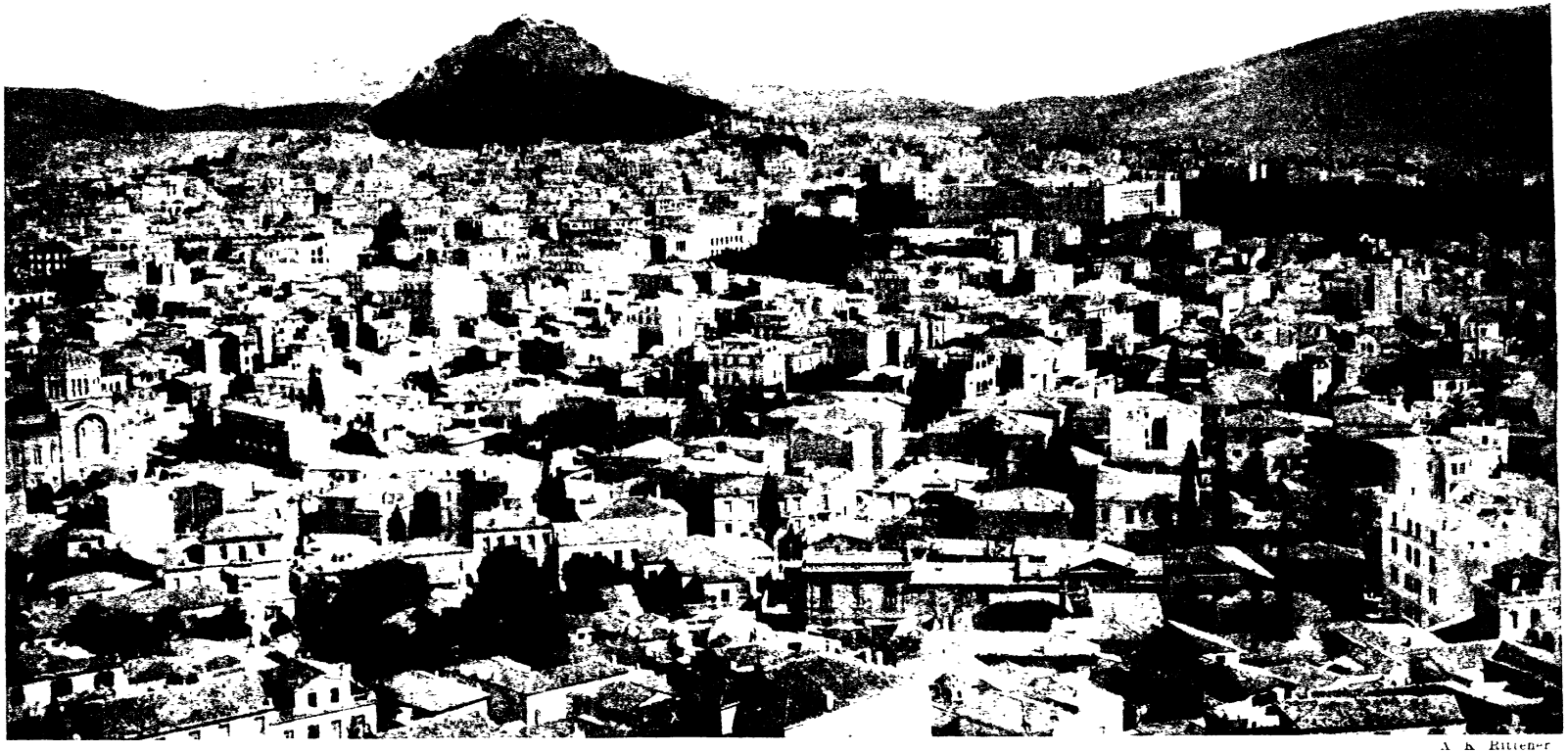
From Concord Square start most of the electric trams, which provide communications to all parts of the city. Those that run along the Patisia Road, a populous and growing residential district, are always overcrowded. The front car has every seat occupied, and in the gangway and on the platforms no standing room is ever available. The trailer is in a similar state of congestion, while soldiers or errand boys with bundles will be perched on the steps and on any projecting part of the car that offers hand or foot hold. On many routes small motor omnibuses now compete successfully with the trams. Along the Patisia Road lie the Polytechnic Institute, a technical high school built of Pentelic marble with Ionic and Doric colonnades, and the National Museum which is a simple building but a veritable treasure house. It contains all the jewelry and other precious objects found by Schliemann in the royal tombs of Mycenae, the best sculptures from Delos and, not least, an unrivalled collection of Greek vases.



FAMOUS MONUMENT TO LYSICRATES

Lysicrates Street, which runs to the Arch of Hadrian, has at its Acropolis end this elegant monument, set up in 334 B.C. to commemorate the victory of Lysicrates, when choragus (leader of the chorus) in a notable musical contest

Close to one side of Concord Square lies the station of the narrow gauge railway to Cephisia, affectionately termed by the long-suffering Athenians "The Wild Beast" from its behaviour. It is slow and clumsy, the rolling stock is dirty and prehistoric and the engine belches forth clouds of cinders or soot which blacken and even at times burn the clothes of the passengers. In spite of these disadvantages and the competition of the motor omnibuses, this train



A. R. Rittener

LIKE A SOLITARY SENTINEL MOUNT LYCABETTUS WATCHES OVER THE CITY OF ATHENS

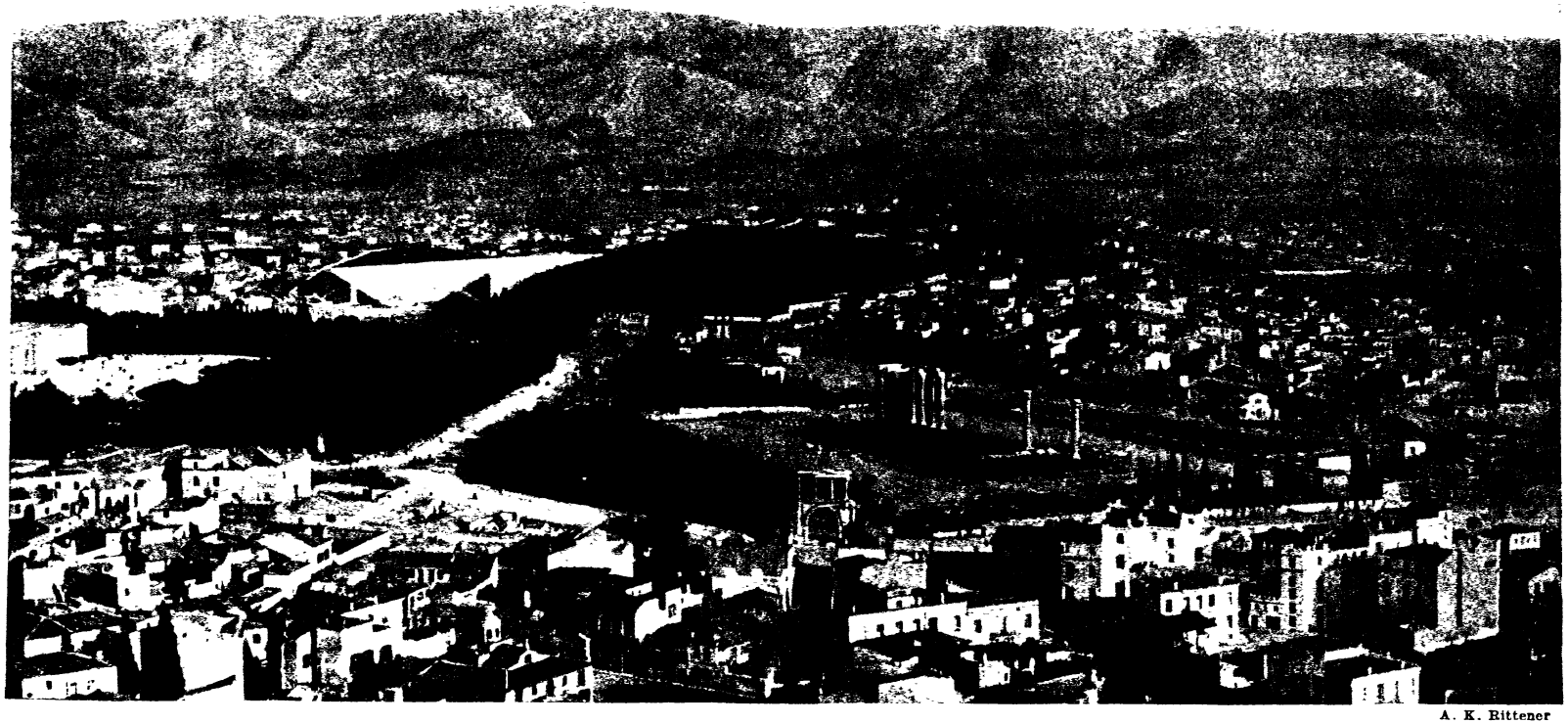
Looking from the foot of the Acropolis towards Mount Lycabettus our view embraces within its range the best social quarter of the city with the centre from which it radiates in Constitution Square and the Royal Palace. Here we may distinguish Constitution Square as the tree-planted space in the centre of the photograph, where the tall cypresses stand out conspicuously; the Royal Palace is on its left, a great pile of modern date, with the Palace Garden stretching behind it. Dominating all, in the distance, is the prominent escarpment of Mount Lycabettus



A. K Bittener

TOWERING IN LONELY SPLENDOUR OVER THE BUSY TOWN: THE WALL-GIRT ATHENIAN ACROPOLIS

Epitome of the Athens that was, the glorious city of antiquity from whose ruins the Athens of to-day has risen like the Phoenix, the Parthenon-crowned Acropolis still rears its majestic bulk to dominate the landscape. In the foreground here we have the windowed walls of the Odeum or Concert Hall of Herodes Atticus, a wealthy and philanthropic Graeco-Roman of the first century A.D.; while above it the Propylaea on the left and the Parthenon in the centre are silhouetted against the sky. On this, the southern flank of the Acropolis hill, the modern city does not encroach



A. K. Bittener

PANORAMA OF THE SOUTH-EASTERN END OF THE CITY, LOOKING FROM THE ACROPOLIS

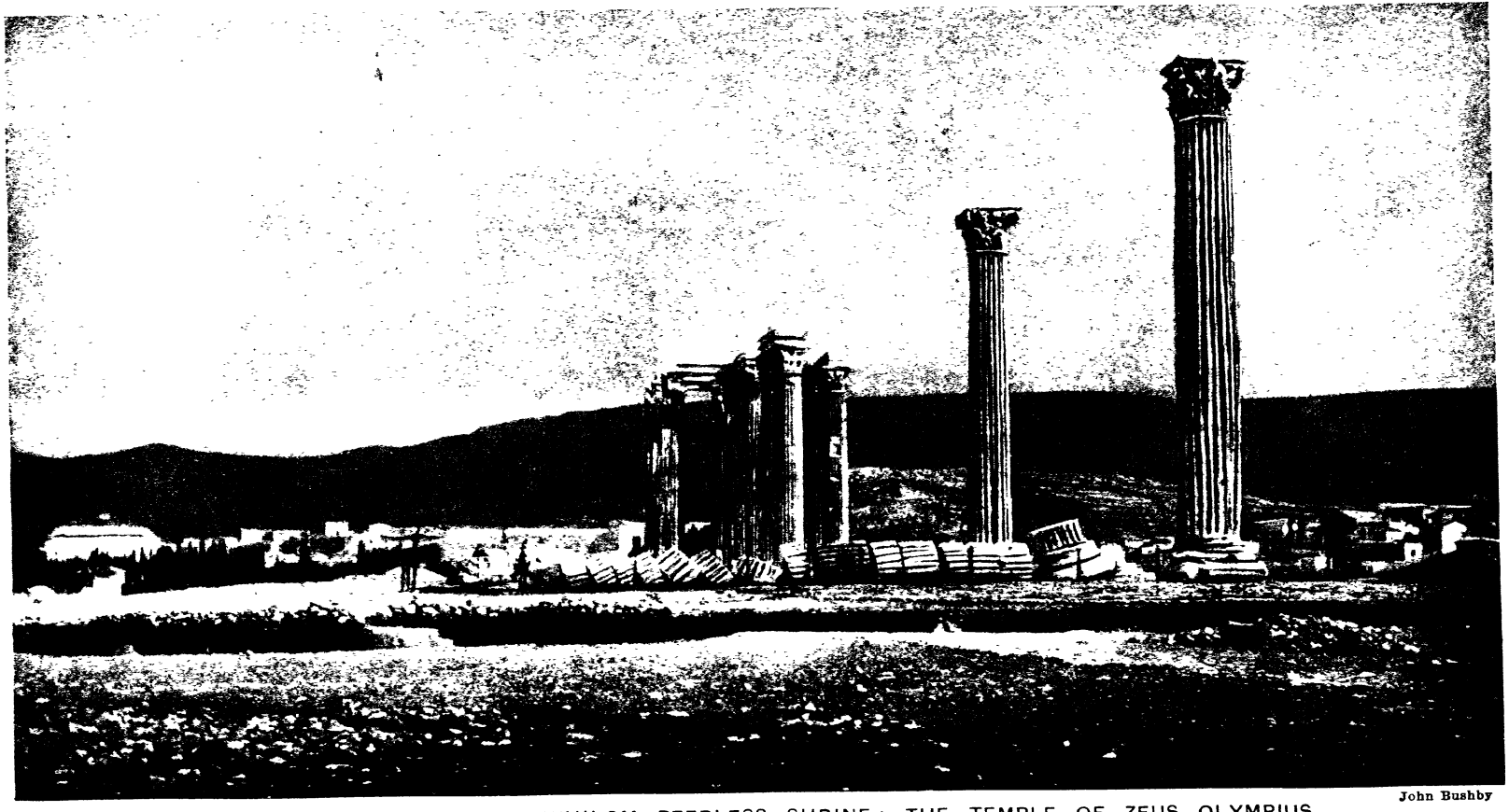
By reason of the outstanding heights on its otherwise level plain, Athens is a city of wonderful views. Standing here beside the Parthenon our view is cast over the south-eastern portion of the town; in the centre stands Mount Ardettus with the columns of the Temple of Zeus Olympius before it and the Arch of Hadrian still nearer to us. The public gardens are on the left with a corner of the modern Zappeion Exhibition Building; behind the shoulder of the small undulation of Ardettus we may see the open end of the great Stadium and its portico



E. N. A.

SUNSET STRIKES A LAST SPARKLE FROM THE FACETS OF A SPLENDID JEWEL: ATHENS IN ITS MOUNTAIN SETTING

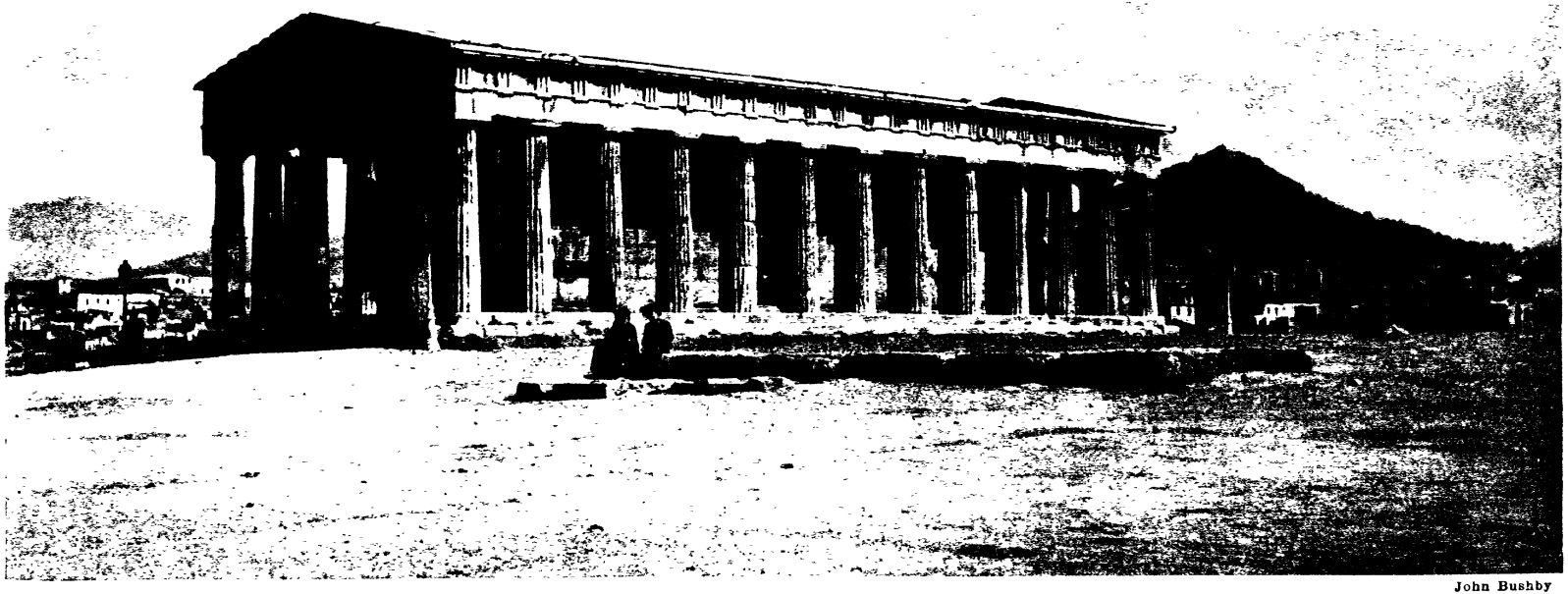
Seen from the sweeping expanse of the Bay of Phalerum no view could excel the prospect of the fair city with its crowned heights of Lycabettus and the Acropolis before the darkling background mass of distant Pentelicus. Between farther Lycabettus and the nearer Acropolis on whose summit we may, even from this distance, distinguish the façade of the Parthenon and the Propylaea to its left are seen the white walls of the modern buildings in the city; below stand the houses of the modern city, while on the left we can glimpse the houses of Old Phalerum, a popular resort in Athens to-day



John Bushby

AGE-OLD COLUMNS OF A WHILOM PEERLESS SHRINE: THE TEMPLE OF ZEUS OLYMPIUS

All that remains of one of the largest Greek temples ever built are the sixteen huge columns—one of them prone on the ground—of the Temple of Zeus Olympius. Most of its work was accomplished by Antiochus Epiphanes on Peisistratus' foundation, but it was incomplete till Hadrian's day, and in it stood a mighty statue of its god in gold and ivory. The temple is hard by the Zappeion Gardens in which are the Exhibition Buildings and lies at the junction of the Boulevard Amalia and Lysicrates Street, commanded by the Arch of Hadrian



John Bushby

TIME-DEFYING RELIC OF THE WORLD'S GREATEST CULTURE: THE THESEUM

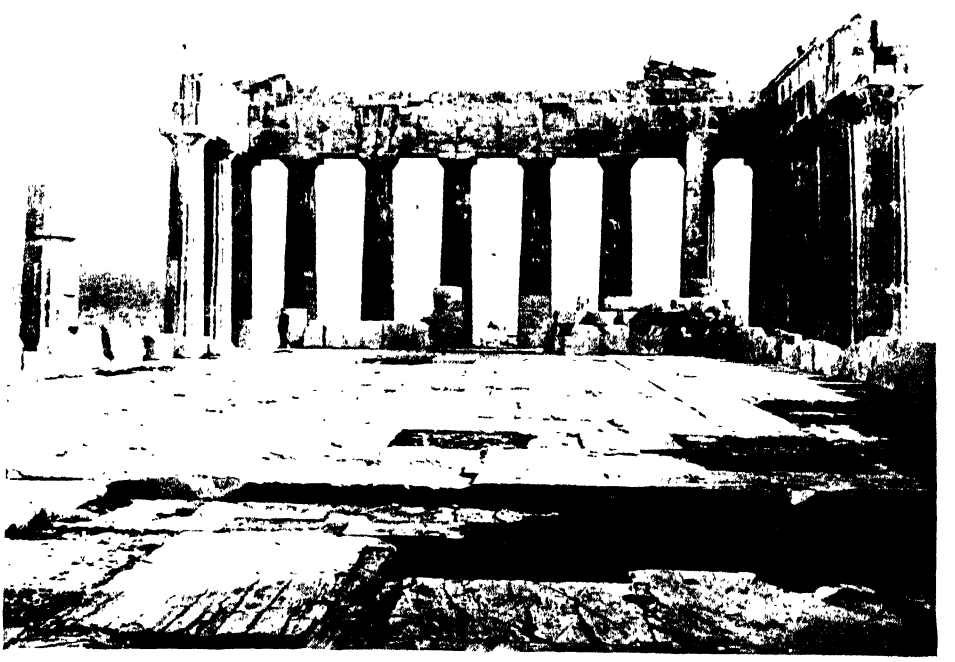
On the west of the old Athenian market-place, conspicuously visible from the Acropolis, in its open space on a low hill, the Theseum is justly regarded as the most perfect architectural relic of ancient Athens; for even the Parthenon, in whose style the temple is designed, through vandalism in the Middle Ages is in a much less complete state. Though commonly known as the Temple of Theseus, archaeologists agree that it should more properly be termed the sanctuary of Hephaestus; it owes its good fortune to its conversion into a church in medieval times

still exists though always on the very verge of collapse.

From one side of the square runs Piraeus Street, which on its way to that fort passes the vegetable market, the Foundling Hospital and the Dipylon cemetery, one of the cemeteries of ancient Athens that has been excavated. Here the beautifully sculptured gravestones still stand in situ by the side of a road where they were first erected over two thousand years ago.

Aeolus Street is yet another way out of Concord Square, and it leads directly to the "Tower of the Winds," an elaborate sundial built in the first century B.C. at the north foot of the Acropolis. On the way thither we pass the New Bazaar (modern market), always very busy, but on the eve of Christmas or Easter crowded to the point of suffocation. Next, we pass the church of S. Irene, by the side of which a flower and plant market is held every Sunday morning. Farther on, near where Aeolus Street crosses Hermes Street, stands another Byzantine church of the tenth century, the Kapnikarea. Not far off is the modern cathedral. Before the Turkish conquest the Parthenon, then converted into a church, was the cathedral of Athens. The new one is an ugly building and appears worse than it is from the strong contrast between it and the little Byzantine church of the Virgin, usually called the Small Metropolis, by its side. This is an architectural gem of the ninth century, and largely built of sculptured slabs. By it lies a marble block declared by an inscription on it to be the stone on which Christ sat at Cana in Galilee when He made the water wine.

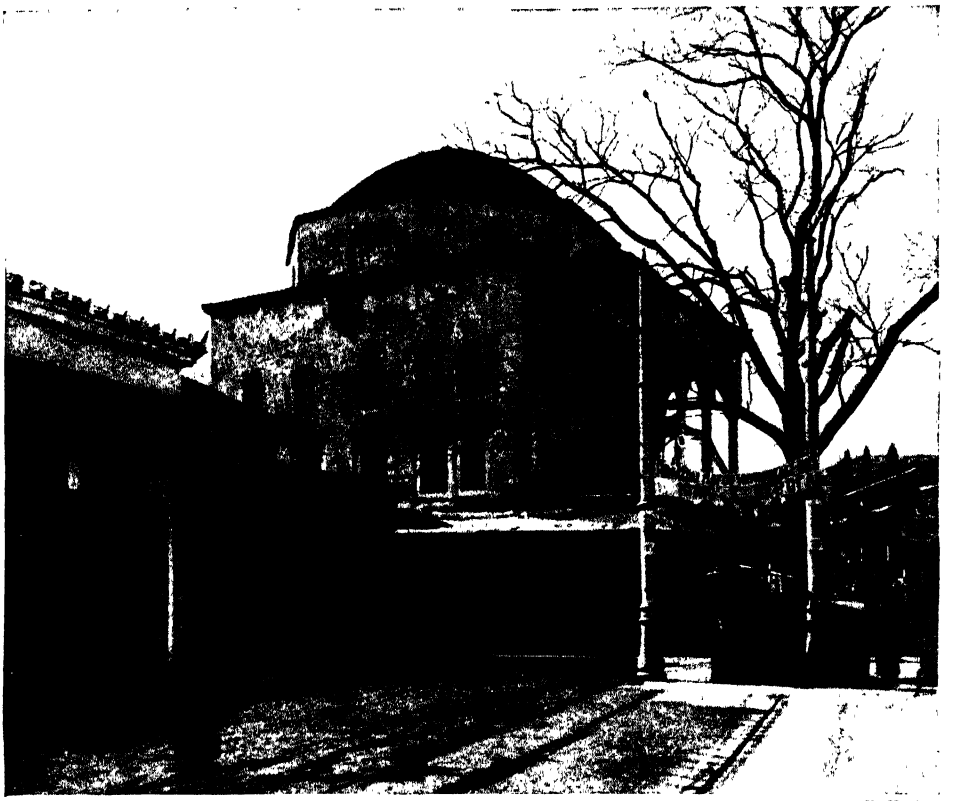
On the north side of the Acropolis to the east of the Tower of the Winds lie the oldest streets of modern Athens. These narrow, tortuous, climbing ways have changed little since the days of Byron. Here, early in the day, a goatherd collects the milch goats of the quarter



E N A.

WITHIN THE SHATTERED COLONNADE OF THE PARTHENON

Bright and attractive as modern Athens is beneath its smiling Mediterranean sky, its chiefest glory is still the majestic ruin that crowns the Acropolis—the Parthenon, built over 2,000 years ago. Here we are looking from within towards its eastern end, the portico through which the rising sun flashed in to illumine the gold and ivory statue of Athena by Pheidias in its dark and windowless shrine



E. N. A.

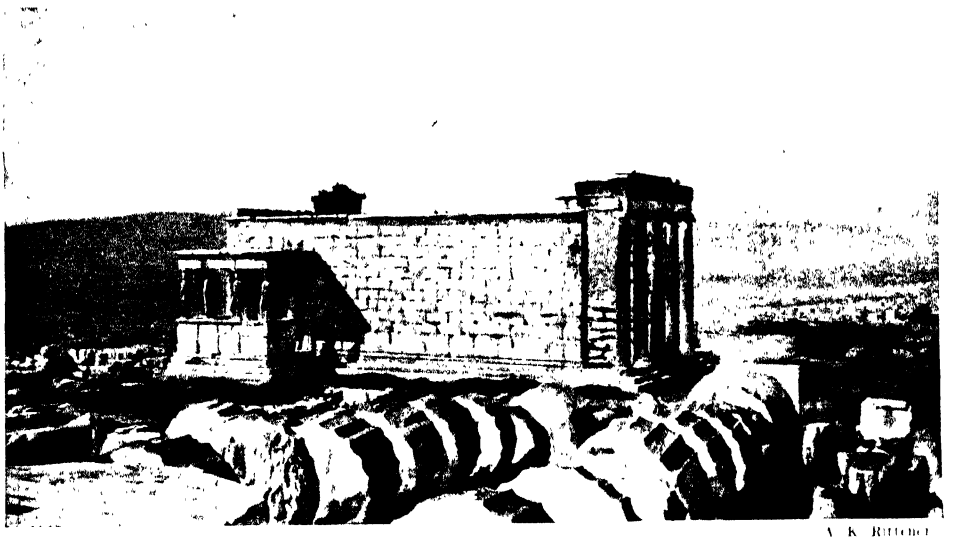
RELIC OF MOSLEM RULE IN THE STREET OF THE COBBLERS

In the quarter of Athens north of the Acropolis and west of the Tower of the Winds is a reminder of the long Turkish domination of Greece—a mosque that is now used as a museum. It was built in the eighteenth century and for its construction a pillar of the Temple of Zeus was removed, an indiscretion for which the "Voivode" of the time was fined by the Ottoman government

and drives them off to pasture, to bring them back at sunset. In the morning, itinerant venders of fruit, vegetables and fish go their rounds raucously calling the wares they display in baskets on patient donkeys or on handcarts. Later come hawkers of coarse soap, herbs, printed cottons, trimming, sham jewelry and other objects dear to the Athenian heart. Presently, perhaps, arrives the milkman, who milks his goats on the doorsteps, or a dealer in turkeys driving his wares before him as he goes with a long cane.

To the west of the Tower of the Winds lie the ruins of the market-place of ancient Athens and the two streets which are all that survive of the bazaar of Turkish days, the streets of cobblers and of smiths. The latter is marked by the deafening din of hammers beating at metal. The former has small, low, dark shops with overhanging eaves which give an Oriental impression. This is heightened by the presence of several curiosity shops outside which a tourist may be seen bargaining for a rug spread in the middle of the road quite regardless of the traffic. The Oriental aspect is increased by the fact that between the two streets stands one of the two surviving mosques of Athens, now converted into a museum of decorative arts.

Farther west, the so-called Theseum —really the Temple of Hephaestus— stands on a low hill. This is the most complete existing Greek Temple and is slightly older than the Parthenon. Thence we turn towards the Acropolis, past the Hill of the Nymphs now crowned by the Observatory, and leaving the bare rock of Areopagus (Mars' Hill) immediately to the left



A. K. Ritterer

TEMPLE OF ERECHTHEUS, A JEWEL IN ATHENS' DIADEM

Once the hallowed shrine of tutelary deities of the wonder city, later a Christian church, then a Turkish harem, the Erechtheum has played many parts in Athenian history; its caryatid-borne portico (on the left), a building of exquisite beauty, stands against the restored south wall. The building is just on the edge of the Acropolis and commands a magnificent view of the north end of Athens



Autotype Co

THE PROPYLAEA, ANCIENT CEREMONIAL APPROACH TO THE ACROPOLIS

In the days of Pericles, when they were built as a system of stairways, vestibules and corridors giving access to the sacred precincts of the Acropolis, the Propylaea were one of Athens' chief adornments; and even now, having suffered the detrition of the centuries and the vicissitudes of man's barbarism, they still remain, in grand ruin, one of the great glories of the Acropolis



D. C. Carruthers

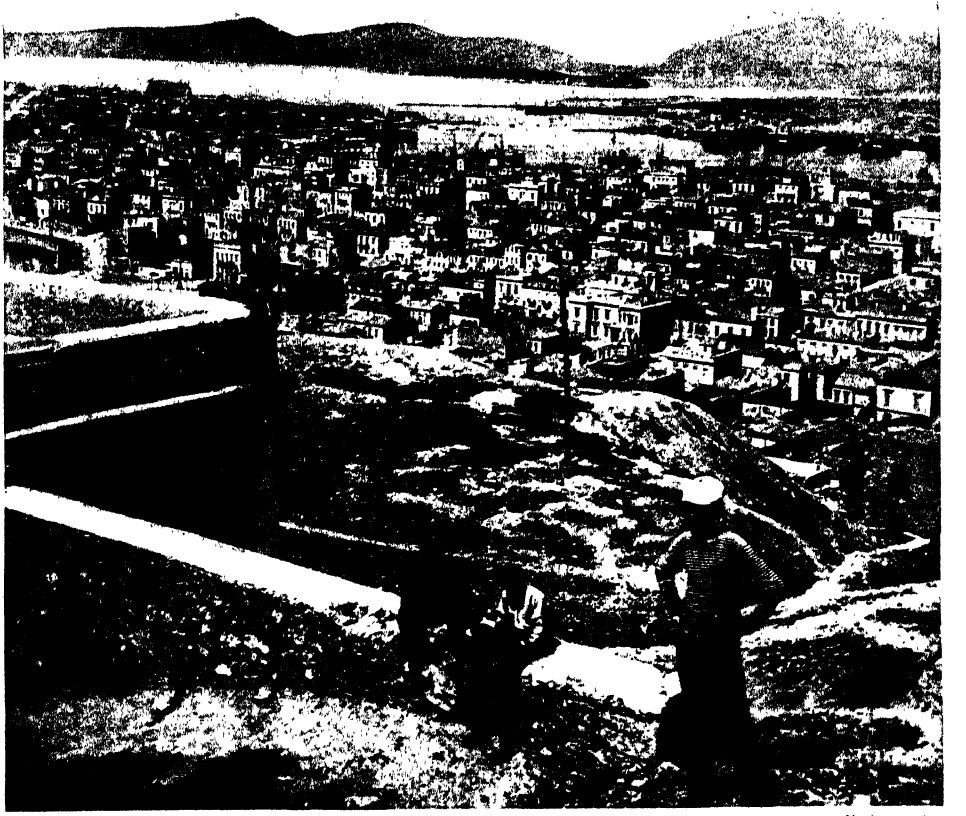
WHERE ATHENIANS OF OTHER DAYS CLIMBED IN SOLEMN PROCESSION

Affording a stately approach to the Acropolis of old Athens, the ceremonial system of doorways known as the Propylaea was well worthy of the buildings behind them. In this photograph we have a glimpse through their massed Pentelic marble columns of that little jewel of a temple standing on a buttress of the Acropolis walls—the Ionic fane of Athena Nike, better known as Nike Apteros



CONSTITUTION SQUARE, HAUNT OF WEALTHY GREEKS AND HUB OF THE SOCIAL LIFE OF MODERN ATHENS

Directly in front of the Royal Palace, used as the central office of refugee organization, lies Constitution Square, the centre of Athenian social life, always thronged with sight-seeing and pleasure-seeking crowds. It is adorned with oleanders, orange trees and fine cypresses, and contains the principal hotels in the city, the Ministry of Communications and the famous Zacharatos Café. Here the citizens congregate and they may be seen seated at the little tables, and in front of the café at all hours of day or night, talking or watching the moving pictures in the square



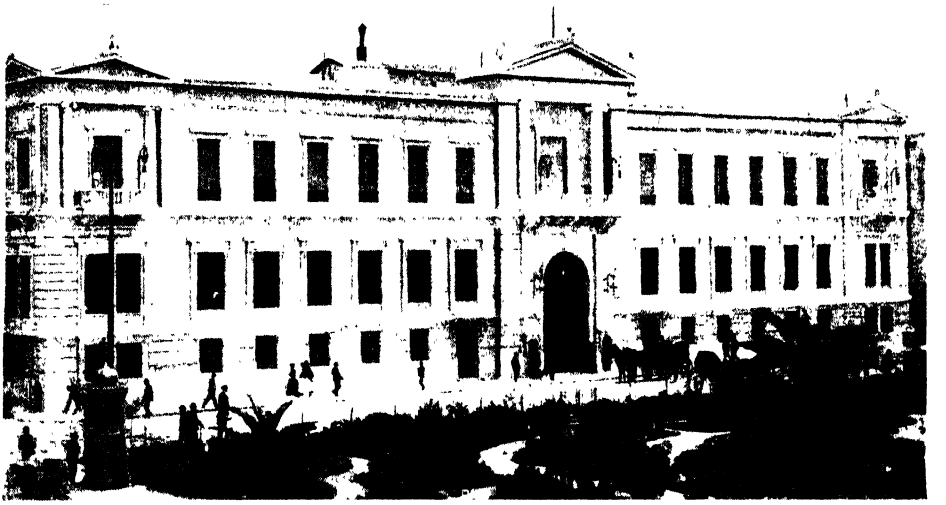
Underwood

PIRAEUS, PORT OF ATHENS, A CITY OF RETURNING GLORY

Themistocles, the great statesman, first discovered the economic and strategic value of Piraeus, seven miles from Athens, and, from his time until Sulla the Roman laid it waste it flourished. Desolate since then till the nineteenth century, its power has revived; the harbour is again famous as a safe anchorage for large vessels and the city as a great trading centre

reach the entrance. Here, in addition to the Propylaea and the three famous temples, is a small museum containing the sculptures found round them. The painted primitive statues of maidens have no equals for delicacy, symmetry and beauty. On the south side of the Acropolis lie the Odeum or concert hall built by Herodes Atticus, the friend of Hadrian, the sunny terrace and sacred spring of the shrine of Asclepius and the theatre of Dionysus. Thence we can return to Constitution Square past the monument of Lysicrates, crossing Hadrian Street, which in the days of King Otho was the fashionable residential street.

The two squares are also united by University Street, a magnificent broad avenue, the best in Athens. Midway along it lies a group of three noble marble buildings. There is the Academy of Science built in Ionic style with elegant sculptured decoration in the classical manner. It houses the Byzantine and Numismatic Museums, while the central hall adorned with paintings of the legend of Prometheus is used for large meetings. The University, with a long Ionic portico and statues of Rigas and other heroes of Liberty, is a simpler building. Its students come from all parts of Greece and are keen to learn, but the University, though a vigorous centre of academic life, is but moderately endowed and in need of modern equipment. The students through their leagues and societies maintain an active corporate life. The third building is the National Library, modern and well-constructed, the reading-room of which is always



GREEK NATIONAL BANK IN THE CITY OF GREAT FINANCIERS

Long famed for their astuteness in financial matters, the Greeks have always been leaders in banking systems with international ramifications. The National Bank in Athens, a large modern edifice built in the classical style with Ionic columns, faces the flower-planted space in front of the New Theatre, in that district of the capital in which are also found the legations and the government offices



NEW METROPOLITAN CATHEDRAL, RELIGIOUS CENTRE OF MODERN GREECE

Seventy demolished churches provided the material for the erection in 1855 of the New Metropolitan Cathedral, a building utterly devoid of grace in which four architects have combined to produce great incongruity of style. It is worth while to reflect that the Athenians who worship here are the modern representatives of the people who raised the Parthenon—the finest place of worship ever built



John Bushby

OLD BYZANTIUM IN MODERN ATHENS: THE KAPNIKAREA CHURCH

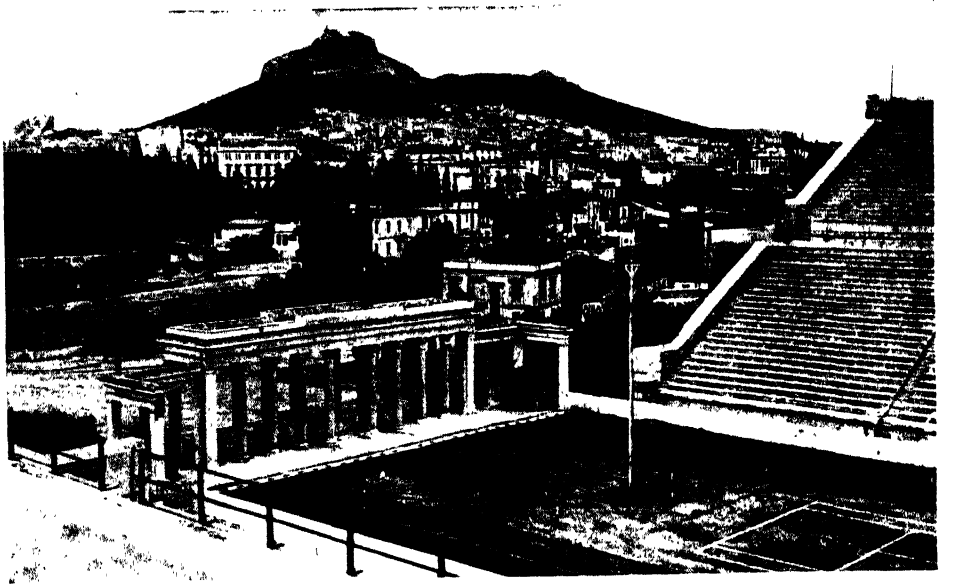
Though attributed by tradition to Eudocia, Athenian wife of the Byzantine Emperor Theodosius II in the fifth century, the Kapnikarea Church dates from about the ninth century, and the north corridor covered by the lower dome enclosing a separate chapel is a seventeenth century addition. The church stands at the crossing of Hermes and Aeolus streets, the latter leading to the Tower of the Winds



John Bushby

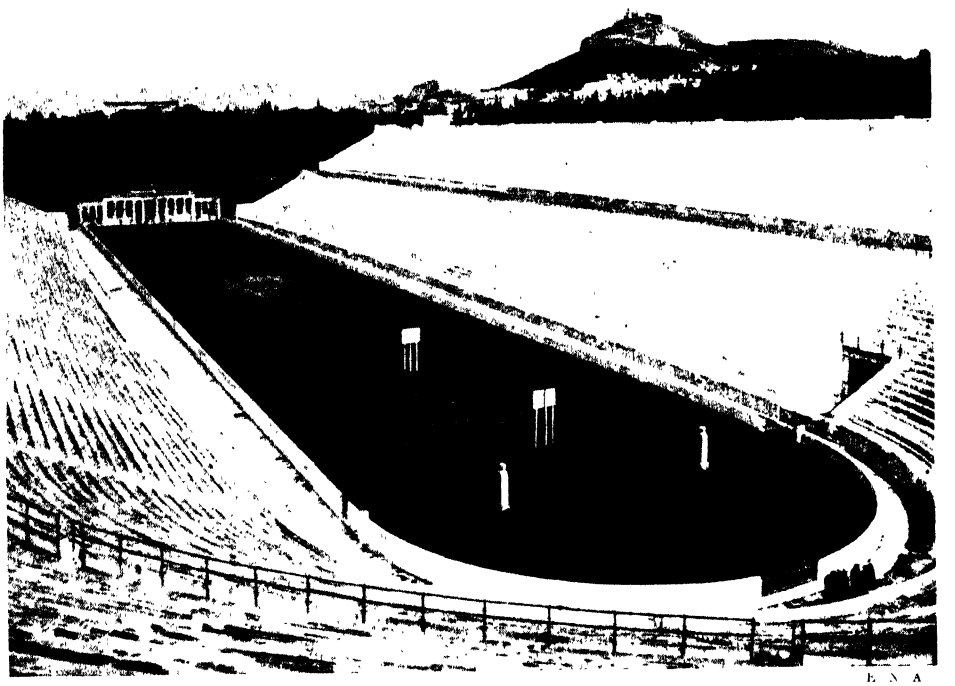
THE "SMALL METROPOLIS," ATHENS' TINY TREASURY OF UNTOLD LORE

Separated by a passage only a few feet wide from the south wall of its large, ungainly neighbour the Metropolitan Cathedral, the thirteenth century Small Metropolis is in many ways one of the most interesting of the Athenian churches. The marble of which it is built, once white, is now mellowed to rich gold, and its walls contain many ancient sculptures; its external dimensions are but 40 feet by 25



FROM THE STADIUM: THE MODERN CITY AND LYCABETTUS

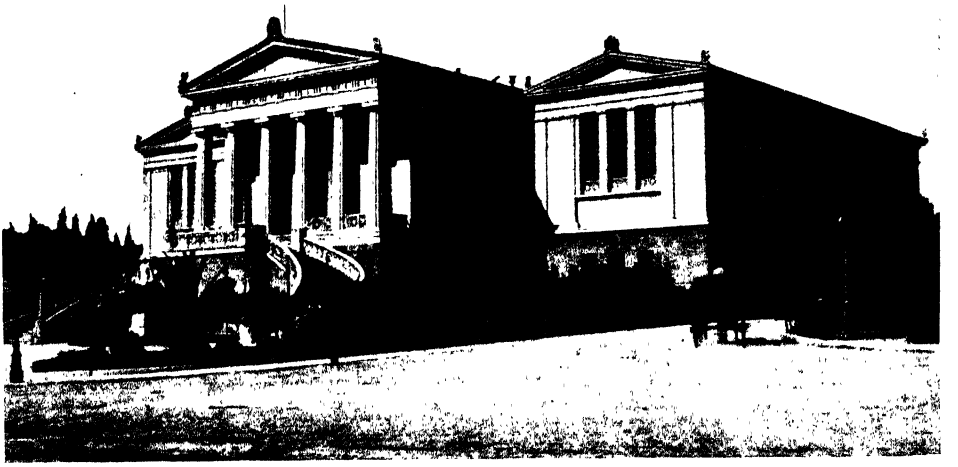
In the trees above the Corinthian portico of the great Stadium is the palace of the crown prince; to the left of this again lie the Palace Garden and, beyond, Cephisia Street which we must imagine as running through the houses in the centre of the photograph. On the summit of Mount Lycabettus we discern the walls of the Chapel of S. George



E. N. A.

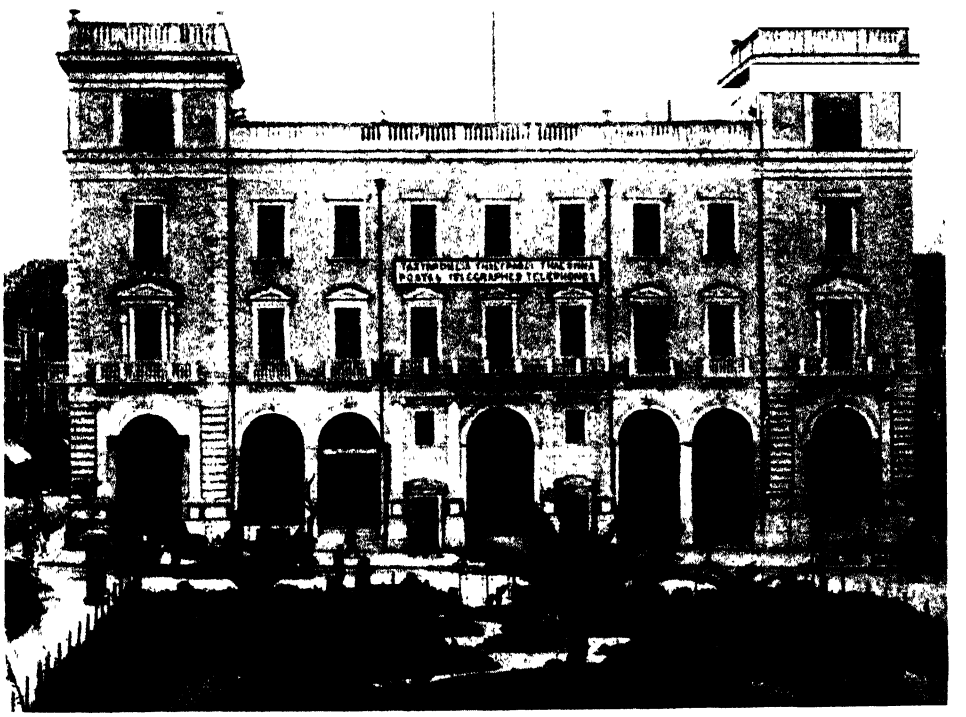
ANCIENT MONUMENT REFURBISHED FOR LATTER-DAY ATHLETICS

First built by Herodes Atticus in the natural amphitheatre beside the Illissus and excavated in the nineteenth century, the Stadium was restored in its original white marble for the Olympic Games of 1896. Sports and displays are held here nowadays on the same ground as was in olden times sacred to the Panathenaic contests. Mount Lycabettus rises high beyond



NATIONAL LIBRARY, A FINE MODERN EDIFICE OF THE GREEK CAPITAL

Proceeding by University Street from Constitution Square we come to a large open space in which are three of the principal buildings of the modern city. These are the Academy of Science (see page 366), which houses two museums, the University and the National Library illustrated above. This last is an imposing pile, well equipped in every respect and possessing a particularly fine reading-room



GENERAL POST OFFICE, A NOTABLE BUILDING IN MODERN ATHENS

In Lycabettus Street, close to its junction with the long, straight Stadium Street, is found the General Post Office. The building is of modern date and not unpleasing appearance, and is fronted, like the National Bank, by a square planted with flowers and shrubs. Within a few moments' distance is Constitution Square, behind which towers the Royal Palace; close by it is the Parliament House

well-filled with university students. On the other side of the street is the Arsakion, a girls' high school founded in 1835 and of the highest repute. Towards Concord Square lies a group of hotels and many restaurants of all grades. At the other end of University Street close to Constitution Square are two large cafés, one on either side of the roadway. These, which on bright winter days or summer evenings spread their chairs and tables for a considerable distance along the sidewalk, are known as the Dardanelles and are extremely popular. As a rule cafés are for men only and women rarely go to them. The Dardanelles cafés, however, are patronised by both sexes freely and quite large family parties can be seen enjoying themselves there. At a café coffee is not the only refreshment obtainable — sweet cakes, Turkish delight, ices, tea, mastica (a kind of liqueur), or some similar aperitif and even beer can be readily procured.

From the same point, where University Street reaches Constitution Square, Cephisia Road leads off to the pretty garden suburb of that name which lies at the foot of Pentelicus about eight miles from Athens. On one side of the road are large marble houses and on the other a long road of barracks. Here, too, are the Evangelismos Hospital, the Rizarion Seminary and the old but badly repaired monastery of the Holy Angels (Hagion Asomaton); near by is the new Palace, a handsome building with well laid out gardens that reach nearly as far as the Stadium.

Athens in all its aspects is a very charming city. To the student of art and antiquity it is, of course, a paradise, but even the greatest Philistine cannot fail to enjoy the pleasant life of the modern city and the simple manners and friendly hospitality of the true Athenians, while the unrivalled beauty of its situation surpasses even that of Naples with its famous bay.



ACADEMY OF SCIENCE FACED WITH GLEAMING PENTELIC MARBLE

University Street, one of the finest thoroughfares in Athens, is flanked by noble buildings such as this, the Academy of Science. Classical tradition is strictly adhered to in the portico, which is of the Ionic order and has a group in the pediment representing the birth of Athena. Athena and Apollo surmount the two columns, while the statues on either side of the steps are of Plato and Sophocles

ATLANTIC ISLANDS

Volcanic Peaks of a Lost Continent

by Marion Newbigin, D.Sc.

Author of "The British Empire Beyond the Seas"

In the following chapter the writer discusses generally the origin and relations of the islands in the Atlantic, dealing specifically with the smaller among them and with the scientific problems associated with the Atlantic floor. Cuba, Jamaica and Newfoundland are the subject of separate chapters, while the Bahamas, Barbados, Guadeloupe, Haiti, the Leeward Islands, Porto Rico, St. Lucia, St. Vincent, Santo Domingo, Trinidad, and the Windward Islands are dealt with in the chapter on the West Indies.—EDITOR

IN marked contrast to parts of the Pacific the Atlantic Ocean contains relatively few islands, a fact which increases the importance of those which do occur. Some of the islands have much significance as coaling, cable and naval stations. Again, just because the islands are few and scattered the scientific problem of their origin and relations becomes of much interest, an interest accentuated by the fact that the ancient Egyptians, the classical Greeks and the Celtic peoples all had traditions of a lost continent—Atlantis or Avalon.

The most conspicuous feature of the Atlantic floor is the presence of a narrow submarine ridge or rise, which extends from the vicinity of Iceland to latitude 53° south, with a distinct interruption at the Equator. The feature, which is called the Dolphin Rise in the North Atlantic and the Challenger Ridge in the south, is shaped like an open letter S, showing a certain correspondence to the trend of the two bounding coasts.

Summits of the Submarine Ridge

It is covered on the average by about 1,700 fathoms of water, much greater depths being found on either side. Northwards the rise widens out and comes nearer the surface, merging into a submarine plateau which extends across the North Atlantic.

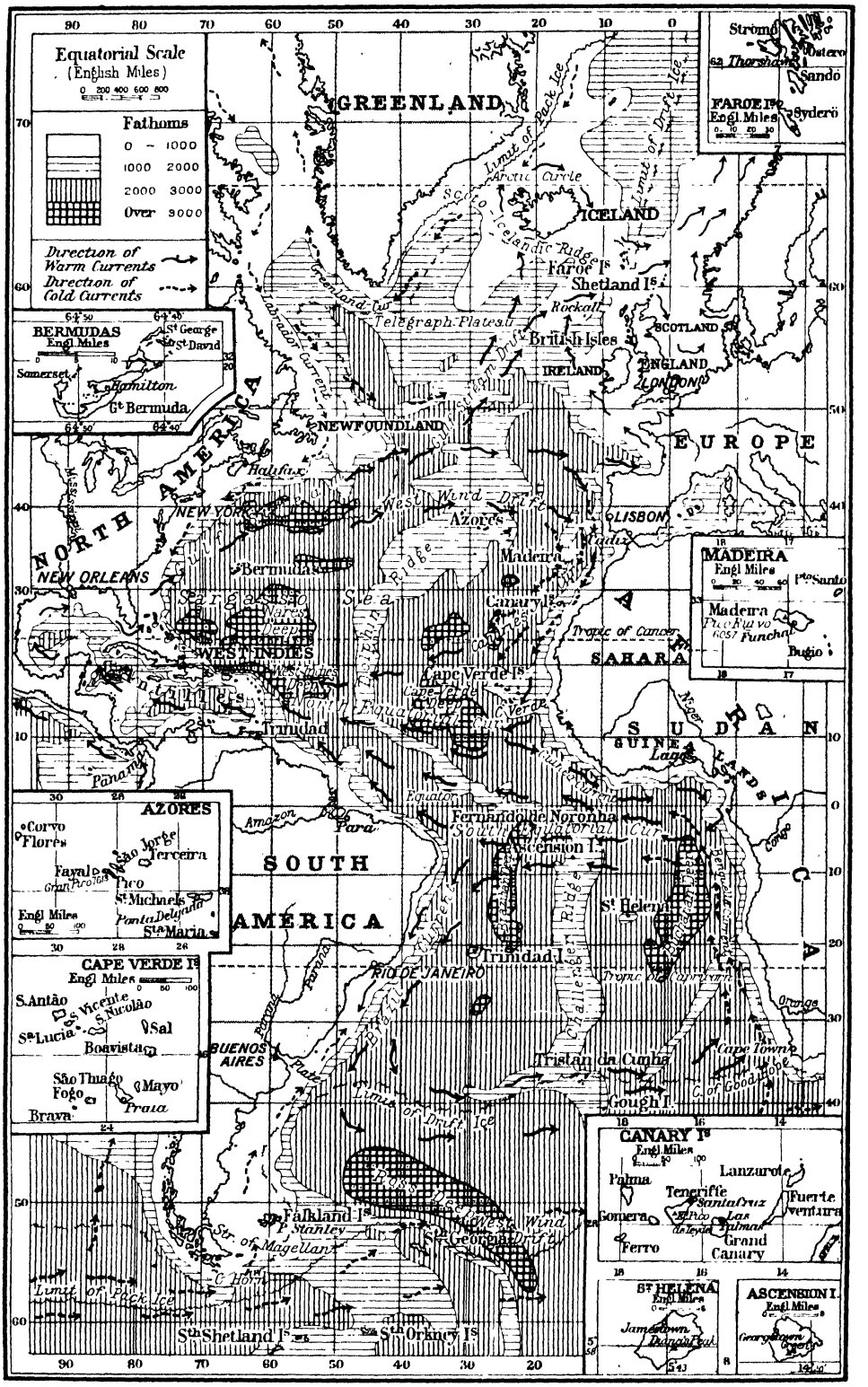
Near its northern end the rise bears the Azores archipelago, and south of the Equator Ascension, Tristan da Cunha and Gough island. All consist of volcanic rocks, but the island of Santa Maria in the Azores has been proved to contain also sedimentary beds of the age called Tertiary.

Three other islands occur in the South Atlantic area, these being St. Helena, lying to the east of the Challenger Ridge, and Trinidad and Fernando de Noronha to the west of it. All three are volcanic, no sedimentary rocks having been recognized; all also rise direct from the great ocean depths, having no relation to the Ridge.

Problems of Marine Geography

In the North Atlantic three groups of islands occur off the African coast; these are the Cape Verde, Canary and Madeira archipelagoes. All three are surrounded by water under 2,000 fathoms in depth, but have no relation to the Dolphin Rise; all are predominantly volcanic, but contain in addition sedimentary rocks, believed to be of Tertiary age. In some ways even more remarkable than these African islands are the solitary Bermudas, a group of islets of coral formation arising, in close proximity to great ocean "deeps," on the western side of the North Atlantic.

Compared with all these the Faroe and Falkland islands present, geographically speaking, simple problems. The Falklands lie on the margin of the wide continental shelf which extends outwards from the south-eastern extremity of South America. They are built of old sedimentary rocks and,



MAP OF THE ISLANDS OF THE ATLANTIC SHOWING OCEAN DEPTHS AND CURRENTS

despite certain differences in rock-structure, it is natural to regard them as having once formed part of the adjacent mainland. The Faroes, together with the lonely crag of Rockall, are less easily accounted for, but in their case so many detailed observations have been made and so much sounding carried out, that we can tell the complicated tale of their origin with but little fear of error.

We have already spoken of the submarine plateau which extends across the North Atlantic and appears like a continuation of the Dolphin Rise. But the deep waters of the Atlantic basin are separated from those of the Arctic one by a very definite ridge covered with shallow water (under 200 fathoms between the Shetlands and Iceland), which extends from the Continental Shelf on which the British Isles stand, past Iceland to Greenland. This ridge bears on its surface the Faroes as well as Iceland, and sends out south-westward a prolongation from which rises the conical islet of Rockall.

Rockall and the Faroes are alike volcanic, but among the lavas of the latter there occur sedimentary beds (including coals). Now in the Inner Hebrides, in Mull, Skye, Staffa, and so forth, no less than in Antrim, in north-east Ireland, there are great masses of basalt, intermingled with sedimentary beds containing fossil plant-leaves. With the help of these fossils the basalts can be recognized as of Tertiary age, and there is evidence that the rocks of the Faroes belong to the same period. More than this, blocks of lava have been dredged up from the sea-floor along the line of the ridge from Scotland to Greenland, which leads to the conclusion that there were once vast plains of lava in this region, of which the Faroe Islands and Rockall are but the wave-worn and denuded fragments.

We can go even further than this. There is much geological evidence to



STREET IN THORSHAVN, CAPITAL OF THE FAROE ISLANDS

The Faroe Islands in the North Atlantic belong to Denmark and consist of seventeen inhabited and four uninhabited islands. Thorshavn, the capital, lies on a narrow strip of land on Strömö island, with creeks on either side which provide safe mooring for ships. Its houses, of simple architectural style, are generally built of wood and thatched with birch-bark, covered with turf



EDINBURGH, THE SOLE TOWNSHIP OF REMOTE TRISTAN DA CUNHA

Situated about 2,000 miles west of the Cape of Good Hope and 4,000 miles north-east of Cape Horn, the three volcanic islands of Tristan da Cunha are a very lonely and poverty stricken group Tristan, the only inhabited one of the three, has a population of about 100 settlers, all established at Edinburgh, a tiny township on a plateau under the shadow of the central volcanic cone

show that, down nearly to the close of the era which geologists call Secondary, a great continental mass existed in the North Atlantic, the broken edge of this old continent still existing in the north-west Highlands of Scotland. During the Tertiary era this great northern continent sank down beneath the waves. As it broke into fragments and began to founder, volcanic eruptions occurred on its surface on a great scale. Lavas apparently welled out of the earth along the lines of long fissures, forming those vast plateaux of which we have already spoken, remnants of which persist alike in western Scotland and north-eastern Ireland on the one hand, and in the Faroes and Rockall on the other. It thus is permissible to declare quite definitely that these islands are testimonies to the former existence of a land-mass, most of which has sunk beneath the sea.

So far we are on fairly secure ground. With more hesitation we can offer a possible explanation of the volcanic islands of the Atlantic Ocean proper, remembering, however, that here we are largely in the realm of speculation, with few definite facts to go upon.

There is ground for supposing that the whole Atlantic Ocean is of relatively recent origin, and that the northern continental mass connecting Europe and North America, of which we have just spoken, had its southern limit somewhere along a line from Portugal to Florida and thus included the site of the existing Azores. A similar continental mass appears to have stretched across the South Atlantic, linking Africa and South America. The two are believed to have been separated by a transverse ocean, called the Tethys by the geologist Suess. The theory which has found general acceptance is that the existing Atlantic was formed by an enlargement of the Tethys at the expense of the pre-existing northern and southern land-masses.

In speaking of the conditions in the extreme north-east of the Atlantic, we have shown that the collapse of the land-surface was certainly accompanied by great volcanic eruptions. We should thus expect that if there was great submergence of land-areas within the Atlantic basin proper, volcanic outbursts would similarly take place, but would attain even greater proportions. We have already shown that volcanic islands are widespread in that ocean, from the Azores in the north to Gough island, and even farther

to Bouvet island in the south, no less than from St. Helena to Fernando de Noronha and Trinidad, and from Madeira and the Canaries to the Antilles in the east-to-west direction. The suggestion which arises then is that in the Atlantic as a whole there occurred, on a far greater scale, the same phenomena which we know to have taken place between Greenland and the British Isles in the north.

Thus the great S-shaped rise of the Atlantic perhaps represents a vanished belt of land which persisted for a time after submergence had taken place on either side of it, and the volcanic islands may be the remains of the lavas poured out during the great fissure eruptions which presumably took place as the land-masses sank beneath the waves.

Much of this, it must be repeated, is purely speculative. If, however, it contains any germ of truth we are at once confronted with the question - has the Atlantic myth any sound basis? The answer must be, geologically, yes; but historically, no! We have no reason to think that man existed in Tertiary time, and even if the existence of man-like forms in that era were proved, it is certain that such early forms could not have had the intelligence to give a coherent account of changes which must have taken a very prolonged period of time to accomplish.

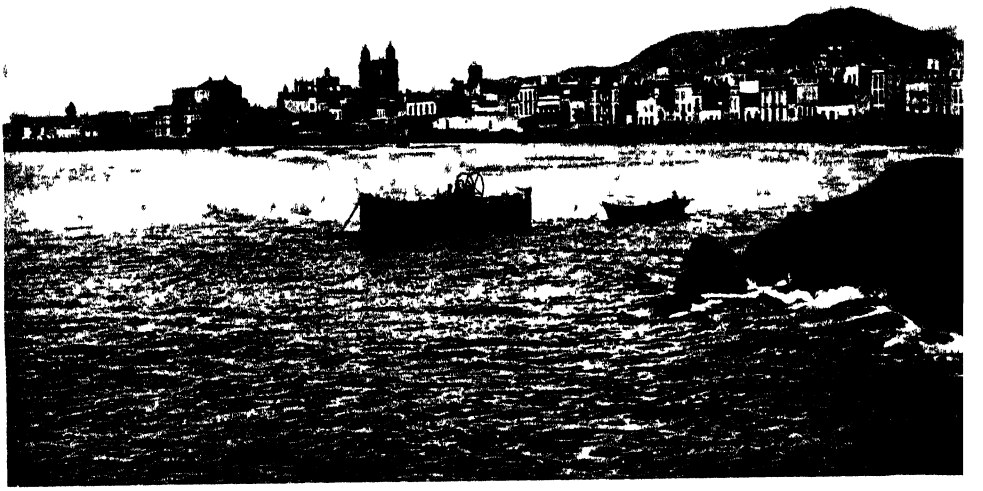
It has been suggested that the Atlantic myth arose from the observation of some minor change in the distribution of land and water, possibly associated with an earthquake, or a great volcanic eruption, in one of the Atlantic archipelagoes. But all this is pure speculation, and though the Canary Islands are the most African of the groups, and their most easterly members are separated from the mainland by less than sixty miles of sea water, no definite evidence of a former attachment to Africa has as yet been brought forward, though an African origin is intrinsically probable enough.

Summing up, then, with the exception of the Falklands which are presumably a separated part of the South American continent, and of the Bermudas which are built of coral, all the islands discussed in this article are of predominantly volcanic origin and show striking examples of the types of scenery associated with the weathering of the products of eruptions. Their position and the depth conditions in the surrounding ocean lead to the conclusion that they originated as the result of the

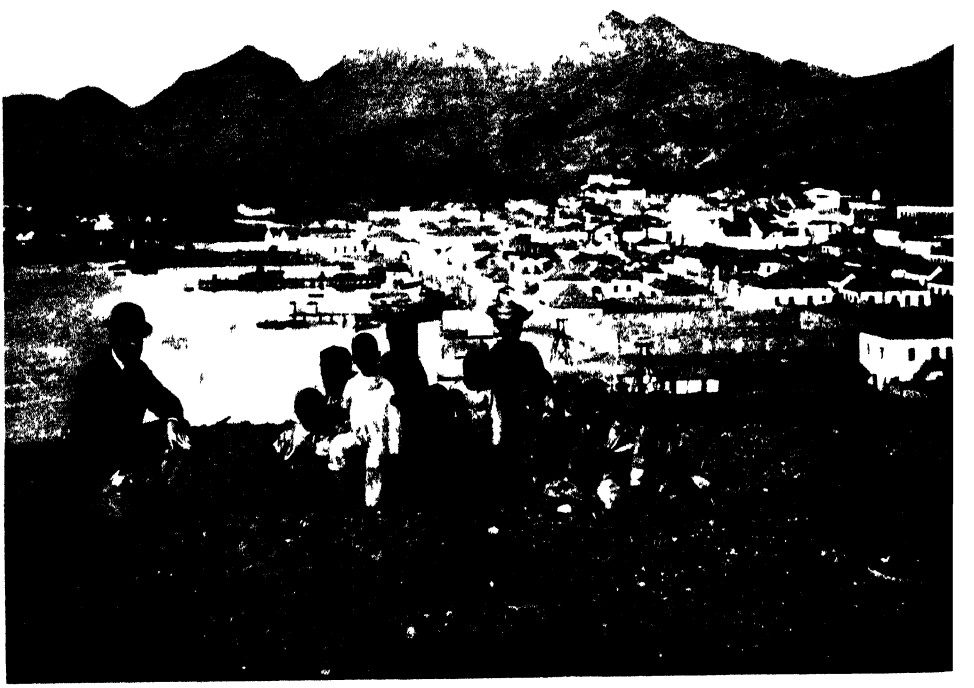


DARING SEAMEN OF A LONELY OUTPOST OF THE BRITISH EMPIRE

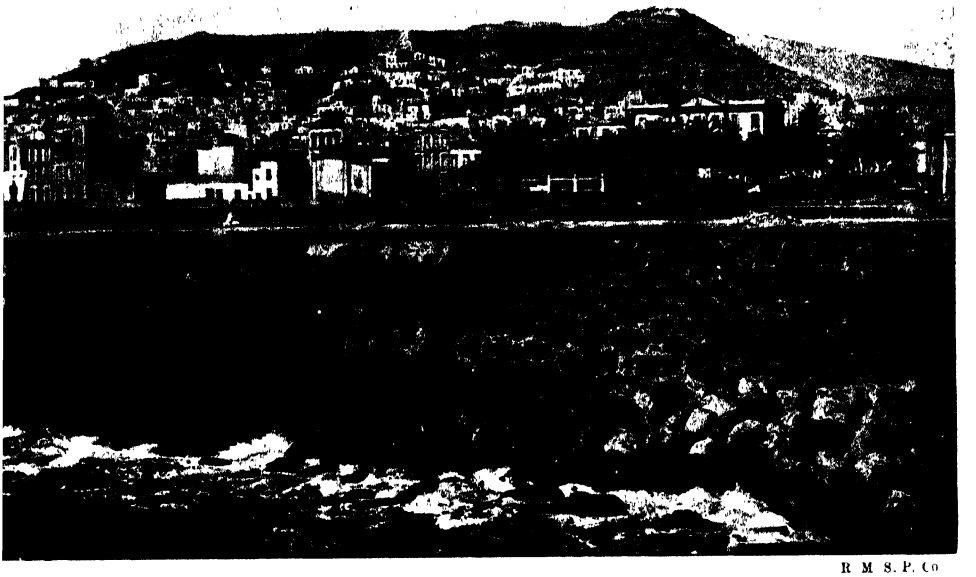
Cliffs from one to two thousand feet in height rise sheer from the sea all round the island of Tristan da Cunha except on the north-west where a narrow gap affords the only landing-place, leading up to the single settlement, Edinburgh, seen in the opposite page. The islanders are born sailors and will put to sea in almost any weather in small boats made by themselves



PANORAMA OF LAS PALMAS, CATHEDRAL CITY AND SEAPORT—
Viewed from the sea Las Palmas presents a very picturesque appearance Although some of its buildings date back to the sixteenth century, it is a modern city, clean, and well ordered in most parts, with a supply of pure water brought by an aqueduct from the mountains of the interior



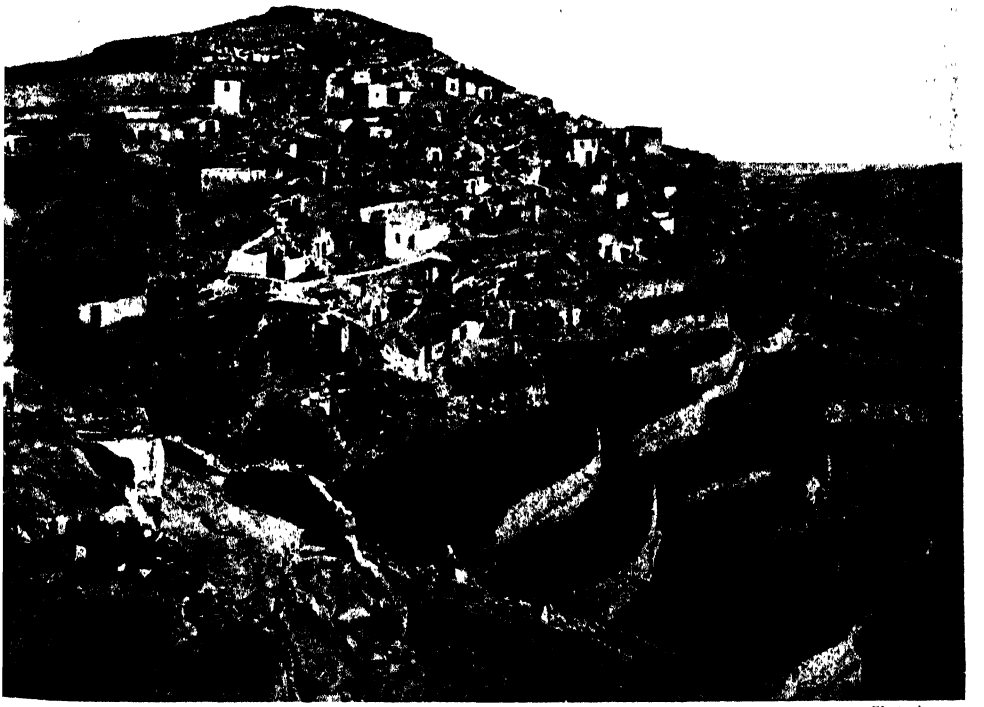
PRAIA, CAPITAL OF SANTIAGO ISLAND AND OF THE CAPE VERDE GROUP
São Thiago, or Santiago, is the most southerly island of the Cape Verde archipelago, which belongs to Portugal and consists of fourteen mountainous and volcanic islands in the Atlantic It has an area of 358 square miles and is the largest and most populous of the group Praia, on the south east coast is the capital and has a very fine harbour with safe anchorage for vessels and a considerable trade



R M S. P. Co

—CAPITAL OF THE ISLAND OF GRAND CANARY, CANARY ARCHIPELAGO

Notwithstanding its situation on the sea front, Las Palmas possesses only an open roadstead without harbour protection, and is connected with its port La Luz by a railway four miles long. Puerto de la Luz is strongly fortified and has an excellent harbour, furnishing secure shelter in all weathers



Photochrom

CAVE VILLAGE ON A TERRACED HILLSIDE OF GRAND CANARY ISLAND

As on the other islands of this Spanish archipelago, the housing of the labouring class on Grand Canary is primitive in the extreme, and the hill slopes, cut into terraces, abound in lava caves which afford shelter, where cottages are not available, to many poor islanders. Especially noted as cave-dwellers is a small community of potters, regarded almost as outcasts among their neighbours



R.M S P Co

VIEW OF THE RUGGED COUNTRYSIDE OF GRAND CANARY, SHOWING THE ROAD FROM LAS PALMAS TO ATALAYA

The island of Grand Canary, or Gran Canaria, is almost circular in shape; its greatest length is 34½ miles, its width 29½ miles, and its area 631 square miles. The interior is a tableland, with long sloping sides broken by winding ravines radiating to the shore; the highest peaks being 6,401, 6,109 and 6,066 feet. This island is said to be the most fertile of all the Canary archipelago; it produces excellent crops and owes much of its prosperity to the banana; in respect of irrigation it is much better watered than Teneriffe. There are large tracts covered with the native pine and many mineral springs are to be found

great Tertiary changes in the distribution of land and water, associated with the formation of the Atlantic Ocean. But despite this broad similarity of origin, the various islands differ very markedly in detail.

We may conveniently begin our detailed survey of the islands with the subtropical groups of the North Atlantic, which include the Azores, Madeira, the Canary Islands and the Bermudas. The position of all these groups allows us to make some general observation on the climatic conditions which have a considerable bearing on the products and economics in each case. The Azores have approximately the same latitude as Lisbon, while the Canary Islands lie somewhat south of that of Cairo, the Bermudas and Madeira having an intermediate position between these two latitudes. In a broad sense, then, all four groups lie within the belt of transition between the trade winds and the westerlies, tending to be exposed to the north-east trades in summer and the westerlies in winter. We should expect therefore that the Azores, Madeira and the Canary Islands would have a climate corresponding to that of the Mediterranean region, modified by latitude and the surrounding ocean, while the Bermudas, since they lie much nearer the American coast than the African one, would partake of the climate of the former coast, modified by the oceanic position. A few figures will show how far this expectation is fulfilled.



R M S P Co.

PLEASANT PALM-CROWNED CORNER OF LAS PALMAS CITY

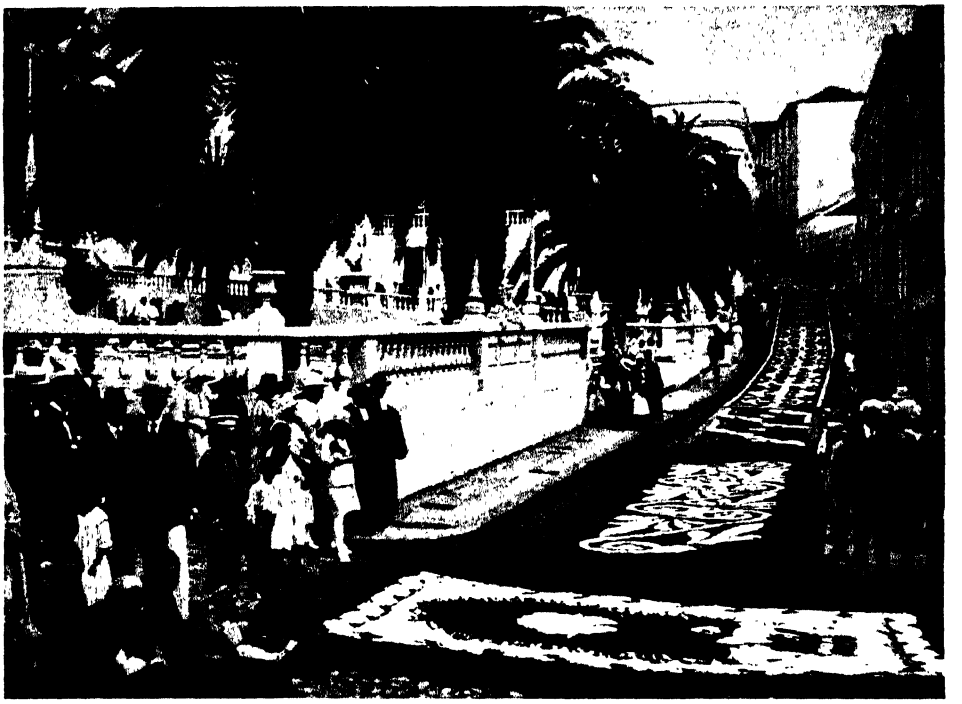
Las Palmas derived its name from the palms which adorned the fertile valley it occupies, and of which many beautiful specimens are still to be seen. It has electric lighting and tramway services and owes much of its modern development to foreign merchants. Among the principal buildings are the Cathedral—one of its twin towers is seen above in the background—a theatre and museum

Funchal in Madeira is in about lat. 32° N., Las Palmas in Grand Canary being 4° further south. At Funchal February is the coolest month, with an average temperature of about 60° F.; August is the hottest with an average of about 73°. The temperatures at Las Palmas are slightly higher, but show the same mild winter and moderate range. In both cases the summers are dry, the very moderate rainfall coming in winter; but there is a somewhat striking difference in the amount of precipitation, which is about 27 in. per annum in Madeira and only half, or less, in the Canaries. This is due



VIEW OF THE FERTILE OROTAVA VALE, TENERIFFE, SHOWING THE FAMOUS PICO DE TEYDE

The beautiful valley of Orotava, lying near the north coast of Teneriffe, Canary Islands, like many another in this Spanish possession, abounds in rich vegetation. In the distance rises El Pico de Teyde, the loftiest summit in the Canary group, which is 12,100 feet high with a crater 300 feet in diameter and 70 feet deep. Two-thirds of the surface of the mountain are fertile and the peak, snow-clad in winter, may be seen more than a hundred miles away and forms a valuable landmark for navigators. By virtue of possession of this celebrated peak, Teneriffe is the meteorological centre of that part of the world



CARPETS OF NATURAL FLOWERS SPREAD ON THE COBBLES OF OROTAVA

The Canary Islander takes much pride in his rich native flora and flowers and fruits of innumerable varieties are brought to a high standard of perfection. Many skilful gardeners are to be found in Teneriffe, as is well demonstrated in this striking photograph of a street in Orotava covered with rich floral carpets of varied design, composed of living, multi-hued flowers

partly to the latitude, and partly to the fact that the latter islands are much more definitely affected by African conditions. In both cases the atmosphere is clear and the climate healthy, that of Madeira, as is well known, being particularly suited to invalids.

The temperature conditions do not differ greatly in the Azores, but the total annual rainfall is greater, about 34 in.; rain occurs at all seasons, though mostly in winter, and the atmosphere, especially during the wet season, has a dampness and tendency to fog which make the islands less suitable as health resorts than either Madeira or the Canaries. The Bermudas again have a fairly heavy rainfall, about 60 in., distributed throughout the year, but heaviest in autumn and least in spring. The summer temperatures are higher than in Madeira, but the winters are mild and pleasant.

Thus all these subtropical islands are well fitted to serve as winter and spring health resorts for the inhabitants of temperate latitudes, while at the same time their summer temperatures are high enough for them to yield those subtropical and tropical products, especially fruits, for which the demand, alike in Europe and the United States of America, is almost insatiable.

The Azores and the Madeira archipelago are attached politically to Portugal. The former consist of ten islands, arranged in three groups, the largest being St. Michaels (S. Miguel) with Ponta Delgada the chief town. The most conspicuous rocks are lavas and volcanic ash, and the highest of the numerous volcanic peaks is Gran Pico, in Pico, which rises to over 7,613 feet. Very remarkable are the great craters, with parasitic cones and lakes, to which the name of " caldeira " is given in the islands. The finest example is the " Lake of the Seven Cities," in St. Michaels, a great hollow containing four lake basins. Though many of the



AVENIDA 25 DE JULIO, PRINCIPAL STREET IN SANTA CRUZ, TENERIFFE, CAPITAL OF THE CANARIES

Santa Cruz, the capital of Teneriffe and also of the Canary Islands, has considerable importance as a seaport, coaling station and commercial centre, and its harbour, guarded by the forts of the port, is well protected from the sea by a modern mole. The town occupies a small plain, surrounded by volcanic rocks, with little vegetation in the vicinity, and its water-supply from the interior highlands is furnished by a long aqueduct. The attractive and well-ordered streets are lined with houses built in the Spanish style with flat roofs and central patios, and there are several imposing public buildings

volcanic rocks date from the Tertiary era, minor eruptions still occur, some being submarine.

Owing to the fairly heavy rainfall, vegetation is luxuriant and a great variety of economic plants can be grown. But the density of population is much less than in Madeira (about 263 to the square mile), and the division of the land among large proprietors appears to check production. Oranges, pine-apples and the temperate cereals are all grown; wine is made, but the great resource of the island consists in the herds of cattle, butter and cheese being produced. Such a mingling of the products of various climatic zones is very characteristic of oceanic islands, and in the case of these subtropical groups one has to remember the bold relief of all, for the climate is naturally much modified by elevation.

Flores, the most westerly of the islands, is an important calling-station for ships, as is also Fayal, and the town of Ponta Delgada on St. Michaels.

The Madeira archipelago consists of the island of that name, the adjacent island of Porto Santo, and some uninhabited islets. In Madeira Pico Ruivo, the "red peak," rises to over 6,057 feet, and the island is everywhere mountainous, with deep ravines and old lava-flows jutting out seaward, and forming sheltered havens for fishing boats. Though it was formerly forested, as in the Canaries the original woods have largely disappeared save on the upper slopes, where chestnuts and Canary laurel still occur abundantly. The indigenous flora has been supplemented by numbers of introduced shrubs and trees which give an aspect of great luxuriance. An excellent wine is made, but a vine disease led to an attempt to introduce sugar-cane, for which the climate proved too dry. Cereals are largely grown. Funchal, the capital, is an important coaling station, and many tourists visit the island. The population is dense, about 572 to the square mile, and a number of minor, largely domestic, industries are carried on, including the manufacture of articles in cane, such as baskets, chairs, etc., and in inlaid wood, as well as of embroideries and straw hats. In its sunshine, beautiful flowering trees, and in the poverty and low standard of life of its numerous inhabitants



R M S P Co

MOST NOTED BUILDING OF LAS PALMAS

This cathedral, a lofty massive structure dating from the sixteenth century, is the dominating architectural feature of Las Palmas, situated on the north-east coast of the island of Grand Canary



John Bushby

OLD CAMPANILE OF TENERIFFE'S CAPITAL

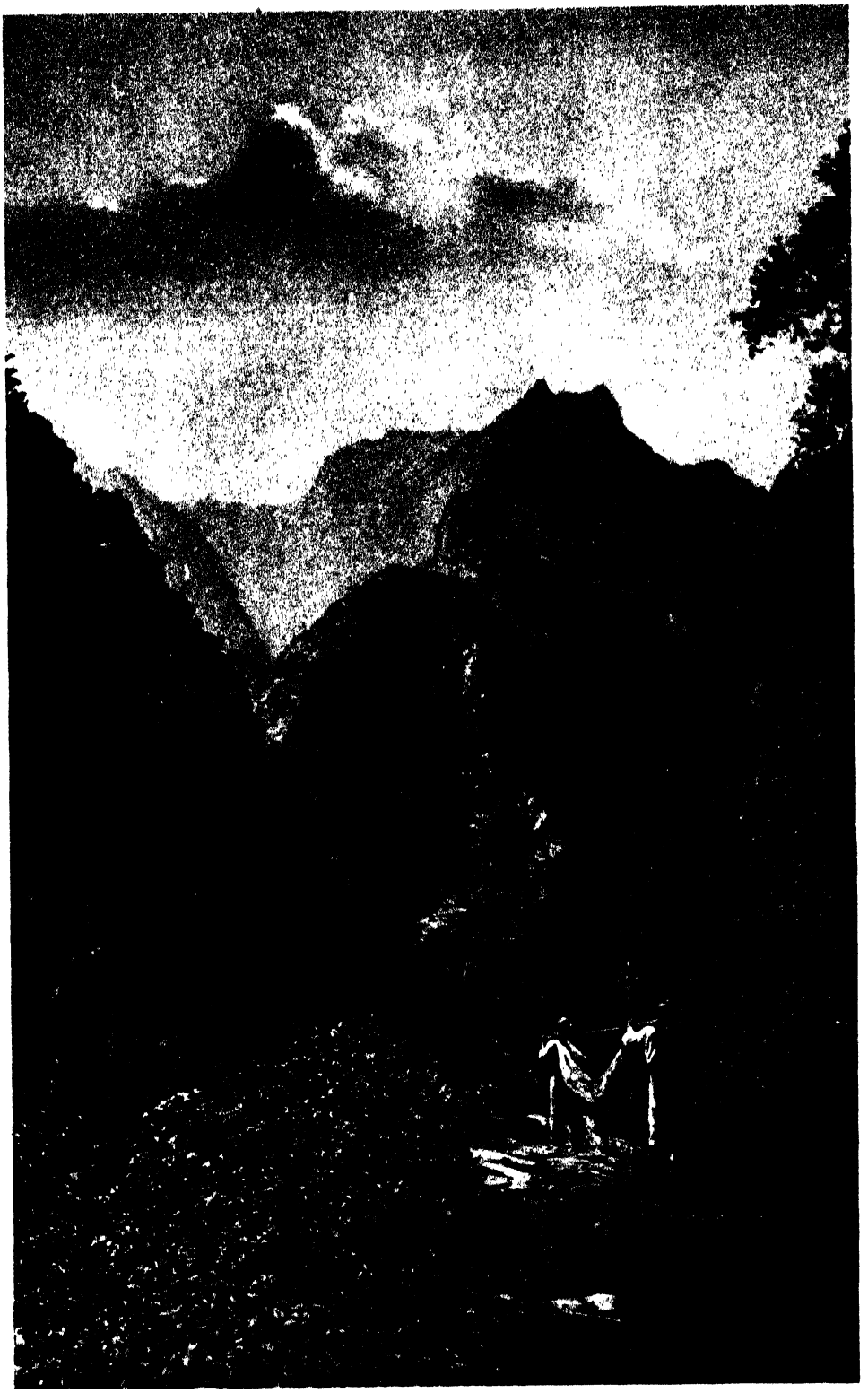
The term campanile was originally applied to a bell tower in Italy, and came into use there with the introduction of bells about the beginning of the ninth century. This lofty belfry dominates a narrow street of Santa Cruz in Teneriffe

Madeira recalls some of the islands of the Mediterranean Sea.

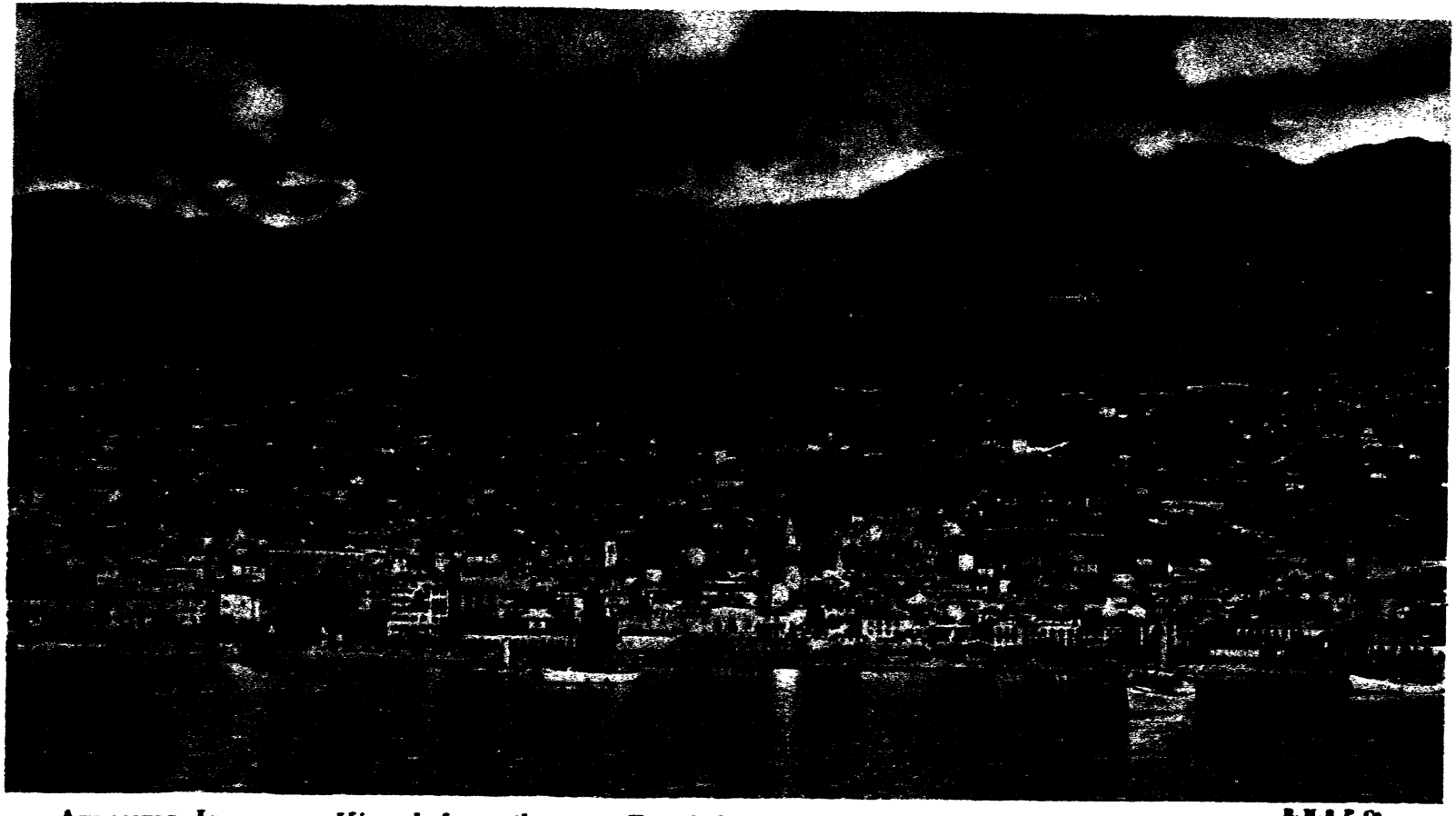
The Canary group, which belongs to Spain, contains seven chief islands, arranged in an eastern and a western group. The latter includes Teneriffe (capital Santa Cruz) and Grand Canary (capital Las Palmas, with the port of La Luz, an important coaling station). The small island of Ferro (Hierro) is interesting because after the discovery of America it was regarded as marking the dividing line between the eastern and western worlds. The meridian of Ferro, assumed (not quite accurately) to be 20° west of Paris, was for long used as the zero of longitude, and still appears on some maps instead of that of Greenwich. The eastern islands of Lanzarote and Fuerteventura are almost Saharan in character. Thus the camel is the beast of burden, instead of the mule; few trees occur, but include desert forms like euphorbias and tamarisks; dates, figs and pomegranates are grown but there is little cultivation. Rainfall is greater and vegetation more luxuriant to the west, and the well-known Peak of Teneriffe, El Pico de Teyde, rises to 12,100 feet, so that climate and vegetation naturally vary with altitude. Even in these western islands, however, water is difficult to obtain and the way in which the introduced American prickly pear (opuntia) has run wild illustrates the prevailing aridity.

The plants lodge the cochineal insect, and though the cochineal trade has suffered very severely from the competition of aniline dyes, the fact that the host plant will grow without care in the most barren soil, and that the insects are easily collected, is sufficient to account for its persistence on a small scale. Many kinds of fruits, including oranges and bananas, are grown, together with cereals, tomatoes and potatoes; wine is made, and goats are reared. The barren nature of much of the surface is reflected in the sparse population which reaches only 169 per square mile.

The Bermudas are British, and their position gives them much strategic importance despite their very small size. Thus the intricate channels which lead into the central lagoon are fortified; there is a garrison and the group forms a naval station for the North American

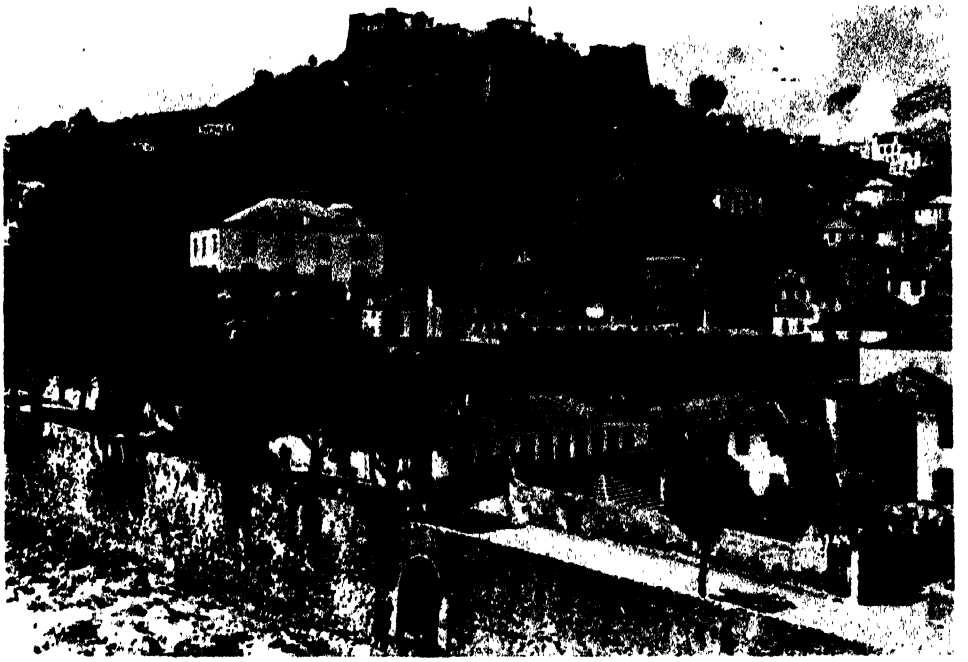


ATLANTIC ISLANDS. *Towering to a height of 7,613 feet, the Gran Pico, in Pico, Azores, dominates a landscape lovely with luxuriant vegetation*



R. M. S. P. Co.

ATLANTIC ISLANDS. *Viewed from the sea, Funchal, capital of Madeira, is enchanting. Gleaming white buildings set in tropical verdure line the shore and stud the slopes of the surrounding cloud-capped mountains*



R. M. S. P. Co.

From the seventeenth century walls of Pico Fort exquisite views are obtained over the terraced town and azure bay of Funchal, in Madeira



R. M. S. P. Co.

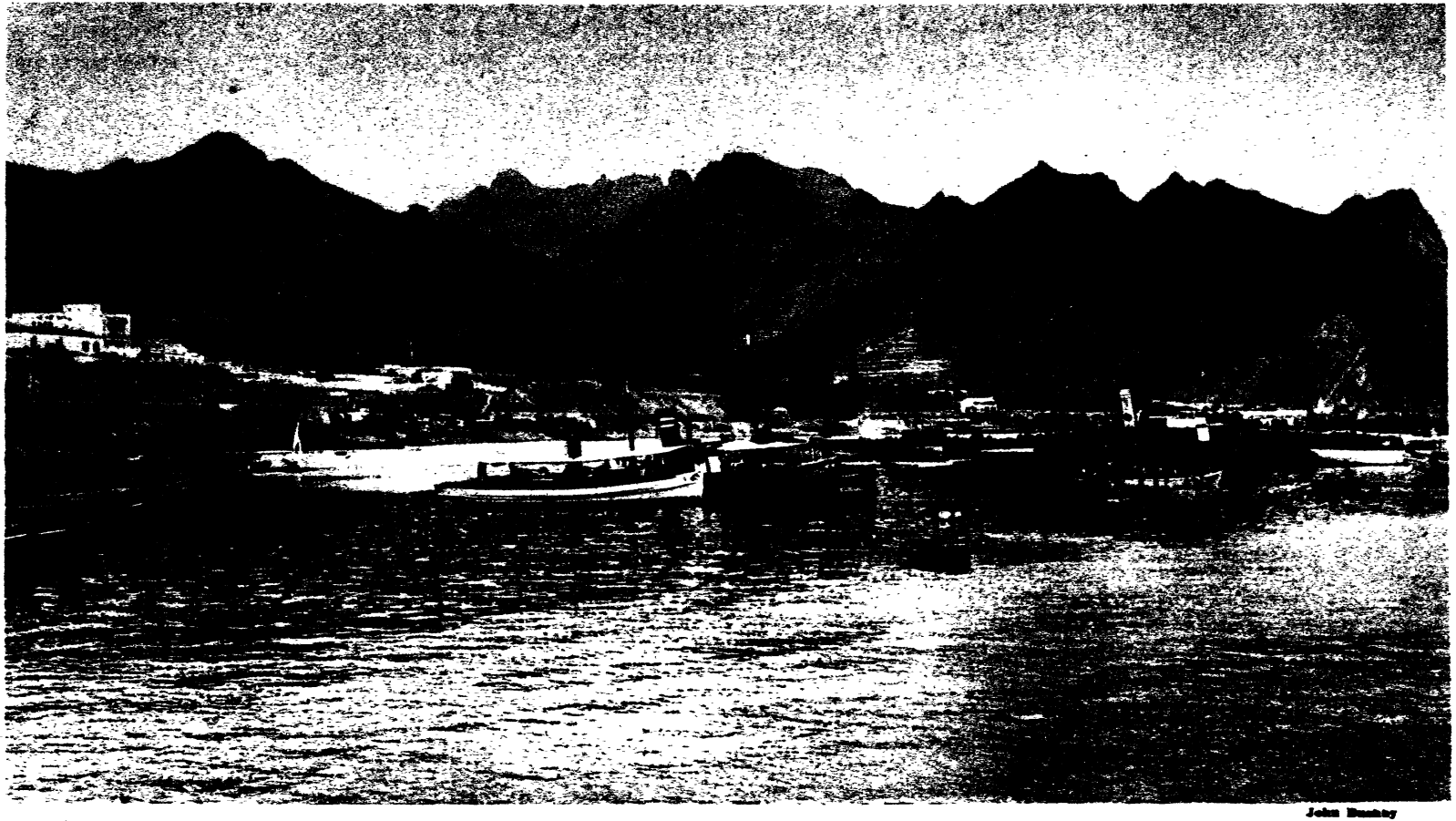
ATLANTIC ISLANDS. *One of Madeira's beauty spots is Camara de Lobos, a fishing town at the foot of a sheer cliff five miles west of Funchal*



ATLANTIC ISLANDS. *Nature has carried what may be termed seascape gardening to perfection in the coral islets that fringe the Bermudas*

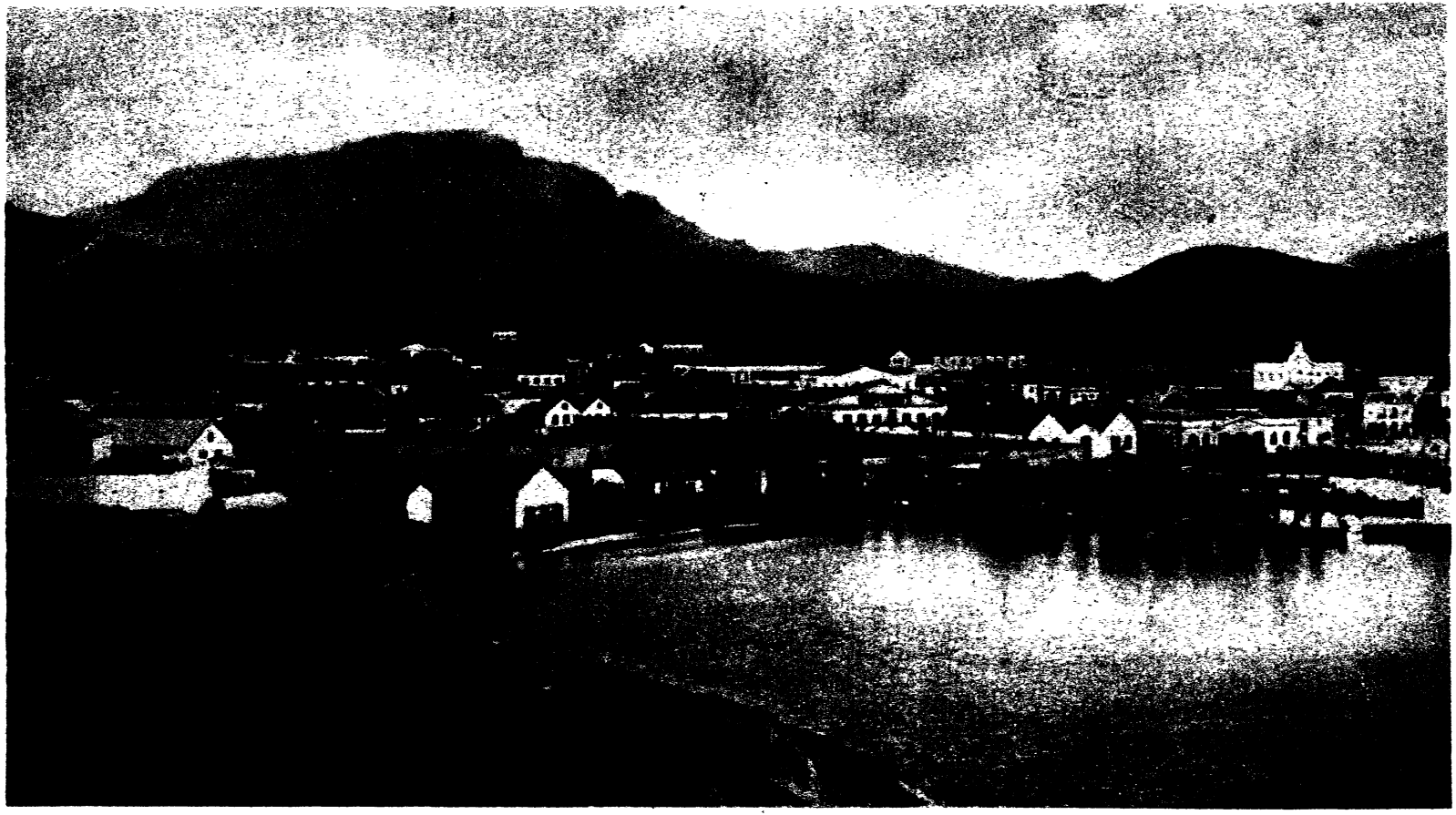


Perpetual verdure clothes the ridges and atolls, which are separated by winding waterways making up a vista of incomparable beauty

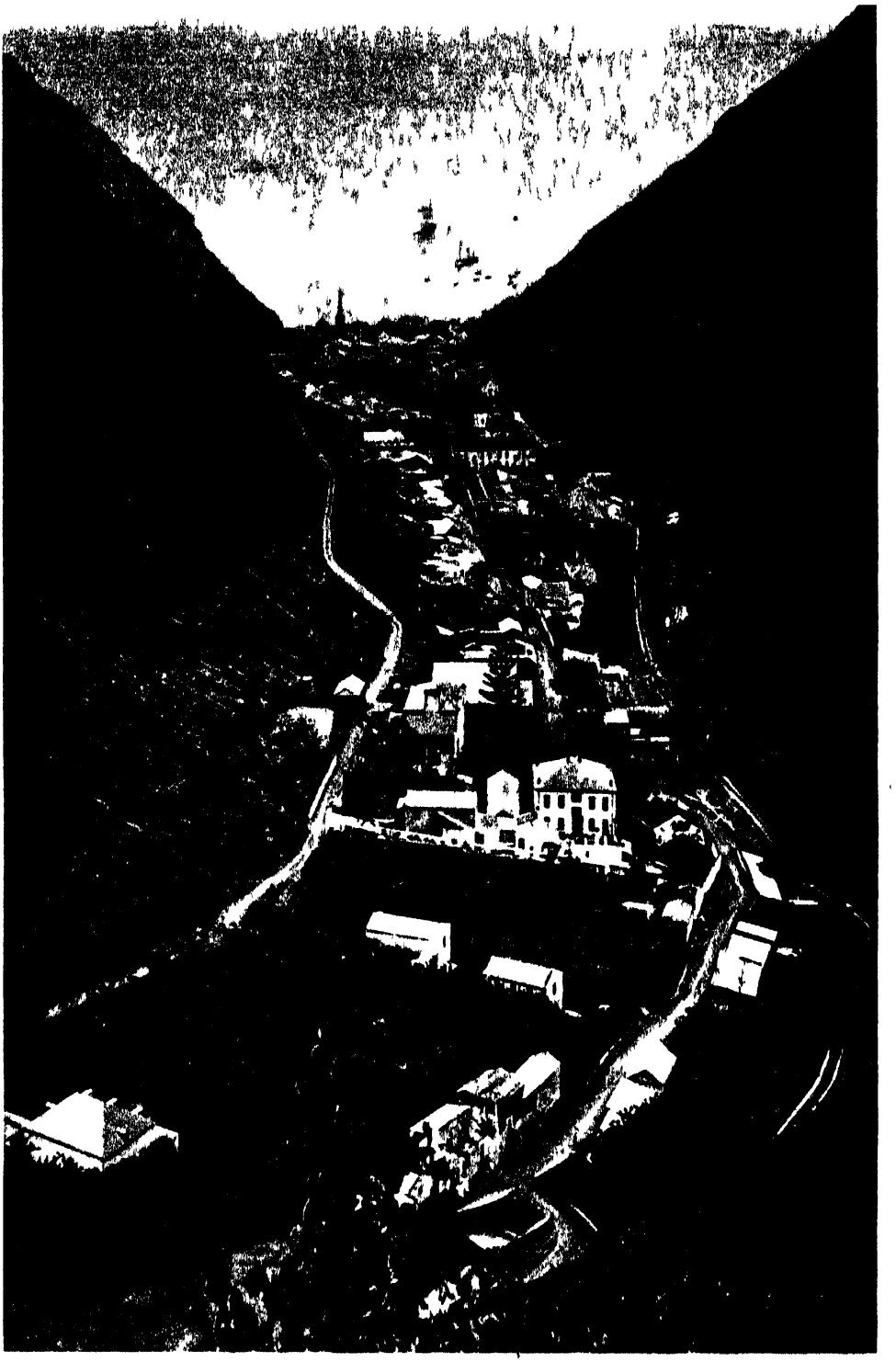


John Hunkey

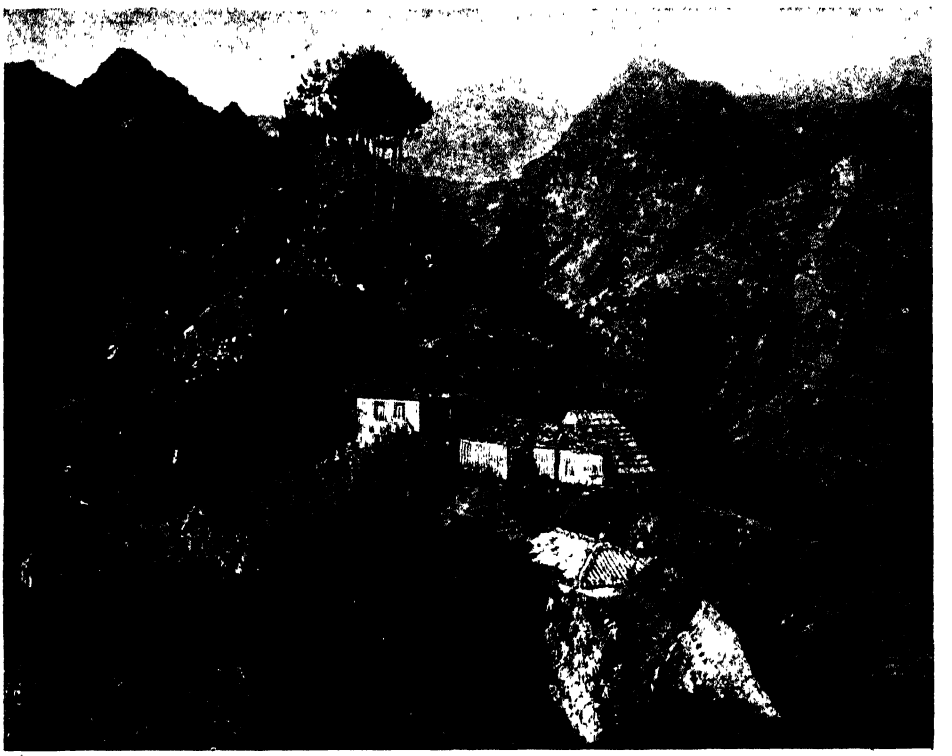
ATLANTIC ISLANDS. *Jagged volcano peaks stabbing the sky, their lower slopes terraced and rich with vineyards and fruitful gardens, form the background to Santa Cruz, capital of Teneriffe, as seen from the sea*



ATLANTIC ISLANDS. *Drought is the curse of the Cape Verde archipelago, all the islands of which are marked by the aridity shown in this photograph of Porto Grande, St. Vincent, with Monte Verde rising behind*



ATLANTIC ISLANDS. *Capital of lonely St. Helena, Jamestown stagnates now that it is no longer a port of call for all eastward-bound vessels*



PICTURESQUE HOMESTEAD AMONG MADEIRA'S PINE-CLAD PEAKS

Besides its advantageous situation at the crossing of the great transatlantic routes, Madeira owes much of its prosperity to its climate, which is mild and salubrious. The vegetation is rich and varied, and a strange mixture of genera is to be found among the trees. Much of the indigenous forest has been destroyed, but plants and coniferous trees of foreign origin have spread rapidly

squadron. There are no streams and the water supply presents a difficulty, the inhabitants being mostly dependent upon the fairly copious rainfall, rain-water being stored in cisterns. Market-gardening, or what the Americans call "truck-farming," is the main occupation, early vegetables and flowers being grown, especially for the New York market, which is easily reached.

Though potatoes, onions and lilies form the chief products, the climate permits of the cultivation of a great variety of plants, including that which yields arrowroot. Two-thirds of the inhabitants are negroes, a fact which may be associated with the warm, moist climate, due largely to the influence of the Gulf Stream. This current also accounts for corals growing farther north here than anywhere else. In winter and spring the Bermudas are much frequented by American tourists, but owing to the damp heat the summers are trying. The tropical islands include the Cape Verde Islands in the North Atlantic which belong to Portugal, and Ascension and St. Helena in the south, the latter, with Tristan da Cunha, being British.

The Cape Verde archipelago lies between 12° and 15° north lat., some 400 miles from the coast of Africa. It consists of fourteen islands and islets, of which the most important is São Thiago (Santiago), with Praia, the capital. São Vicente (St. Vincent), with the fine harbour of Porto Grande, is an important coaling station. The island of Fogo contains a volcanic peak rising to nearly 10,000 feet, which was active during the nineteenth century, and the island of Brava also has active craters. The climate is hot and is regarded as unhealthy. There is a small annual but a marked daily range of temperature, and the rainy season,



MADEIRA WINE ON THE ROAD FROM VINEYARD TO STOREHOUSE

On such primitive sledges many a cumbersome hogshead of Madeira grape-juice is drawn for miles over the rough roads by oxen. Madeira has long been noted for the famous wine which takes its name from the island, and the culture of the vine, introduced from Crete, dates from the fifteenth century. The wine in most common use is Verdelho, made from the white grapes of that name



PROLIFIC SPECIES OF THE FICUS FAMILY ON TENERIFFE ISLAND

The tropics and the temperate zone are equally well represented in the Canary archipelago, and the varied flora comprises the date and banana palm, sugar-cane, coffee and orange tree, the agave and cactus, the laurel pine, heather, broom and lichen. The fig, though a speciality of Hierro, grows profusely on the other islands. Note the clusters of edible fruit springing from the bare trunk



CUSTOMARY CARRIAGE AND PAIR OF MADEIRA'S CAPITAL

The streets in Funchal, which are paved with cobblestones, have been much improved in recent times, and are generally maintained in good order. They are steep and narrow and are lighted by electricity. As there is little or no wheeled traffic, bullock carts on runners, sledges and portable hammocks form the usual means of transit. Throughout the island oxen are used as draught animals



ARABLE LAND ARTIFICIALLY FORMED ON THE MOUNTAIN SIDE

The soil of Madeira is fertile, but suffers from deficiency of water, and its cultivation entails an incredible expenditure of time and labour. It is naturally most productive on the lower levels, where it is chiefly in the hands of large proprietors who employ hired labour. Smallholdings on the higher ground usually comprise artificially formed terrace land supported by stone walls



R M S P Co

COMMERCIAL CORNER OF A STREET IN FUNCHAL, CAPITAL AND CHIEF SEAPORT OF MADEIRA

Funchal stands on Funchal Bay, and owing to its salubrious climate has long been a popular winter health resort The encircling hills, on which the principal residents have their country houses, make a very beautiful setting for the town, which retains many quaint old-world institutions. Funchal has several interesting public buildings, and there is a large trade in wine and coal Nevertheless, as a port it is still imperfect, being little more than an open roadstead about five miles wide, with a central stone pier for boats and launches, as the sea is too deep here to allow of the construction of a good harbour



TREADING THE GRAIN AMID THE PICTURESQUE SCENERY OF MADEIRA

The north part of the island of Madeira is extremely fertile, and while primitive land implements are used, all cereals and most European vegetables are successfully grown, and fruits of many varieties are cultivated abundantly. All agriculture depends very largely on irrigation, and as little or no rain falls during the summer months, reservoirs are constructed on the higher elevations

which lasts from August to October, is especially trying. The total rainfall is small and highly variable from year to year, so that the islands suffer much from drought. The population is very mixed, including many negroes and half-breeds. A great number of economic plants can be cultivated, including sugar-cane, the vine, the castor-oil plant, tobacco, maize and rice, but production is not great. The climate makes it impossible to develop the islands as a health resort and their chief economic importance is due to their position on ocean routes.

Ascension, which lies in lat. 8° south, and St. Helena in 16° south, are both definitely tropical so far as latitude is concerned, but their oceanic position and small size give them a modified tropical climate, and so far as their somewhat limited products are concerned they are warm temperate rather than tropical. Until November, 1922, Ascension was under the British Admiralty, had a small garrison and was chiefly used as a sanatorium for the crews of men-of-war who had suffered in health during service in tropical latitudes. In that month it was annexed to St. Helena, and transferred to the Colonial Office. The garrison was later withdrawn.

The island consists entirely of extinct volcanic cones, rising in Green Mountain to a height of nearly 3,000 feet. It is continuously exposed to the south-east trade winds, which accounts for its healthy character, though temperatures are high. There is little rainfall, especially on the lower grounds, and not much cultivation can be carried on over the parched surface. Small amounts of vegetables were grown for

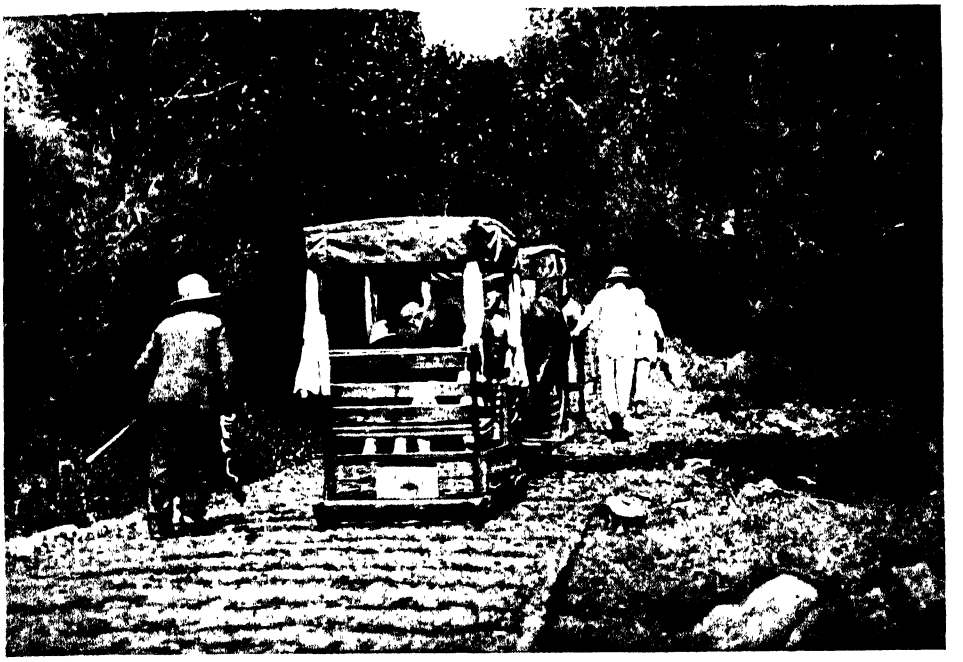
the use of the garrison, but the chief product is turtles, the animals swarming in the surrounding seas.

St. Helena lies about 800 miles south-east of Ascension and has a similar but much cooler and cloudier climate, again remarkably healthy for a tropical island. It consists of a much denuded, extinct volcanic cone, rising in Diana's Peak to a height of 2,700 feet and bounded by precipitous cliffs. Springs are abundant, and the surface was originally forested. But ruthless cutting, combined with the destruction wrought by (introduced) goats has led both to the disappearance of most of the indigenous vegetation and to great soil-wastage from the deforested slopes. The island was at one time of great importance as a



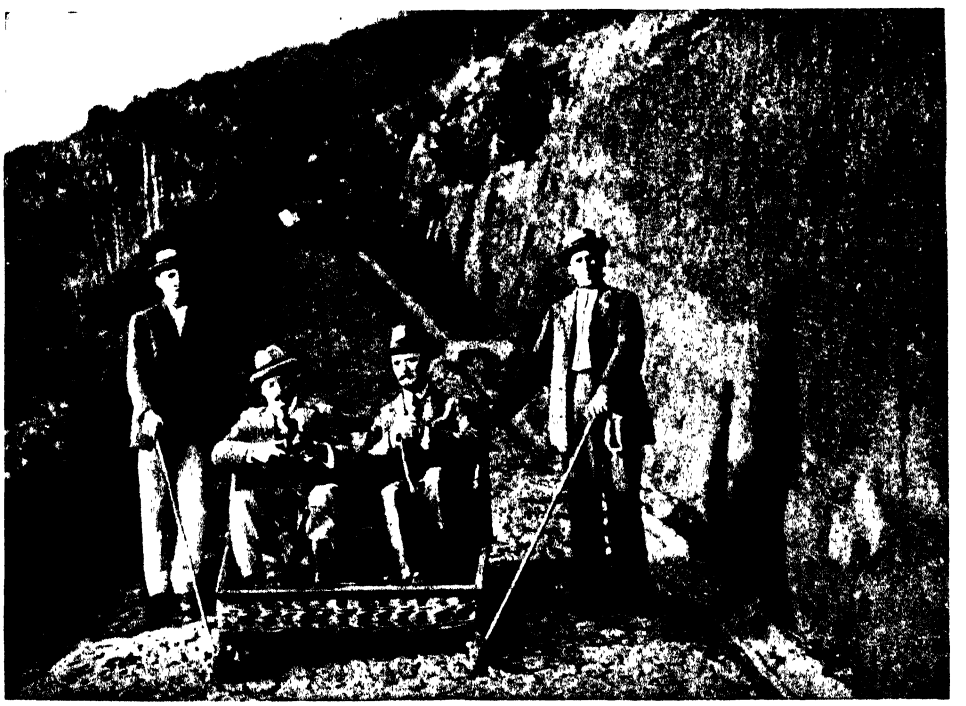
PRECIPITOUS CLIFFS OF MADEIRA'S ROUGH CENTRAL RANGE

The Portuguese island of Madeira, a place of surpassing beauty, lies off the coast of north-west Africa. The central part is a large plateau or amphitheatre, the lateral ridges of which, forming deep labyrinthine gorges, rise to lofty fantastic peaks. The white buildings on the lower hill to the right impart some faint idea of the immensity of the heights overshadowing them



MADEIRA "CARRO" ON A COBBLED CORDUROY ROAD

The rough highland roads of Madeira can only be negotiated on foot or, as seen above, by the "carro," a quaint kind of covered conveyance moving on runners and drawn by oxen and mules, the latter animals being agile and singularly sagacious in traversing dangerous ground. The drivers carry lubricating rags with which they occasionally grease the runners of the sledges



METHOD OF DESCENT FROM MADEIRA'S FAMOUS RIBEIRO FRIO

The island of Madeira still loyally clings to old-fashioned methods of transport, and in 1917 possessed only two macadamised roads on which motors could travel. The descent of the road from the Ribeiro Frio, or "Cold River," is made by sledge directed by native guides. Here two Portuguese are seen using ropes to steer the "carro" round the corners. The men return with the vehicle on their backs



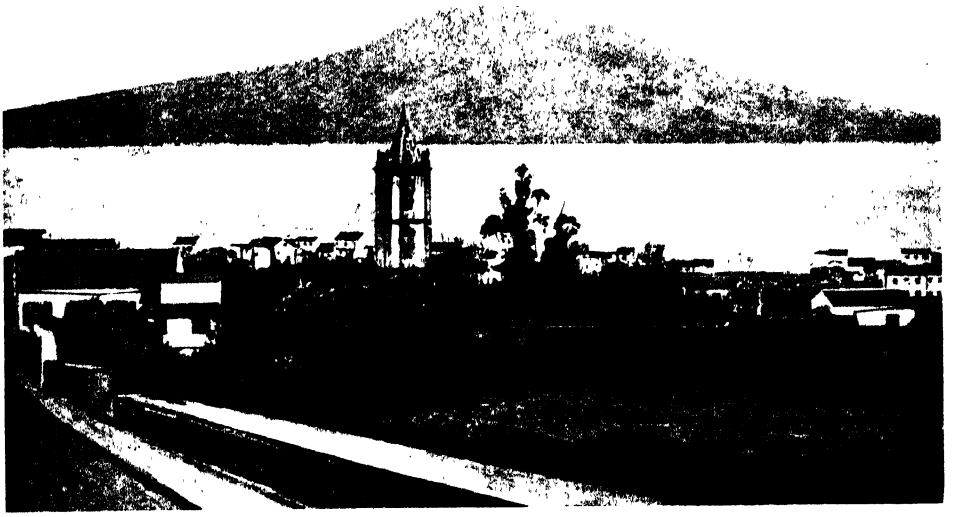
CHIEF PORT OF THE LARGEST ISLAND OF THE AZORES GROUP

Ponta Delgada is the chief town of St. Michaels, or San Miguel, island, the largest and most important of the Azores. Its secure harbour, protected by a breakwater some 3,000 feet in length, possesses accommodation for several large ocean-going steamers and many small vessels. The town has tobacco and sugar factories and a brewery, and manufactures cotton fabrics, pottery and straw hats



SHIPS IN ANCHORAGE IN THE SHELTERED WATERS OF ANGRA BAY

Angra, in the bay of the same name, is the capital of Terceira the most central island of the Azores. It is a fortified seaport, with three moles and a sheltered harbour, being exposed to gales only from the south-west. The island, which is fertile, has two large bays, Angra Bay and Praia Bay



DISTANT VIEW OF THE VOLCANIC SUMMIT OF PICO ISLAND

The Azores belong to and form an integral part of Portugal, from which they are about 830 miles distant to the west. Pico is separated from Fayal island by a strait less than four miles wide, has an area of 176 square miles, and takes its name from the volcano, Gran Pico, 7,613 feet high, the culminating point of the Azores rising in the south-west of the island



FAMOUS HOT SULPHUR SPRINGS AT THE THERMAL STATION OF FURNAS

The islands of the Azores group contain many hot mineral springs, including those of Furnas, in St. Michaels, which have proved beneficial to patients suffering from rheumatism or from skin and throat diseases The dry climate of Santa Maria has health-giving qualities. Pico is especially suitable for consumptives, while Fayal, though damper than Pico, is free from complaints that have a climatic origin



ON THE ROAD TO ST. MICHAELS' FAMED LAKE OF THE SEVEN CITIES

Largest of the Azores, St. Michaels is representative of all the widely separated islands of that archipelago in respect alike of its volcanic character, its generally uneven, ravine-scarred surface and the nature of its rich flora. Its most notable feature is the caldeira, or cauldron, called the Lake of Seven Cities, a great crater near the west coast containing four lake basins



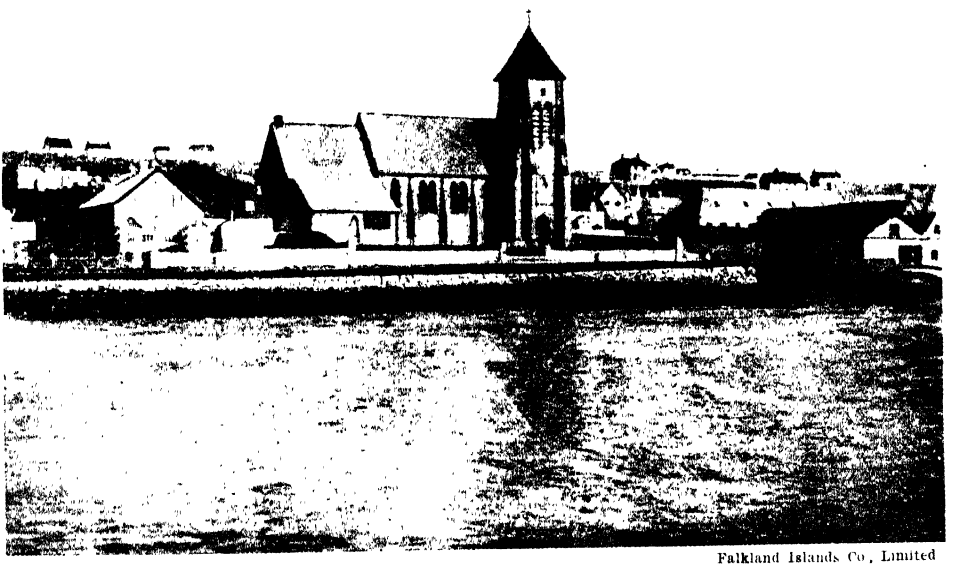
BIRD LIFE ON THE SANDY SHORES OF ASCENSION ISLAND

The small island of Ascension, with an area of 34 square miles, is a British possession in the South Atlantic Ocean. Formerly under the control of the British Admiralty, it was transferred to the Colonial Office in November, 1922. Feathered game abounds, and the coasts are frequented by numberless seabirds, known as "wideawakes," whose eggs are collected from the dunes and rocks for food



COCOA CULTIVATION ON THE VOLCANIC ISLAND OF ST. THOMAS

The volcanic island of St. Thomas, or in its native form San Thomé, is a Portuguese possession, lying some 170 miles off the west coast of Africa in the Gulf of Guinea. It possesses a luxuriant vegetation, and the chief products are cocoa, coffee and rubber. Here on a drying floor the cocoa seeds, after extraction from the pods, have been spread to dry for export



Falkland Islands Co., Limited

CATHEDRAL OF THE BISHOPRIC OF THE FALKLAND ISLES

Stanley was established as the capital of the British Crown Colony of the Falkland Islands in 1844. Situated at the north-east of East Falkland island, it consists of two or three streets of wood and iron houses, with cross-roads extending along the southern shore of Stanley Harbour. Christchurch Cathedral is a rather imposing structure of stone with brick buttresses



Falkland Islands Co., Ltd.

WHERE SKILFUL NAVIGATION IS NEEDED: THE NARROWS OUTSIDE STANLEY HARBOUR, EAST FALKLAND ISLAND

Of the numerous landlocked harbours afforded by the deeply indented coasts of the Falklands the most frequented is Stanley Harbour, in East Falkland island. This is virtually a large natural dock, three miles long by about a third of a mile broad, sheltered from all prevailing winds and with good anchorage, rather restricted, however, for large vessels. Unfortunately the entrance to the harbour, through the Narrows, is difficult and dangerous, so much so that large ships never attempt to pass into or out of the harbour at night. Off East Falkland took place the stirring naval action of December 8, 1914



LONGWOOD: ISLAND HOME OF AN IMPERIAL EXILE

In this unpretentious dwelling in St. Helena, Napoleon I. passed the years of his exile until his death on May 5, 1821. The house is situated three miles and a half south-east of Jamestown, was specially built for the emperor, and derives its name from the Longwood Plains in the north-east of the island. It was presented by Queen Victoria to the Emperor Napoleon III in 1858



ST. HELENA'S FROWNING PORTAL VIEWED FROM ST. JAMES'S BAY

Precipitous cliffs line the coasts of St. Helena, the only practicable landing-place being at the head of St. James's Bay. Here Jamestown, seen in another photograph on page 388, stands at the foot of Ladder Hill, 600 feet in height and extending a short distance along the narrow ravine that runs for a mile and a half inland, one of the many water-cut gorges of the island



ERSTWHILE RESTING-PLACE OF NAPOLEON BONAPARTE

St. Helena, of Napoleonic fame, lies in the Atlantic 1,200 miles from the nearest point of Africa, and still treasures the white tomb which encased the mortal remains of the dead emperor from 1821 until 1840, when they were removed to the magnificent tomb in the Hôtel des Invalides, Paris. The original forest has disappeared, but fruit and eucalyptus trees, cedars and Norfolk pines grow well



ST. GEORGE ON ITS FINE HARBOUR WITH ANCHORAGE FOR A FLEET

Standing on an island of the same name St. George is one of the two towns in the Bermudas, and renowned for its fine, almost landlocked harbour, which can accommodate the largest fleet. It contains a naval dockyard and is a coaling station for the Atlantic Fleet. The islands have an area of nineteen square miles, and number about 360, of which 20 are inhabited

calling station for ships using the Cape route to India ; its present insignificance from this point of view may be realized when it is stated that in 1921 only 26 ships touched here. The inhabitants, who number about 3,700, are poverty-stricken, and present a great problem.

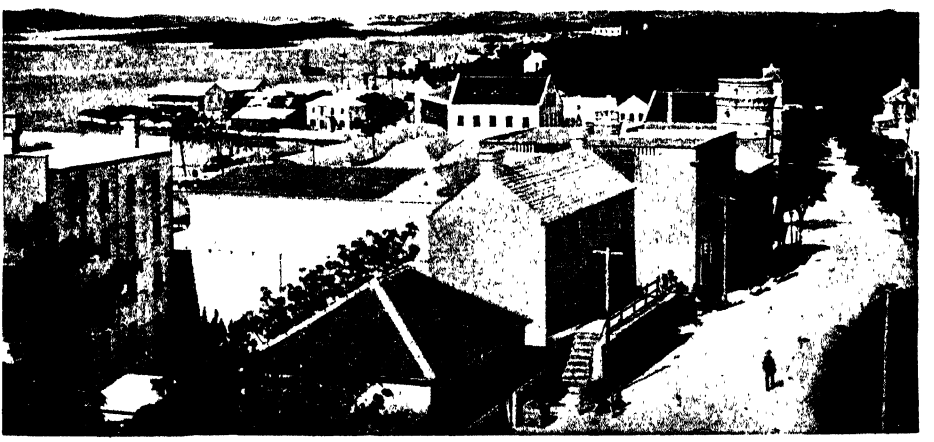
Many efforts have been made to introduce crop plants which would yield products sufficiently valuable to stand the cost of transport to a distant market; but without great success. Cinchona was tried at one time but appears to have failed. Though a variety of fruits, including, it is said, oranges, bananas, dates and figs, can be made to grow, insect pests have practically destroyed the orchards and fruit-groves of the island. New Zealand flax (phormium) is grown to some extent and there are several mills for dealing with the product. The women have been taught lace-making, but the industry has not attained any importance.

St. Helena is an Admiralty coaling station and also a telegraph station.



CORAL CUTTING ON ONE OF BERMUDAS' ROADS

This cutting through solid coral emphasises the formation of the islands which mark the northern limit of the activities of the coral polyp. The coral islets are well shown in a photograph on pages 384 and 385



OVERLOOKING THE WATERSIDE AT HAMILTON, CAPITAL OF BERMUDAS

Hamilton, in Main island, is built on the shore of Great Sound, whose waters are studded with islands. There is a brisk trade with New York, from which the archipelago is about 680 miles distant, in tomatoes, potatoes, and arrowroot. The islands are of limestone and red sand, with coral reefs. There are no streams or wells, rain-water being collected in tanks. The climate is very healthy

The subtropical island of Tristan da Cunha, in lat. 37° south, presents similar problems to St. Helena, but in an aggravated form. It is exposed to westerly winds throughout the year, and has a cool, most and equable climate, with far less summer heat than the Azores, which lie in the same latitude in the northern hemisphere. Its central volcanic peak rises to 8,500 feet, and is snow-capped for much of the year, while the steep cliffs and the rollers make approach from the sea difficult. The island is only visited occasionally by sailing ships. Introduced rats and mice are a great pest, and make grain cultivation impossible. The inhabitants, about 100 in number, rear cattle and grow potatoes and some temperate vegetables.

Of the temperate islands, the Faroes and the Falkland Islands resemble each other in that sheep form the main basis of the economic life of the inhabitants in both cases, helped out by the fisheries. Despite the difference in latitude also there is much similarity of climate, both having mild winters and cool summers and being moist and windy.

The Faroes belong to Denmark, though the inhabitants are mostly of Norwegian descent. They consist of about twenty islands, of which seventeen are inhabited, and the contrast, so far as density of population is concerned, with the Falklands is very striking. The latter consist of two large and about 100 small islands and have a total land area of some 6,300 square miles, with a population of only about 3,300. But the Faroes, with the much smaller area of 540 square miles, lodge nearly 21,400 people, all in a condition of tolerable prosperity.

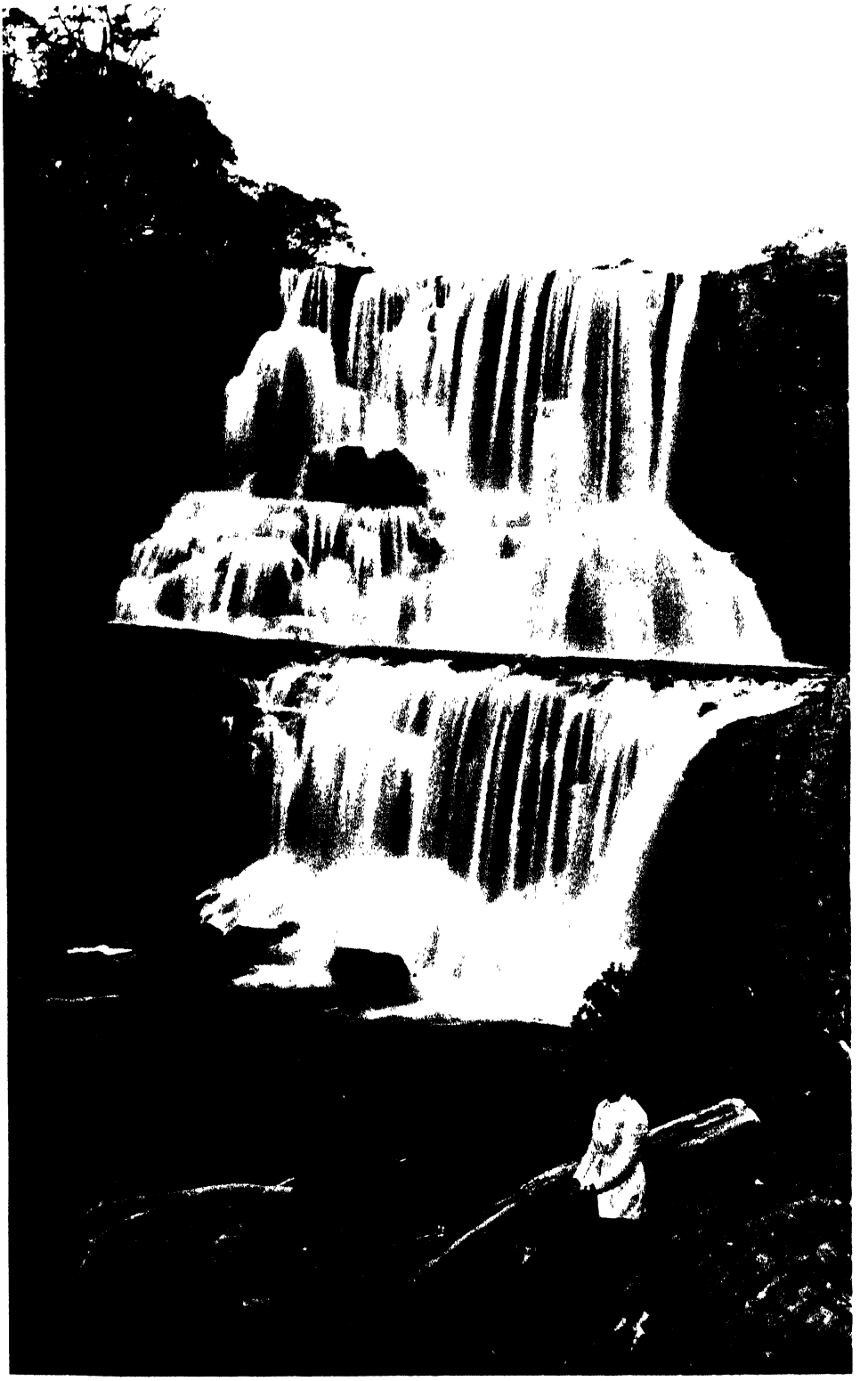
The scenery in the Faroes is very striking, the islands being characterised by their rocky scarps and magnificent sea-cliffs. On these myriads of sea-birds breed, forming a valuable accessory food-supply to the islanders. Much fishing is also carried on, and cattle are kept on a small scale. A little barley is raised, but potatoes form a more important crop, while hay is cultivated with care as winter feed for the cattle. Thorshavn, in Strömö, the largest island, is the capital and chief town.

The Falklands form a British Crown Colony to which South Georgia, the South Shetlands and South Orkneys are attached. The scenery is hilly and rugged, with large expanses of moorland. As in the Faroes, peat is abundant and forms the only fuel available as trees do not grow. In 1920 there were 200 sheep per head of the population and wool is the chief export, followed by the produce of the whale fishery. There is regular communication with Great Britain and the islands are of some importance as victualling stations for ships making the passage round Cape Horn. Stanley, on East Falkland, is the only town.

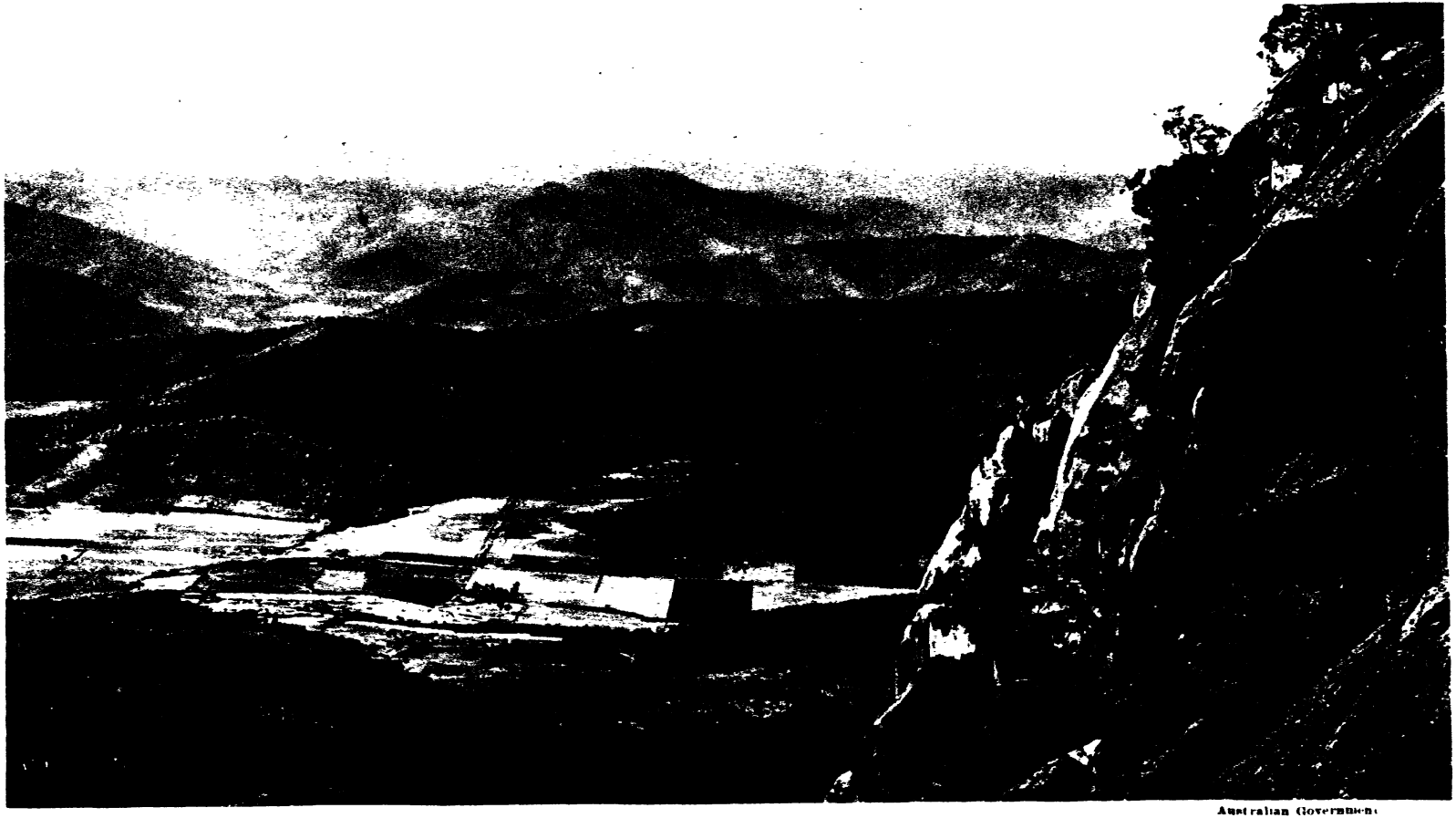
ATLANTIC ISLANDS: GEOGRAPHICAL SUMMARY

Natural Divisions, etc. Atlantic Ocean, a modern extension of the ancient Tethys, or Middle Ocean, over the foundered portions of the ancient continents of Atlantis in the north, and Gondwanaland in the south. Hence the coast-line crosses the grain of the modern continents, and there are no festoons of islands as in the Pacific. The larger islands are the subjects of separate articles, e.g. Iceland. The islands are classified by origin, as coralline, Bermudas; or volcanic, the Azores, Ascension, etc.; by location, as continental, the Falklands; or oceanic, St. Helena, Faroes, etc.; by climate, as temperate, e.g. Falklands; subtropical, e.g. Canaries, tropical, e.g. C. Verde group; by use, as sanatoria, e.g. Madeira; market gardens, e.g. Bermudas; naval stations, e.g. St. Helena; whaling stations, e.g. Falklands. For Falkland Dependencies, see Antarctica.

Outlook. Rockall, the Faroes, Gough Island, Fernando de Noronha, and Trinidad Island are isolated and of little use. St. Helena and Ascension have small prospects except as possible future aerodromes. The Falklands will depend on the development of Antarctic whaling. The Bermudas, Azores, Madeira, Canary, and C. Verde groups all lie in one or other of the sea-lanes, and will profit from their fruits and vegetables and as health resorts.



AUSTRALIA. *Majestic falls add to the rugged beauty amid which stands the town of Armidale on the New England plateau, New South Wales*



AUSTRALIA. *The Buffalo Mountains, a spur of the Dividing Range running east and west across the length of Victoria, dominate magnificent scenery and form one of the loveliest sections of the Australian Alps*



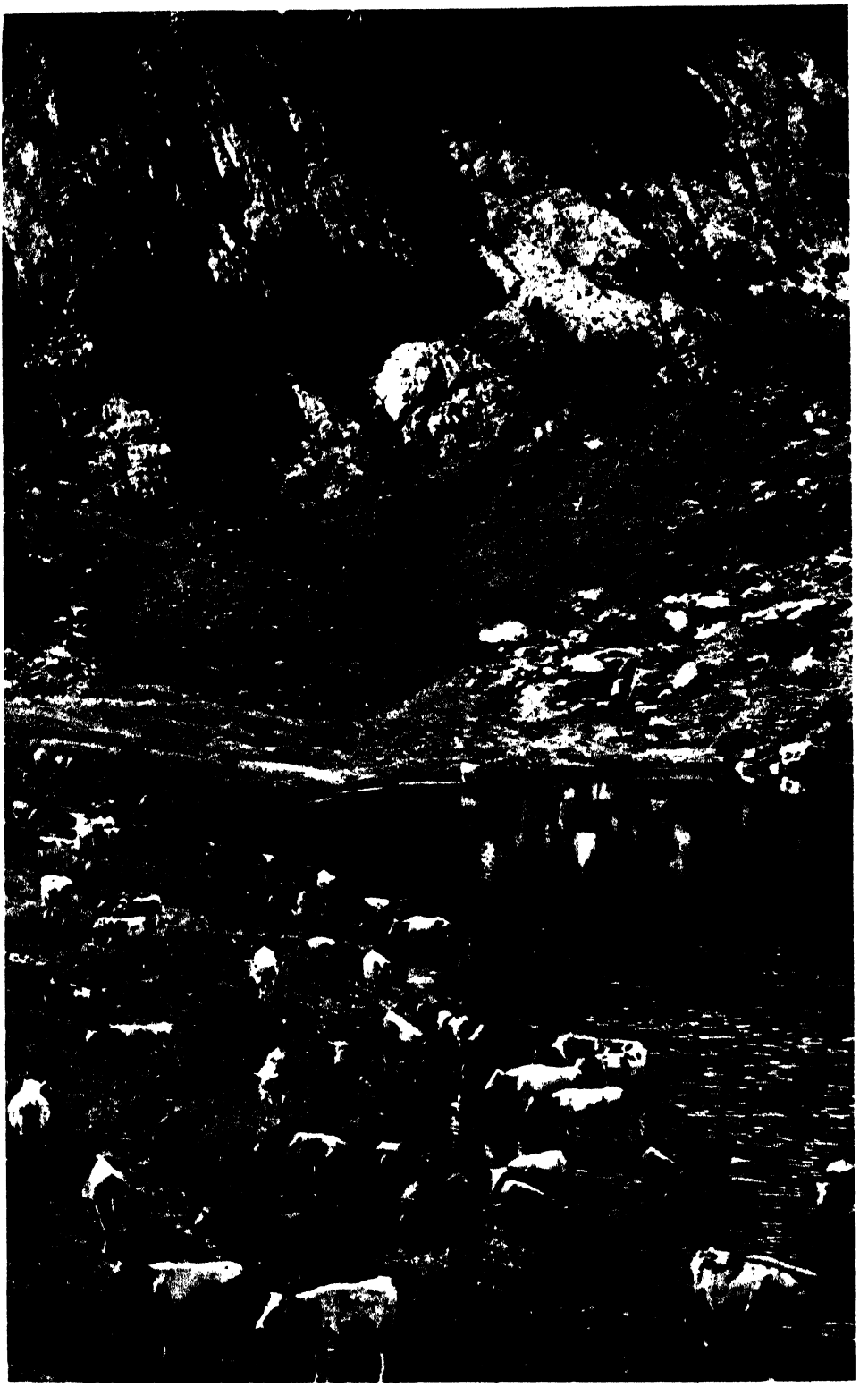
Australian Government

AUSTRALIA. *Delightful panoramic views of the surrounding country, beautified by nature with a wealth of luxuriant vegetation, are obtained from the Mount Lofty ranges of the South Australian Highlands*

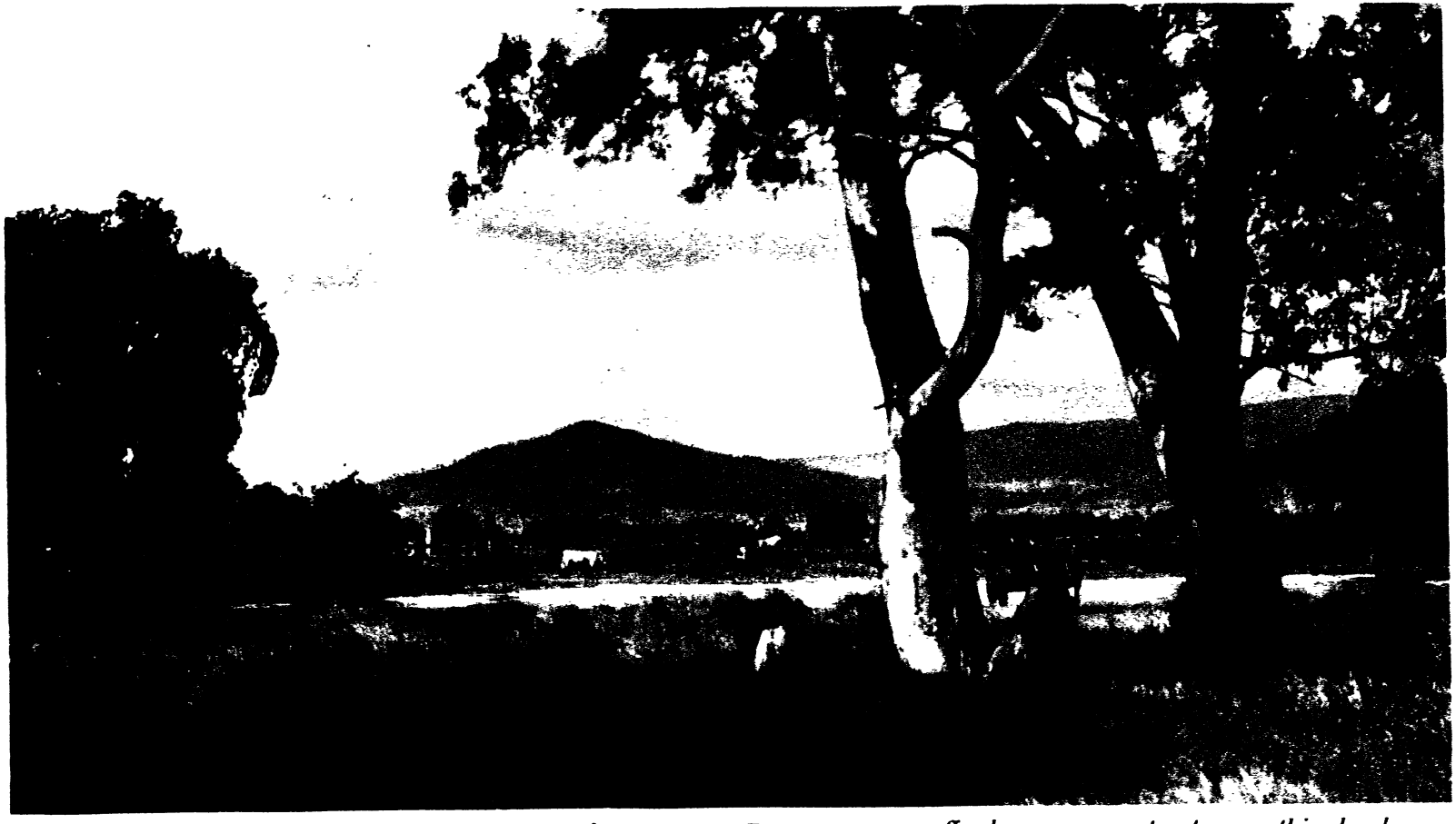


Australian Government

AUSTRALIA. *Queensland is rich in indigenous vegetation, and many valuable timber trees are laboriously harvested from the heavy scrub*



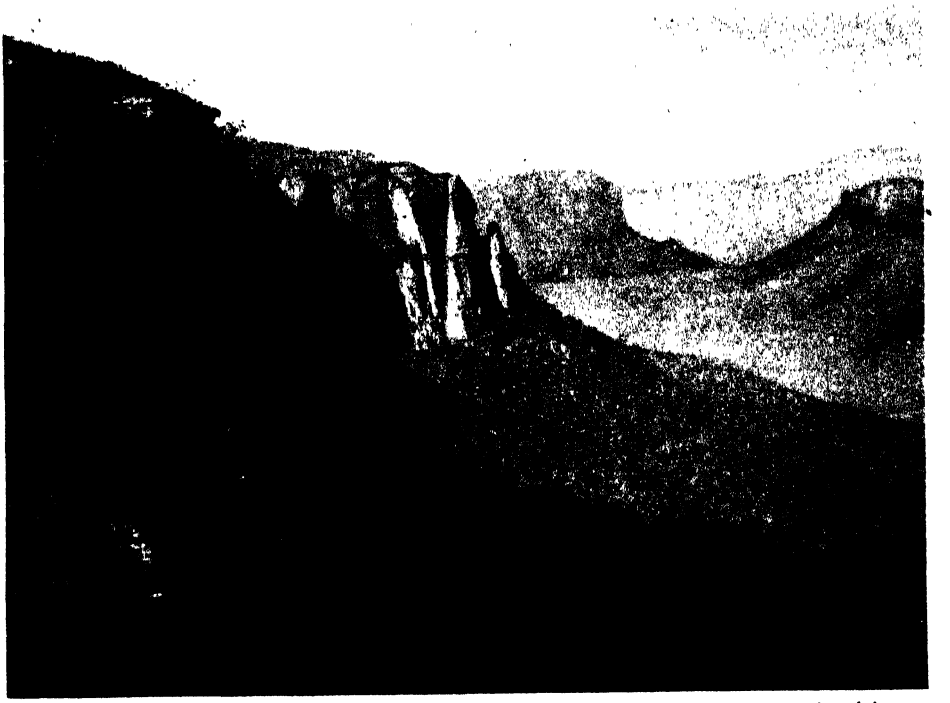
AUSTRALIA. *Refreshing are the cool tarns lying about the foot of Mt. Kosciusko (7,328 feet), the noblest peak of the whole continent*



AUSTRALIA. *From a scenic standpoint the Murray River country affords many contrasts, as this lovely mountain landscape in New South Wales testifies. The river's basin comprises over 250,000 square miles*



AUSTRALIA. *Cattle-breeding is an important rural industry of New South Wales. The peaceful pastoral scene depicted above is on Avon River, Gloucester, one of the richest dairying districts in the Commonwealth*



Peaks, slopes, and gullies of the Blue Mountains, the great health resort of Sydney, New South Wales, are covered with eucalyptus trees



Australian Government

AUSTRALIA. *Mt. William, 4,500 feet high, is the loftiest pinnacle of the Grampians, the west portion of the Victorian mountain system*

AUSTRALIA

Unique Land of Infinite Possibilities

by Sir W. Beach Thomas

Author of "To-Day in Greater Britain," etc.

AUSTRALIA, once called New Holland, received its present name from Matthew Flinders the navigator in or about 1803. If the smallest continent, it is bigger than the United States though it contains only one-twentieth of the number of inhabitants, not enough to have really and thoroughly explored its vast plains or half developed its teeming resources.

The more this island-continent is studied, the more does its extreme difference from all other places emerge. Its animals are unique. It is dry but tropical. Many of its rivers at first flow inland. No country is a more distinctively natural unit, yet it has only been one country in the political sense of the word since January 1, 1901, when the five states were federated; and much is still needed for the attainment of unity. For example, the railway system contains five different gauges varying from 3 ft. 6 ins. to 5 ft. 3 ins.; and for this reason alone you must change trains three times in travelling from Adelaide to Perth. But the N.S.W. standard gauge of 4 ft. 8½ ins. has been agreed upon, and the social and political unity of the country steadily becomes more worthy of the unity of its physical structure.

Australia's Lovely Littoral

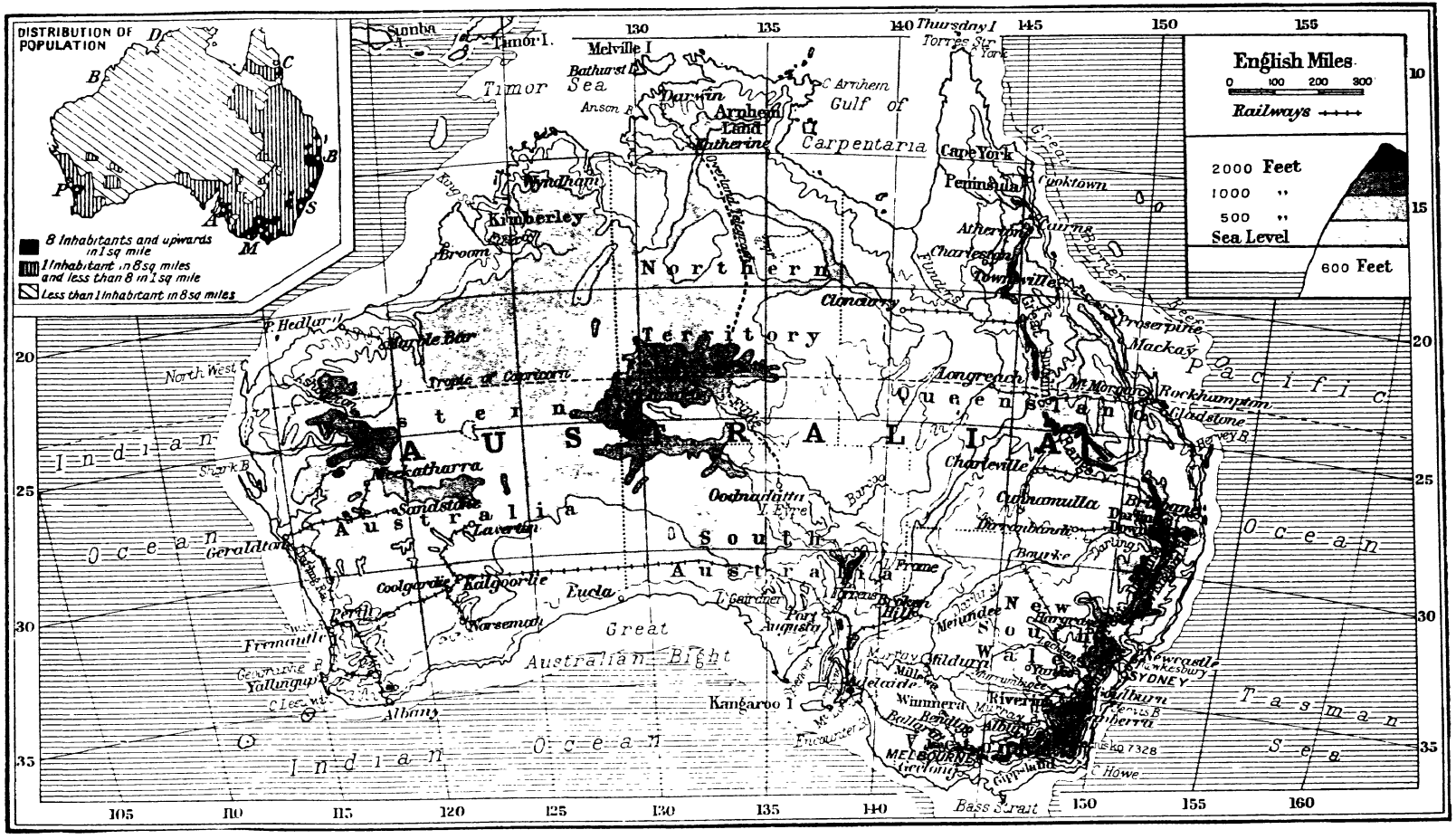
No country offers quite so gorgeous a welcome as meets the steamer from across the Pacific at Sydney Harbour. It is the gem of a coast rich in gems. One of the loveliest coasting tours of the world is the journey north from Sydney, past Gladstone Harbour and Rockhampton, up to Cairns. The vessel passes the longest known coral reef, with a wide sea behind it, protecting a varied shore on which may be seen growths continually more tropical as you go farther north: notably sugar and pine-apple, until cultivation gives place to the wildness and splendour of the Atherton Heights. Hereabouts population grows yet thinner and as the ship continues her voyage of circumnavigation she scarcely touches a populous place for 3,000 miles. The town of Darwin in the Northern Territory is the first salient exception.

Vast Reserves of Unexploited Wealth

To the south-west, round the corner of Western Australia, are vast and splendid harbours unused, almost unknown, backed by the high and rich tableland of Kimberley, capable of producing great wealth even if the mineral resources were to remain undeveloped. Southwards again are the pearl fisheries of Broom, and at Perth another centre of population is reached, almost as dense as Sydney.

It is a little surprising round the corner from Perth to find on the southern coast at Albany an almost perfect natural harbour and protected bay outside it: surprising that it should be half deserted by shipping in favour of the useful but artificial nook at Fremantle, the harbour of Perth and the port nearest to Europe. Beyond Albany are many delightful creeks and inlets and little harbours, and behind them beautiful woods. They are the prelude to the one really desolate barren stretch of coast. This cliffless, harbourless shore is washed by the Australian Bight, which has won the same sort of reputation as the Bay of Biscay but perhaps with less justification. It is a relief to reach Port Augusta and later Adelaide,

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AUSTRALIA: THE GREAT ISLAND-CONTINENT UNDER THE SOUTHERN CROSS

where the coast recovers its pleasant contours and maintains them till the circle is completed at Sydney.

The variety and wealth of the low-lying belt round the coast, well watered and much of it well tilled, offer an abrupt contrast to the great flat central plateau which is the dominant feature of the continent. An immense region, inhabited by only a few natives and an occasional traveller, lies almost void, but a very small portion is uninhabitable. Every year new possibilities of turning it to man's use emerge in the wake of science and the pioneering spirit. The rainfall is no more than 10 inches and it is found difficult to preserve what falls. Nor does a drop of the rain that falls over millions of square miles ever apparently reach the sea.

The extent and strangeness of this unwatered plain are realized from the transcontinental railway which joins Port Augusta to Kalgoorlie. The line, just over 1,000 miles in length, turns neither south nor north, goes neither up nor down, for many hundred miles. The plain has no river, no pond, no hill. The red earth, which might be very fertile if water were present, supports low bushes—chiefly the blue-bush and salt-bush—but not so closely as to conceal the redness of the intervening soil. A curious mystery of the region is the presence here and there of unfathomable holes out of which blows an almost continuous current of air. What exactly is the cause of the hole or the draught no one quite knows. Vegetation and rainfall and plants vary on the central plateau ; so do the tribes of native inhabitants. Much of the Western Australian part is very little explored but the plain has, perhaps, more unity of structure and appearance than any district of like size within the circle of the known world, with the exception of the great deserts ; and no part of Australia has any real affinity whatever with a Sahara.

If a straight line be drawn just above Brisbane, the capital of Queensland, to



George Bell, Sydney

CUTTING OUT CATTLE ON A NEW SOUTH WALES STATION

Sheep-raising may be the occupation most usually associated with Australia, but cultivation and cattle farming are hardly less important sources of wealth. This photograph depicts a scene on a "station" at Moree in New South Wales following one of the periodical "round-ups"—the "cutting out" of chosen cattle. A resentful beast has just been separated from the circling herd

COAL-MINING TOWN OF NEW SOUTH WALES WITH A BEAUTIFUL SEASIDE SETTING

Newcastle in New South Wales stands on one of the largest coal-fields in Australia, some of the seams being actually exposed on the seaward cliffs. A town of over 60,000 inhabitants, it stands at the mouth of the Hunter river about 100 miles in a northerly direction from Sydney, and its sandy bays are much used for bathing, a favourite Australian pastime. Its original settlement followed upon the first discovery of coal there in 1796. Here we have the promenade and sea front of Ocean Bay with its crowd of pleasure-seekers; note the local outcrop of stratified rock projecting from the sand



Australian Government

RICH FARMLANDS IN THE NORTH COAST DISTRICT OF NEW SOUTH WALES

A scene characteristic of the bush-cleared land that forms such fine farming areas in Australia. The trees are gradually destroyed by felling, burning or ring-barking, and as the bush recedes cultivation advances. In places old stumps protrude, but usually the roots, when not burnt by the fire, are dynamited out or left to rot and grubbed up by the "skip plough." Of the trees in the background many are already dead and the space they occupy will soon be under cultivation. The presence of a river here solves the problem of irrigation, so often exceedingly difficult in less fortunate districts



Australian Government

CAMELS USED AS PACK ANIMALS IN A LAND ORIGINALLY UNKNOWN TO THEIR KIND

Broken Hill is a town and district on the western border of New South Wales some 900 miles west of Sydney; its claim to distinction is the possession of the largest silver mine in the world, but gold, lead, copper and tin are also found there, and it is the centre of a very extensive pastoral area. This photograph shows a curious feature of Australian transport; in order to cope with the arid nature of much of the country, camels have been introduced and used with considerable success

Perth, the capital of Western Australia, it will cut off to the south a narrow slip of coast-line which contains five-sixths of the total population. A lower line (from Sydney to the Gulf of St. Vincent) cuts off a microscopic piece of the continent, but south of it are the three chief capitals as well as Canberra, the Federal capital to be. More than half the population is in that nook. It is an odd fact little realized even in Australia itself that, though there are more men than women in the Continent, there are more women than men in the town areas. Rural Australia may, therefore, be said to be almost bereft of women. This concentration in a few towns is unfortunate for the development of the country, and is due as much to the railway arrangements and artificial methods of concentration as to any deeper social cause.

This southern slip of Australia may be conveniently called populous Australia, and its people enjoy a climate that has certain supreme virtues. It would be difficult to imagine a more ideal winter climate than June, July, August, September and October provide over most of southern Australia. The days are sunny, the folk in the towns take alfresco meals beneath the palms and semi-tropical foliage of the parks. Men, women and children sleep in the out-of-door balconies with which almost every house is provided Oranges still hang on the trees.

The mean temperature of all the five capitals is between 50° F. and 60° F., and only in Melbourne, on the rarest occasions, has the thermometer reached freezing-point. Canberra, being higher, is much colder. The rainfall varies from a 20 inch average in Adelaide to 48 in Sydney and 45 in Brisbane, but is seldom excessive or deficient. The fine-weather games, such as cricket and lawn-tennis, especially lawn-tennis, may be played throughout the year. Only that semi-national game of surf-bathing is left for the summer months. The winter is not cold, but the summer is hot on occasion. Though the average

warmth lies between 61° F. and 77° F. there are some rare days when the mosquitoes hum in an atmosphere that may reach as much as 116° F.

As soon as you leave "populous Australia" and make north you begin to pass from the moderate to the excessive. In the middle you reach the land of drought (only to be found on the south coast over a slip along the Australian Bight), and on the extreme north is a fringe of excessive moisture left in the wake of the monsoons. Darwin and the high tableland above Cairns are pounded with tropical deluges that may bring the year's aggregate to 170 inches or more; and flood may succeed to drought with dangerous suddenness in the cattle lands of the Northern Territory.



FOUR SECTIONS OF TRACK ON THE RAILWAY OVER THE BLUE MOUNTAINS

Running nearly parallel with the coast of New South Wales is the range of the Blue Mountains, a branch of the Great Dividing Range which averages 3,000 feet in height. Where the railway crosses them an elaborate zigzag track has had to be constructed. Most of the Australian railways are owned either by the states or the Commonwealth, and the total mileage in 1922 exceeded 26,300

Perhaps the most characteristic railway journey that could be taken in Australia is by the line nicknamed "the Turkey Express" which, unlike the lines in other states, runs directly inland. It starts from Rockhampton on the coast of Queensland, a town famous for its natural history. On a lagoon just outside the town below lovely botanic gardens—such as Australia excels in—a naturalist counted forty-five varieties of birds that came within his purview within the space of a quarter of an hour. Duck there were in quantity and variety, black swans, grebe, shags and spoonbills. Circling overhead "whistling eagles" watched the multitude, and along the edge of the gardens sweet-songed honey-eaters, wagtails, wrens and robins (but not of the English sort) played among the tropical plants. The railway has won the epithet "Turkey" because the engine drivers are alleged to stop the train whenever they see a wild turkey and do not proceed again till they have shot and retrieved it.

The train runs straight through the most typical thing in the Australian landscape—the bush. The bush varies. It may consist of eucalyptus scrub or of large trees of the same genus, wide



FINE FARMING COUNTRY BY THE BANKS OF THE HAWKESBURY RIVER IN NEW SOUTH WALES

Chief of the New South Wales rivers flowing east from the Blue Mountains is the Hawkesbury. Its drainage basin occupies 9,000 square miles during its course of 330 miles. The river, which is formed by the confluence of the rivers Grose and Nepean, eventually finds the sea at Broken Bay, some 25 miles to the north of Sydney. The main line from Brisbane to Adelaide crosses it by a great seven-span bridge. The district east of the Blue Mountains is principally devoted to lumbering and farming. There is an ample rainfall and the Hawkesbury has great possibilities in connexion with irrigation and electric power supply



Australian Government

DYKE OF THE GREAT GOULBURN IRRIGATION SYSTEM IN VICTORIA

Rising in the heart of the Australian Alps and fed by the snows, the Goulburn river flows northward through Victoria to join the Murray. A great weir 400 feet long has been made at Wahring where the river has the most uniform flow of any in the state. This supplies the neighbouring counties by a system of dykes The one above is at Tatura some 100 miles north of Melbourne in Rodney county

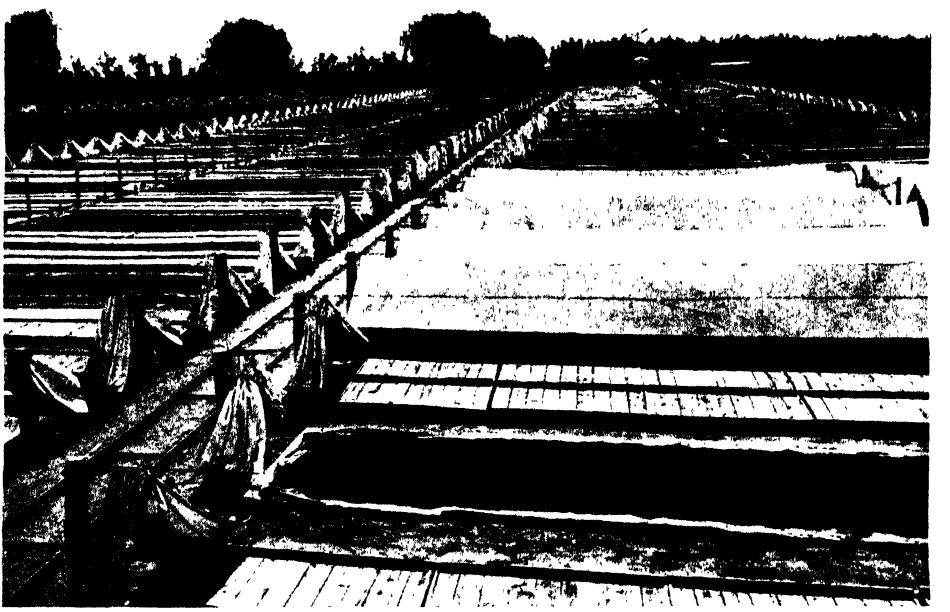
apart or serried together. Some bush, such as the famous Mallee scrub in Victoria, is cleared by rolling it with a special type of heavy roller that prevails against the stoutness of the stems. When rolled it can be burnt, and the fire may so completely finish the job that it runs along the roots and leaves the plough a free course. Incidentally the "skip plough," which can hit an obstruction and take no harm, is an Australian invention.

Much of the bush consists of one of the many sorts of eucalyptus, or gum tree, with grey-green pendulous leaves suggesting a weeping habit. The attitude enables the leaves to turn their thin edges to the sun and so lessen the danger of dessication. The most prevalent scrub, other than eucalyptus, is called mulga, of the acacia family. The Queensland scrub, inland from Rockhampton, is sparse and interspersed with earth heaps almost as numerous as the trees, the wigwams of the white ants, narrow towers of soil often several feet in height. For the most part the scrub has been neither burnt nor grubbed; but in places, especially near the little railway stations, the bigger trees have been "ring-barked" and so killed. They stand grey and stern or lie slowly rotting on the ground. But, dying, they have let in the light, and the grass grows and the cattle can feed; and after a while the half-cleared bush, here as in many parts of Australia, takes on the appearance of some wide and rather neglected park in England But the people and stock are still few, and the folk round the station rely a good deal on the little flocks of goats provided by the authorities.

After many hours the train leaves the bush and comes to the edge of the sheep country, "the real Australia" as many Australians claim. The plain is so regular that a motor-car can travel safely for thousands of miles without any regular road. You may even pursue,

for a certain distance with a motor-car, the swift emu and the leaping kangaroo. The homesteads that are the centre of the wide " stations," or sheep farms, so big that they are measured by the square mile rather than by the acre, are immense distances apart.

Drought is the danger of many of these stations, but inland Australia possesses the widest artesian area in the world; and the most spacious



Australian Government

DRYING GRAPES IN ONE OF VICTORIA'S PROFITABLE VINEYARDS

Victoria possesses many hills of a formation known as Silurian, a geological term implying Palaeozoic rocks, marine in origin. It is noticeable that where similar formations occur, as in the Beaujolais and Loire districts of France and the Alto Douro of Portugal, fine yields of grapes are obtained. Victorian grapes are extensively dried for the raisin trade, 190,451 cwts. being produced in 1921-22

is a great country, bigger than Germany, on either side the boundary of Queensland, New South Wales and the Northern Territory. A huge, but smaller, artesian system is found in Western Australia. The bores are of various depths and the water that they deliver is of various qualities. It is a mysterious fact that bores close to one another will deliver waters of quite different analysis, one good for stock and vegetation, the other deleterious to one or both. In general the evil quality is excess of magnesium. From the deeper wells it comes up hot, just not too hot to burn the hand. Some of the best wells smell strongly of sulphur, but the proportion is not enough to exercise too medicinal an influence or much affect the taste.

When the dry period is prolonged in districts ill supplied with water, cattle and sheep may die in quantity, but they die rather from the loss of meat than of drink. The grasses are almost their only food, and when these fail, all fails. Almost no effort is made on these great stations, where hands are very few, to store food.

Drought is not the only enemy of the grass. Even in a normal year you may see a brownness moving across some huge paddock (as the larger fields are called), and on inspection will discover " caterpillars innumerable," the commonest streaked with brown and blue and differing very slightly from the " tent caterpillars " common in English orchards. A more surprising and rarer plague is a host of mice; they appear suddenly, as from nowhere, and are so hungry and multitudinous that they



Australian Government

FOUNDATIONS OF FUTURE PROSPERITY: SETTLER'S VICTORIA HOME

Both of the photographs in this page were taken in Victoria, the state of many contrasts, of level plains and deep-cut valleys below great mountains. The flat, stony land, previously virgin, shown in this photograph has only recently been broken, and the settler's patently new home just erected; the farm is beside Shepperton, a town of north Victoria on the Goulburn river, a tributary of the Murray



PROSPERITY FIRMLY ESTABLISHED: HOMESTEADS IN THE VALLEY

The settlers who have established themselves here have chosen a vastly different kind of country from which to draw their subsistence. Here they find a rich valley below an outlying spur of the Australian Alps, and on these sunny slopes they tend their orchards and cultivate their vineyards. That their arrival is less recent is seen from the trim gardens and clear ground round the houses



FANTASTIC STRUCTURE OF AUSTRALIA'S CORAL RAMPART ON THE EASTERN COAST

Stretching south along the coast of Queensland from Torres Strait to latitude 24° S. is a feature that occurs to the mind whenever one thinks of Australia—the Great Barrier Reef, the largest known coral reef in the world. Behind it is a wide inner sea, protected from much of the violence of the open Pacific and washing a varied coastline of great beauty and fertility that gets wilder and more tropical as one goes northward. An idea of the weird branched or sponge-like coral growths that go to its formation may be had from this photograph of the Skull Reef

WARRIOR ISLAND REEF: HOW ISLANDS GROW IN THE TROPIC WATERS OF TORRES STRAIT

Some of the most beautiful sections of the Great Barrier Reef lie in Torres Strait, the hundred-mile island-dotted stretch of water separating Australia and Cape York from New Guinea. Sea life innumerable swarms in these waters, fringed and dotted with the fantastic structures of the coral polyp. Thousands upon thousands of years of tireless energy have raised such coral masses, and the slightest elevation of the sea floor would result in a solid palm-grown island whose tiny architects had been as soft and strengthless as jelly, but beyond counting for multitude



Australian Government

SAPPHIRE PUDDLERS SEARCH FOR THE TREASURE OF THE SOIL

In central Queensland, a district mainly devoted to cattle and sheep rearing, there are valuable deposits of precious stones. Of these the principal is the sapphire, and the area between Longreach and Blair Athol, about 600 miles north-west of Brisbane, ranks as one of the world's greatest sources of this form of corundum. The process of "puddling" is here in progress

will eat out the contents of a house, including bedding and carpets or even furniture, before they disappear as mysteriously as they came.

The scale of the plagues as well as of the virtues of Australia is large. A station-owner in New South Wales came back to his lands (which he had left for three years in the hands of an inefficient manager) to find them quite overrun with rabbits. He killed over 300,000 within a few weeks and ploughed in very many more. So destructive are they and so generally distributed that the sale value of an estate may be more than doubled if it is known to be wired against rabbits. But of late the plague has been stayed, largely by the use of poison which is laid in little trenches cut by a special plough. The rabbit is attracted and the sheep repelled by the brown cleft in the grass.

A yet greater enemy, which eats up acres even more quickly and thoroughly, is the prickly pear that is destroying millions of acres a year. You may hang a plant on a wire fence and the leaf will live two years and send down roots. Any leaf left on the ground fastens itself down and becomes a plant; the seed blows far and is carried far by flooded rivers and germinates freely. The spikes are so mobile that it is difficult to persuade workmen to cut the plant down, so great is the personal discomfort involved. Happily, it does not spread everywhere as it does in parts of New South Wales and Queensland, and there are hopes of the efficacy of both insect and fungus enemies introduced from South America.

A curiously large percentage of introductions from Europe—mostly from England—have proved in various

degrees of the nature of a plague in Australia. The early settlers brought out foxes to hunt, and these have become numerous and hungry enough to be a serious enemy to the homestead. There are places where the blackberry has climbed over a deserted house and planted itself on the farther side, entirely concealing the structure, and it proves as hard to eradicate as the sweet-briar which is one of the farmer's enemies in Tasmania. At one time it was feared that a marigold introduced from Africa would destroy the herbage. It has spread outrageously, covering whole paddocks with a yellow carpet. But there are farmers who welcome it and claim that it provides fodder at a time when fodder is apt to be shortest.

A few of the introductions are of service. Numbers of British deciduous trees, notably the oak, have been planted, and the goldfinch flourishes among the parrots and cockatoos on the confines of Canberra.

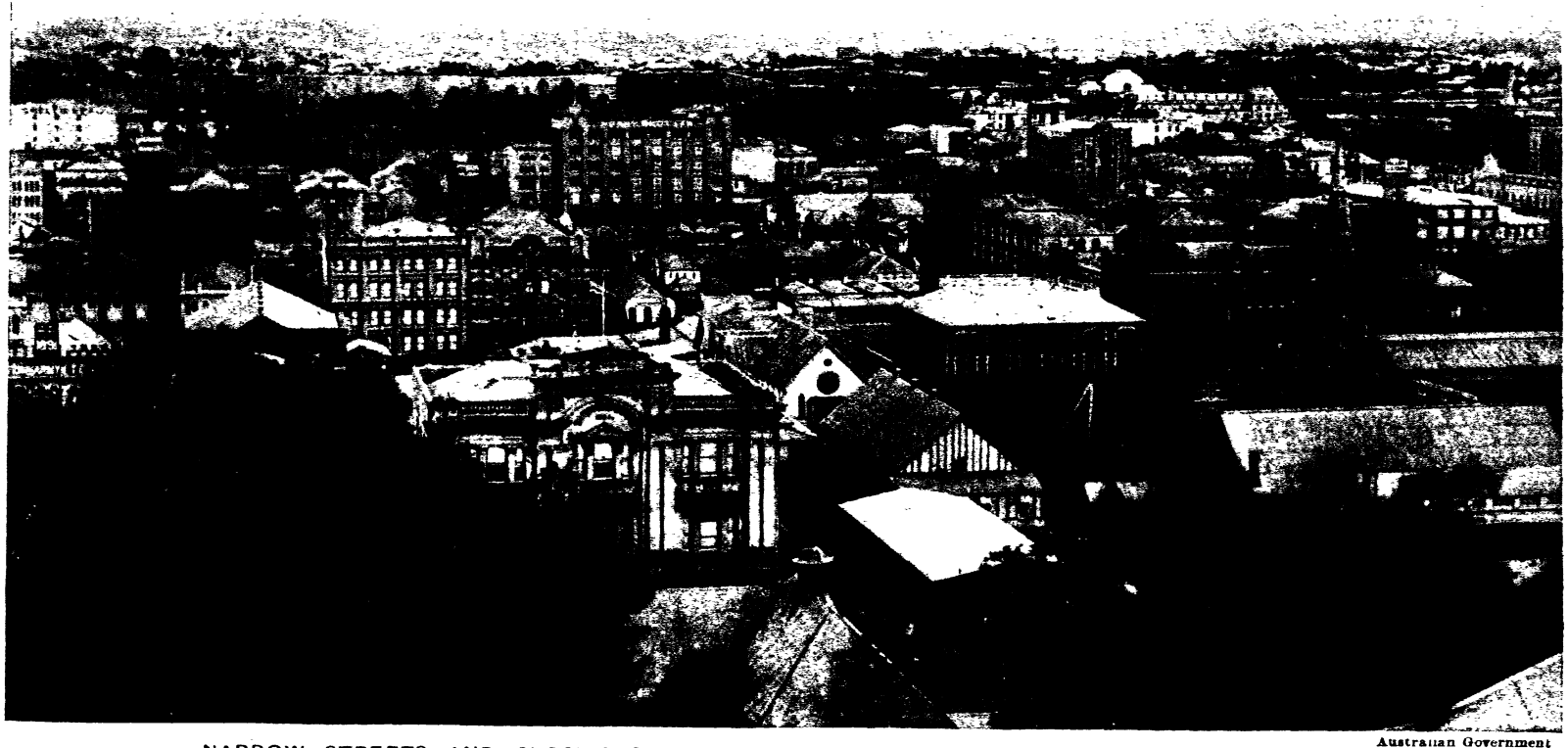
In itself, Australia may be said to be almost free from native plagues. The vegetation is healthy, so are the farm crops; and the hopes that part of the country will be a rich source of cotton are largely based on the total absence of such enemies as the boll-weevil which is wiping out some of the favourite cotton farms in America.

The native animals are few and very strange. The island-continent has been so completely cut off from other lands for so long that evolution has followed individual lines. The ornithorhyncus or duck-billed platypus, which is the oddest, has the qualities of three genera —fish, bird and mammal. It is rare and furtive, as also is the hardly less curious echidna or native porcupine.



FIELDS OF SOUTH QUEENSLAND YIELD THEIR LUSCIOUS FRUITS

In the orchards of Australia the varieties of fruit grown differ materially in various parts of the states and range from the tropical mango and guava to the strawberry, raspberry and currant of cooler climes. This photograph, taken in south-east Queensland, shows a planter garnering his harvest of pineapples, a fruit extensively cultivated along the eastern coast of that state



Australian Government

NARROW STREETS AND CLOSE-PACKED BUILDINGS OF BRISBANE, CAPITAL OF QUEENSLAND

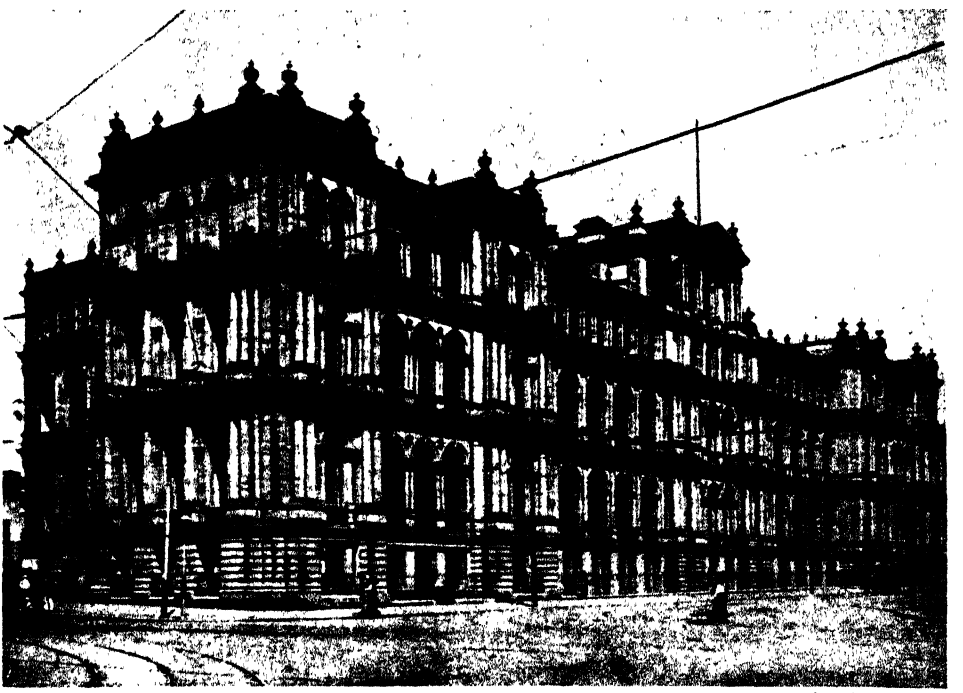
Tall industrial buildings of little beauty are the dominant feature in this panorama of Brisbane, which is taken from the north of the city. On the left one catches the merest glimpse of the Brisbane river flanked on its south side by the embankment of the railway running to Woolloongaba station. On its north bank are seen the trees of the Botanical Gardens, which contain the residence of the Governor of Queensland and Parliament House, the three domes of which we see on the right. Beside these buildings stands also the University of Queensland

The outstanding peculiarity of the four-footed animals of Australia is that they are marsupials or pouch-bearers. The only exceptions are the wild dogs or dingoes—possibly an importation—and a few rodents and bats including the so-called flying foxes. Besides the kangaroo of the plain and the little kangaroo or wallaby—both of which have many varieties—this family of pouch-bearers alone includes tree kangaroos, rock wallabies, hare-wallabies and the musk rat, which is only ten inches long as against the 5 ft. 5 ins. of the larger kangaroos.

Though they are of the same family, no more abrupt contrast to the kangaroo could be imagined than the thick, short-limbed, burrowing wombats. Neither again has any superficial likeness to the phalangers or so-called opossums which live in the trees, or again to the tiny pouch-mouse which uses its long tongue for sucking honey from the flowers. The Tasmanian Devil, now only found in Tasmania, is like no other animal, but has something in it of both the cat and the bear, and its black and white patches give some suggestion of the badger.

There remain the bandicoots common all over Southern Australia, furtive animals of which some species resemble not a little the rabbit in the shape of their ears and in their capacity for burrowing. All these are marsupials of a sort found nowhere else in the world. One of the most engaging is the Australian bear, which has no more right to its name than the Australian opossum; it is rather sloth than bear and is entirely innocuous. Both opossum and bear would multiply rapidly if it were not for the value of their fur. They are protected spasmodically in certain districts.

Unlike the mammals, the birds of Australia are so conspicuous as to be almost a part of the landscape. Cranes, known as Native Companions, strut



Australian Government

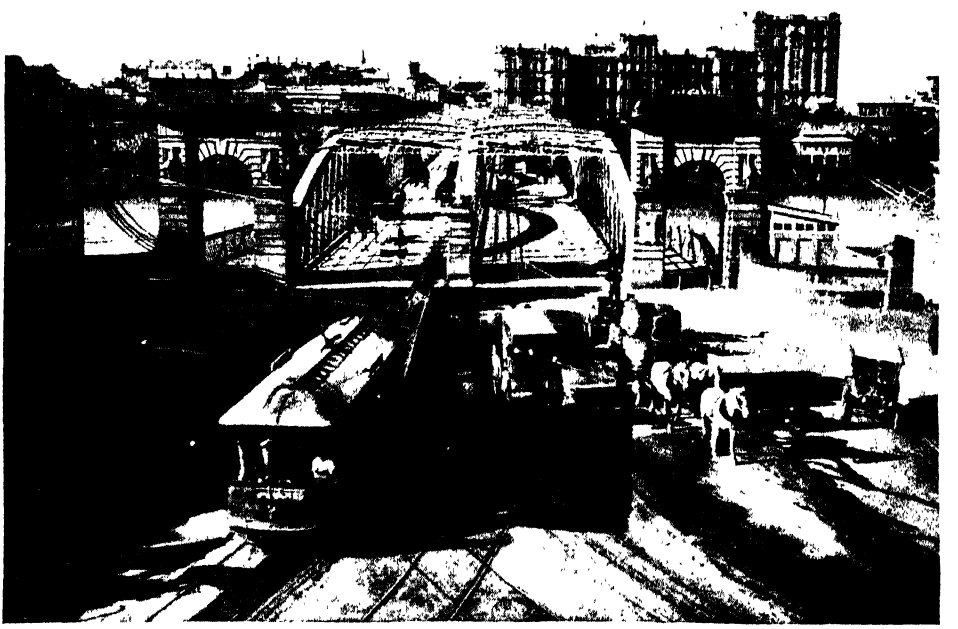
ONE OF THE CIVIC ADORNMENTS OF QUEENSLAND'S CAPITAL

Brisbane has several fine public edifices, and among them not least conspicuous is the Treasury Building occupying a fine frontage on the river, as seen in the photograph on page 430. Built in a kind of mixed Renaissance style, the general effect is quite imposing; the detached Doric and Ionic pillars of the first two storeys give way to Corinthian pilasters in the last

about the Queensland homestead. You may often see on strips of land running into lake or river a flock of two hundred or three hundred pelicans. Fawn-coloured ibis fly in great congregations. Up in the far north the bushes are often covered with "finches" of most vivid and varied plumage almost as thickly as with leaves. Everywhere groups of parrots, especially the white and pink Galah, fly in curiously close-set companies. The big white cockatoo, with a yellow crest, is common and is peculiar to Australia. Birds of paradise, bower birds and a sort of wild turkey that hatches its eggs in ovens of decayed leaves, abound in some localities.

Less desirable fauna prolific in Australia are the snakes, of which some pythons are nine feet and more in length and a few species very deadly, such as the Death Adder and the Tiger Snake. Among them is a brilliantly green tree-snake that follows its prey to the top of high trees. Crocodiles are common, especially on the east coast of Queensland. Lizards are numerous and though wholly inoffensive some of them, above all the horned lizards not uncommon in Western Australia, have a fantastic ugliness quite their own.

None of these affects the farmer adversely, though the emu will sometimes blunder through his fences; and if the sparrow and rabbit and fox and prickly pear may keep him continually fighting, and the struggle with drought is a perpetual menace to the owner of herds of sheep and even of cattle, the Australian farmer has many things in his favour. The dryness of the grass plains is ideal for sheep, whether merino, which flourish best where the grass is finer and the seed-heads do not become entangled in the wool, or the sheep of coarser wool such as the Border Leicesters and many other English breeds and cross-breeds. Australia is usually, and rightly, associated with wool, but agricultural crops bulk nearly as largely in value. The grain figures are bigger than they



Australian Government

VICTORIA BRIDGE, BRISBANE'S ARTERY FROM NORTH TO SOUTH

The central part of the city is connected with South Brisbane on the other side of the river by Victoria Bridge, a structure of steel girders built in 1879 to replace a previous one destroyed four years earlier by floods. Here we are looking towards central Brisbane with the Treasury Building on the right of the bridge; the roofs of the Supreme Court are just visible on the left

seem since an immense area of wheat is cut green and sold for fodder.

When rain is sufficient, the Australian farmer of arable crops has few troubles and manages his farm with little expenditure on labour. There are many men who farm a thousand acres single-handed, on the general principle of harvesting a third with grain and leaving a third fallow. Farmers of all sorts delight to have a "hinterland" of bush that they slowly clear. You may come upon a man making a good living on some forty to sixty acres of fruit—oranges, peaches, apples or what not—and possessor of a thousand acres behind it. In slacker periods he cuts a circular notch round the bigger trees to kill them, and as the daylight is let in brings a few sheep and cattle to wander in the open woodland which is growing in value with every tree that dies. If any neighbourhood is to be especially selected for its agricultural farms, the Darling Downs in the north of New South Wales would perhaps come first. The land is rich and easily worked, but even there is astonishingly cheap in comparison with farms in other parts of the British Empire.



C. J. Hupfield

SOURCE OF MURRAY RIVER AT KILLARNEY

A bare trickle falling 150 feet over mossy rocks—and this is the source of Australia's largest river! First the Condamine in Queensland, it swells through several changes of name to the Darling and reaches the sea by Adelaide as the Murray

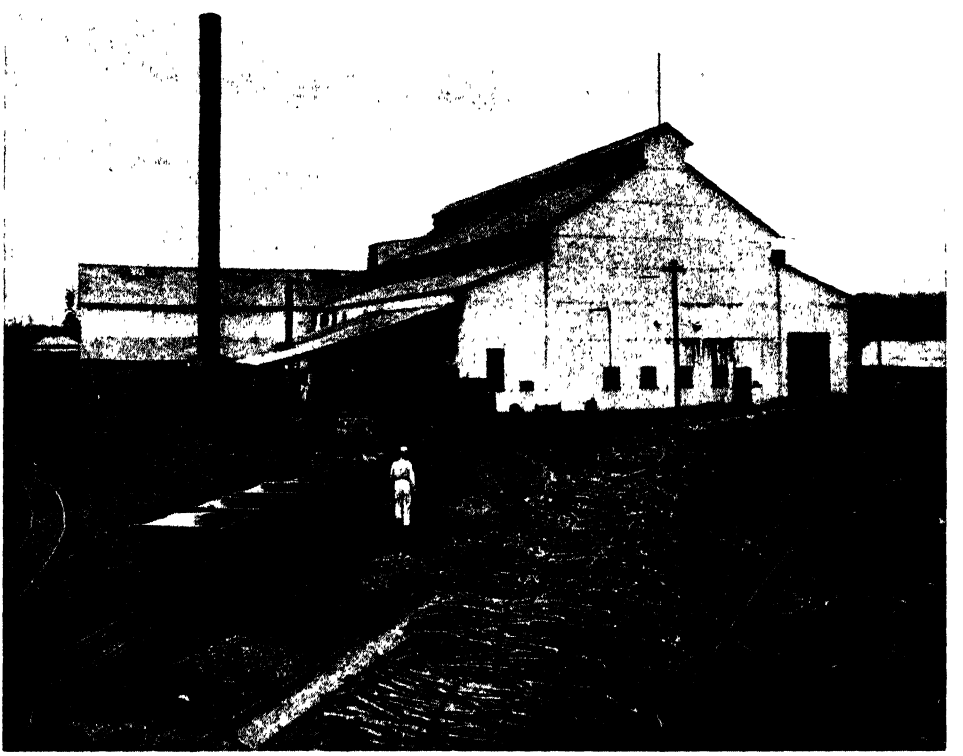
A notable development in intensive farming began with the end of the Great War, when numbers of returned soldiers desired "to go on the land." The most favoured area is the Riverina and the neighbourhood of the Murray, which, with the Darling, makes one of the longest rivers in the world. Near its mouth the half-marsh lands close to the stream are being drained and banked off, giving the smallholder an intensely rich area for grass or fodder crops. Higher up the stream, along the boundary of Victoria and New South Wales, ambitious irrigation schemes have been undertaken to provide land for the growing of fruit, especially oranges and lemons, peaches and sultanas. The economic soundness of the scheme is still in dispute, but the amount of produce of good quality raised per acre on what is called the Riverina is beyond question.

Australia is before anything else a paradise of primary production. It exports more wool and on the whole better wool than any other country; and will soon, it is confidently expected, be a standard source of cotton. It has great supplies of meat and should export much more; but for various

reasons—some social, some mechanical, all, it is hoped, temporary—the trade in frozen meat has received serious setbacks and the great freezing establishments at Darwin in the Northern Territory, and less seriously at Wyndham in Western Australia, have not as yet developed according to expectation. The meat is there in any quantity and in good quality. The trouble is the market.

Australia exports dairy produce, citrous fruits, honey, wood, metals and many unconsidered trifles such as mother-of-pearl, of which it produces half the world's supply, and tortoiseshell. Nevertheless, in spite of this pre-eminence, some of its primary sources are very little developed. The sea abounds in fish both very good to eat and very large, but these teeming waters round the coast are very inadequately exploited. The reason is in part the very few small harbours that have been opened up by railway connexion. The king of the river fish is the Murray Cod which may reach the weight of fifty pounds; and the competition for the best "pitches" for catching them is considerable.

One of the great sights of the world is the forest of jarrah and karri trees in the south of Western Australia. The boles of the karri frequently run to 130 feet, and often much more, before the first twig breaks the absolute smoothness of the woody bark. The red wood of the jarrah, much used for paving London streets, is hard and heavy and makes attractive furniture. These are two out of a host of woods which possess the virtues of hardness and toughness. The eucalyptus family alone has 400 species. In the country itself the supreme virtue of timber is that it should be proof against the white ant, a quality which belongs, for example, to the tuart—a wood of



BUSY SUGAR MILL ON A QUEENSLAND ESTATE

Sheep-rearing and mining, as in the other states, are important primary occupations of Queensland; but here we have a secondary industry dependent on the sugar cane whose cultivation is almost confined to this state, about 160,000 acres (not all productive in the same season) being cropped. The crushing mill above is in the Nambour Estate; in the foreground are stacks of cane



KALGOORLIE, TYPE OF THE PROGRESSIVE INLAND MINING TOWN

Centre of the East Coolgardie gold-field and 380 miles inland from Perth, whence it receives its water supply, Kalgoorlie is a modern town and a well equipped one, with tramlines and electric light, as this photograph looking west down Hannan's Street shows. It can be reached by rail from Perth or over the transcontinental line from Port Augusta, South Australia

immense durability whose export is prohibited—and not to the karri.

A great deal of red gum and other valuable wood is regarded as a mere enemy of agriculture, good only for burning; but the pioneer infers the value of the soil from the nature of the timber. What is called the raspberry-jam tree—from the strong smell of the wood—is usually taken as one of the pointers to a fruitful soil. So is the karri, and disputes arise between the foresters who wish to preserve the land for trees and the settlers in search of arable farms.

To-day it may be said that Australia is divided into four layers: first, the farm lands along the easterly and south coasts; next, the great sheep stations; then the cattle country; and on the extreme north the country of tropical rains. It is a rough distribution, for the sheep and cattle districts intersect; but it is generally true of Australia to-day, though it will become less true as the pioneers are followed up and as the huge stations are split up according to the present policy among many smaller farms. Ten thousand acres are regarded as few for a sheep farm. The pastoralists are the great pioneers; and yet it may be claimed that the subterranean, not the surface wealth is making the new Australia. Artesian wells have opened tens of thousands of acres to the pastoralists. Again, the first rapid growth of population followed the discovery of gold; and forests were cut and farms were created to supply the needs of the mining population.

The history of Australia is the history of an unceasing discovery of mineral wealth, since the first sensational appearance of a gold nugget at Hargraves in New South Wales in 1851, or at Canadian Gully in Victoria in 1853. Almost every known mineral of value exists within the country. Western Australia leapt into world-wide fame when the first nugget was found at Kalgoorlie in 1885. Further gold finds followed along



Australian Government

LOOKING NORTH-EAST ACROSS PERTH TO THE SWAN RIVER AND THE SOUTH CITY

Here our view is from King's Park, the city's fine pleasure ground beside Melville Water, and we look across Mount's Bay to the south side of Perth and Victoria Park. To the left lies the main part of the capital out of which rises the high tower of the Town Hall with the spire of the large Roman Catholic Cathedral on its left; in this corner of the town are also found the Anglican Cathedral, Government House, the Mint, the railway station and other outstanding public buildings. The city is prosperous commercially and is well planned

the western coast and the country is as yet not even superficially prospected. A special prominence belongs to the huge silver mines at Broken Hill and what is called " the golden mile " at Kalgoorlie—one of the very richest squares of mineral wealth in the world. The output of copper is very much the same as the output of silver, each only about £1,000,000 less than the gold



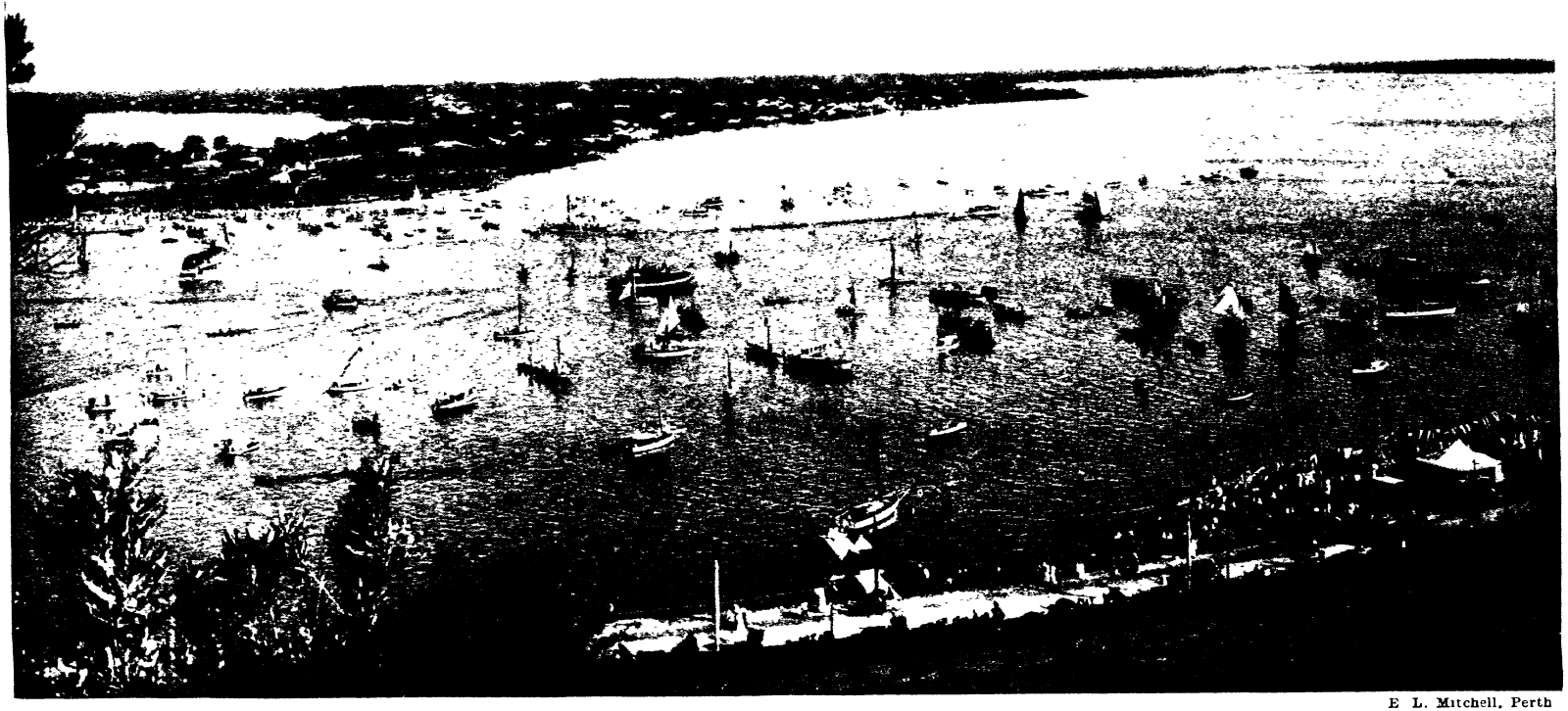
GOVERNOR'S RESIDENCE IN THE CAPITAL OF WESTERN AUSTRALIA

Perth, capital of Western Australia, was one of the last state capitals to develop, its real per of growth only dating from about 1890, when gold was discovered in the neighbourhood. To-d it has zoological gardens and extensive parks, an efficient tramway service, several racecours many fine public buildings and a university. This is the governor's residence

output. All three are beaten in aggregate value by the coal mines. The Newcastle area just north of Sydney may compare itself with South Wales in Britain. Bigger in extent but poorer in quality is the huge area of brown coal in Victoria, a source of wealth much discussed by engineers since a scheme for converting its power into electricity on the spot was put into the hands of General Monash, the Commander-in-Chief of the first Australian Army.

The uniformity of the surface of Australia rests on a uniformity of structure below it. About two-thirds of the continent is a very ancient plain of " Palaeozoic," or older rocks planed down to a more or less uniform level. This stands at a height of about 1,200 feet above the sea. The more sunken edges of these lowlands of the Tertiary age have been dipped under the sea a number of times in geological history. This immense plateau occupies most of Australia west of a line joining the Gulf of Carpentaria in the north to the Spencer Gulf in South Australia. Almost the only late rocks are in the extreme south along the Bight where a basin of chalk is found round and about Eucla. The low-lying basin of Lake Eyre and the South Australian Highlands culminating in Mount Lofty consist chiefly of Cambrian and pre-Cambrian rocks which merge into the sediment left by the Darling and Murray rivers.

The Great Plateau may be said to have three divisions : (1) The so-called desert



E L. Mitchell, Perth

PERTH IN CARNIVAL SPIRIT TURNS OUT FOR A REGATTA ON SWAN RIVER

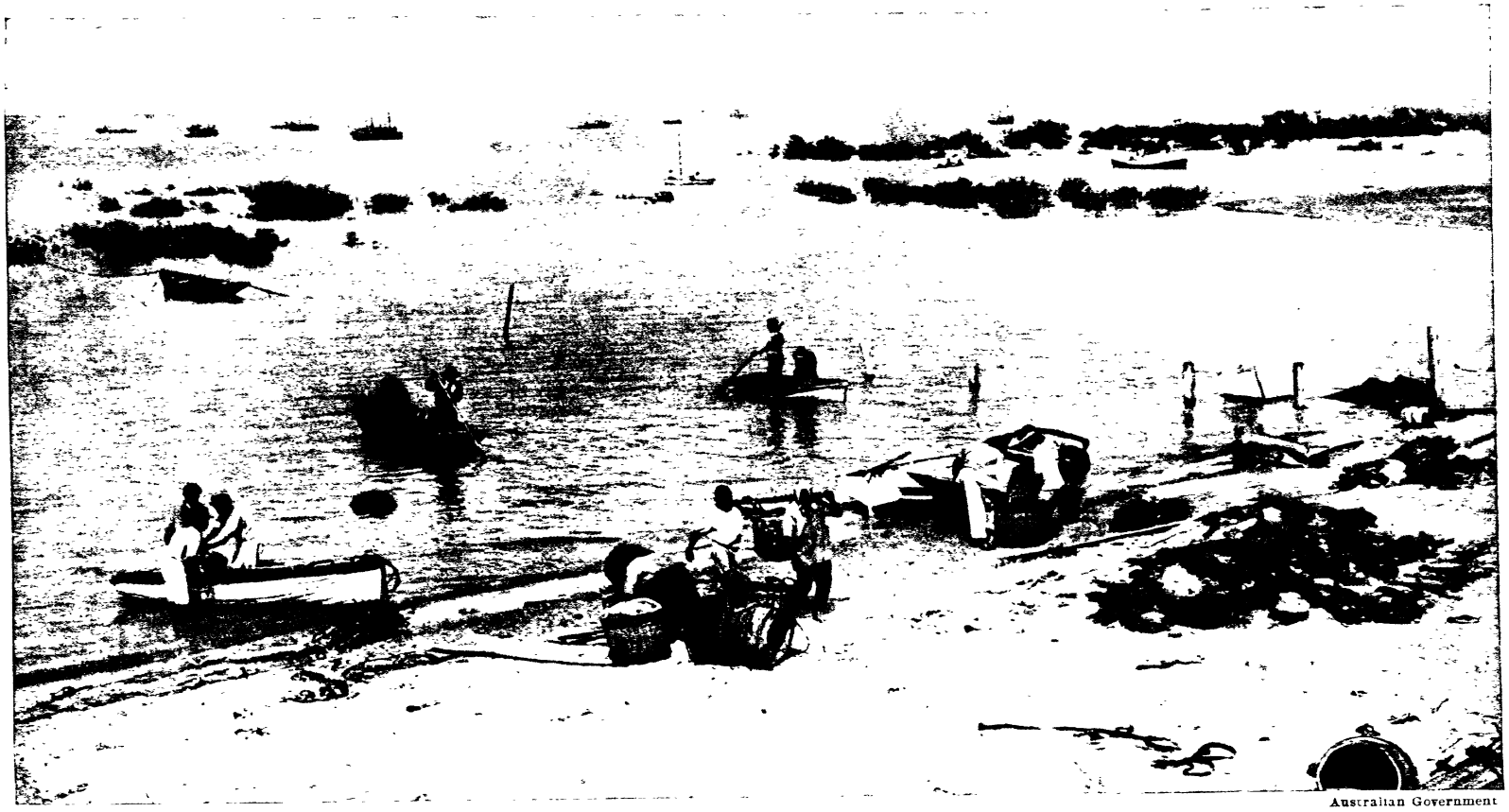
Though not lying by the sea—indeed Fremantle, the port, is ten miles away—Perth has many of the amenities of a seaside town by virtue of its situation on the Swan river which here spreads out into broad lagoons. Such magnificent chances of river sports are not neglected and regattas like the one illustrated are frequent. We are watching it from King's Park and looking across the water to the leafy suburb of South Perth ; the main town lies away up stream to our left



Australian Government

SUPERB HARBOUR OF ALBANY IN WESTERN AUSTRALIA SEEN FROM MOUNT MELVILLE

Situated on a rocky coast about 350 miles south east of Perth Albany is a most popular health resort it is the chief town of Plantagenet county and has large brewing and leather working industries Though its position on Princess Royal Harbour in King George Sound renders it one of the finest ports on the coast it has had to yield the precedence to Fremantle but it remains still a port of call for mail carrying steamers bound for South Africa the population is about 4 000



Australian Government

RETURNED PEARLING FLEET LANDING ITS HARVEST OFF THE COAST OF WESTERN AUSTRALIA

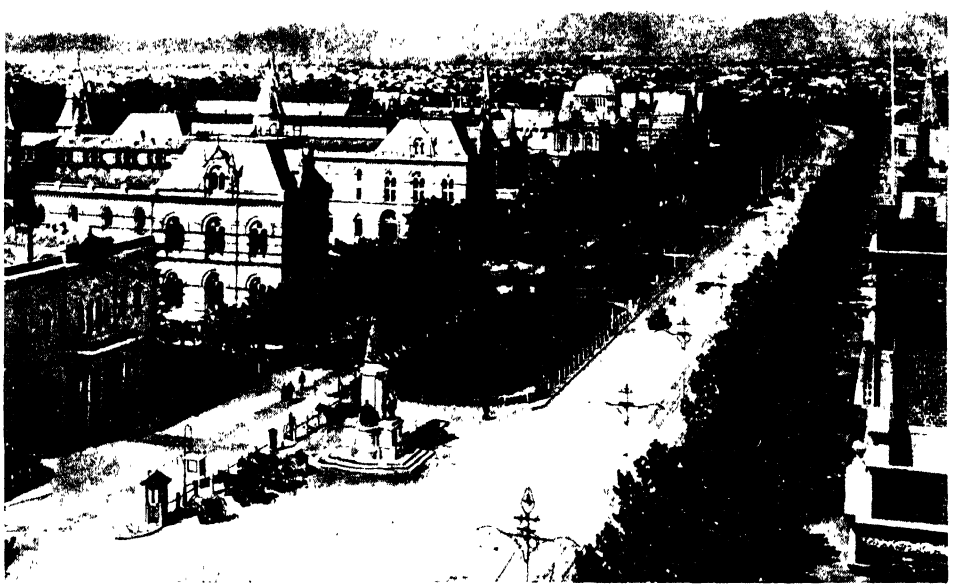
In the tropical waters all round the Northern Territory, and even southward down the coasts of Queensland and Western Australia, the pearl oyster abounds and pearling industries are carried on. The edible oyster fisheries are all farther south. Here a pearling fleet has put in off the north of Western Australia and the catch is being landed in small boats ; the pearl itself, of course, is valuable but the aggregate yield of the shell is even greater. For Western Australia alone in the ten years 1912-21 the quantity of pearl shell was 14,739 tons, the value of the pearls and pearl shell being £600,932 and £2,327,289 respectively



Australian Government

RUNDLE STREET, ONE OF ADELAIDE'S BUSY SHOPPING CENTRES

Adelaide, capital city of the state of South Australia, is situated on an extensive plain and on the Torrens river, seven miles by railway from its haven Port Adelaide on the Gulf of St. Vincent. The town is cut in two by the river, which has been dammed to form a lake, the north side being mostly residential, while the south is given over to commerce



Australian Government

NORTH TERRACE, ADELAIDE, AND ITS GREAT PUBLIC BUILDINGS

Four terraces enclose Adelaide, and within the square so formed the town is built with all streets crossing at right angles and forming rectangular blocks of buildings. North Terrace contains the Parliament House, the Government House, the University and Art Gallery. In the distance is the dark line of the Mount Lofty Range. The city is South Australia's trade centre and exports wine, wheat and wool



Australian Government

IRRIGATION REWARDED IN WESTERN NEW SOUTH WALES: A THREE-HORSE REAPER AND BINDER AT WORK

Though sheep rearing is the chief occupation of New South Wales and large sections of land are liable to drought, agriculture is increasing as it shares the benefits of irrigation originally meant for the sheep farmer. It had long been recognized that the western parts of the state had abundant areas of rich soil and, indeed, all that a farmer could desire save an adequate and dependable water supply. Thus most of the crops were grown on the damper seaward slopes. Now, however, even the west is being irrigated, with such results as are seen above

which is one-fourth of Australia and is still inadequately explored; (2) The Macdonnell Ranges to the north and east consist in the south of limestones and sandstones and in the north of much older rocks, of gneiss and schists and granite. In one place is a layer of mica six feet thick, and there is one gold mine area undeveloped owing to the difficulties of water and transport; (3) The gold-fields of Western Australia, a limestone region once a desert now watered by a huge pipe-line from the Darling Ranges near Perth, 400 miles away. The barrenness of the plain is largely due to the underlying limestone that allows the water to trickle away through unseen caverns. How strange and beautiful such caverns may be is seen in the Jenolan Caves in the Blue Mountains of the south-east, and in the curiously similar caves near Yallingup south of Perth. On the east of the Great Plateau extends an immense artesian system, once perhaps part of the Gulf of Carpentaria which came as far as the salt marshes of Lake Eyre. Now it is converted into a marvellous pastoral district by the subterranean water making up for the paltry 10 inches and at most 20 inches a year that fall in rain.



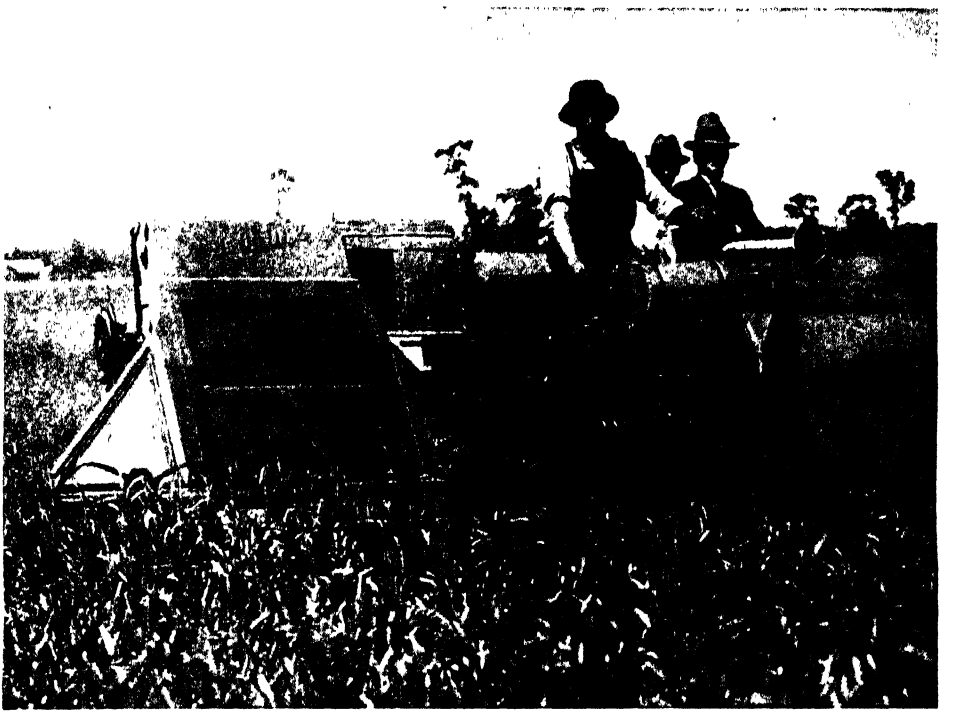
WHEAT AS HIGH AS A MAN MAY REACH
This farmer is testing the fruitfulness of the ears and also gauging, by the length of the stalks, the amount of straw that the crop is likely to yield. In the distance is an irrigation canal to which the result is largely due

East of this again, close to the coast, run what are called the Eastern Cordilleras, extending from Cape York—which is all highland—nearly to the western boundary of Victoria. The rocks vary immensely in height and in consistency. In Queensland they are often 150 miles broad, with masses of granite on the eastern side cut into deep clefts, as are the later Palaeozoic rocks behind. The range reaches to within some sixty or seventy miles of the inland sea cut off by the coral reefs that mark the coast. Signs of volcanic outburst are obvious in many places.

In New South Wales it consists of three giant massifs of Palaeozoic rocks buttressed with granite. North and south of Sydney the ridge and coast cliffs join and are built of Trias sandstone with outcrops of coal and shale—parts of the immense coal-fields north, south and inland of Sydney. Most famous are the Blue Mountains, due to a late upheaval of the sandstone. Yet farther to the south-west is a huge granite block, rising at Bimberi Mountain to 6,000 feet and connected direct with Mount Kosciusko, 7,328 feet, where snow and ice prevail sufficiently to give opportunity for winter sports. This

IMMENSE FIELDS OF NEW SOUTH WALES UNDER TILLAGE BY MODERN METHODS

A pastoral scene from the Narrabine district of central New South Wales. Multiple-disk cultivators drawn by five-horse teams are seen in operation, breaking up the hardened soil in preparation for the later ploughing and sowing of the crop. New South Wales ranks as one of the best agricultural states in the Commonwealth, possessing as it does great tracts of flat, fertile ground. Its pre-eminence may be clearly seen from the fact that the acreage under wheat in 1922-23 was approximately 5,000,000, yielding about 28,600,000 bushels. The acreage under oats in 1921-22 was 93,600, with a yield of 1,165,000 bushels



HORSELESS HARVESTER CUTTING WHEAT IN NEW SOUTH WALES

Most of the wheat farming in New South Wales has to be carried on in those districts which receive not less than 20 inches of rain in the year. But a great dam erected on the Murrumbidgee at Burrinjuck will enable these restrictions to be removed. The area affected is estimated at a million acres, which are divided into smallholdings by the government

so-called Dividing Range presently fades away to give place to the famous Wimmera and Millewa plains and a number of mining centres such as Ballarat, Bendigo and Ararat. Behind Melbourne again are considerable hills of volcanic origin; and one of them, Mount Macedon, 3,325 feet, is a great holiday resort. The chief spur of the range which here dips under the sea appears in Tasmania.

The geology of the country has a more than usually close connexion with the agriculture, because much of the land consists of the crumbled rubble of high peaks now flattened into very broad valleys and plains, and the rising up of a high ridge near the sea has sent the rivers on an inland course.

Australia's essential wealth comes from the production of wool and meat and grain and fruit and minerals, but the ambition is general to add secondary to primary production. Almost anything that can be made in Australia has an import duty. This ambition is swelling yearly the sum total of the country's manufactures, and it is already large, even in comparison with the primary produce. Much of it is concerned with food and drink, but quantities of other manufactures, as of woollens and paper, are appearing and increasing. The presence of certain raw materials complementary one to the other, in close juxtaposition, gives sure promise of a great industrial future.

The prosperity and development of the primary producer and the manufacturer will depend not a little on the speed with which the railways and perhaps the air routes are developed. At present the railways in all states but Queensland are chiefly confined to the coastal areas, and even there are not continuous towards the north either of Queensland or of Western Australia. In spite of the immense natural wealth of these districts, where short sections have been started, there is small immediate



Australian Government

HOW THE EARLY MINERS FOUND THEIR GOLD

Contrasting with the highly scientific process of gold extraction seen in page 453, the work of washing "dirt" is still carried out by hand in districts where the deposit is scanty or when cheap labour is available

prospect of any very rapid advance. One of the places crying out for means of communication is the Kimberley tableland in the north-west corner of the continent which, thanks to its height and in spite of its tropical latitude, is an ideal cattle country. To the south of it again are marvellous cliffs of iron ore waiting exploitation. Ships may in some degree do the work of railways, but the difficulty in this neighbourhood is the huge rise and fall of the tide.

A railway that will profoundly alter the world's conception of the interior of the continent is the projected trans-continental line from South Australia through the Northern Territory to Darwin. The idea is being pushed forward with great zeal and imagination by men who believe that they can completely shatter the too prevalent view that central Australia is of the nature of a desert. It is convertible by the application of science and easy communication into a source of wealth as yet hardly dreamed of.

Possibly no country in the world is better adapted for air travel. The skies are comparatively cloudless and visibility is high. The ground surface is on the whole level and smooth. The training and quality of the Australian make him a skilful pilot. The pioneer's worst enemy has been loneliness in the great spaces. In the future the aeroplane and wireless communication will quite destroy this particular foe.

It is a strange phenomenon that Australia, the "Paradise of Primary Production" gives the most startling example in the world of concentration in towns. The five capitals contain half the population and the most noticeable deficiency of Australia in the eyes of the European is the general absence of villages. The chief novelty of one of the latest immigration schemes is founded on the principle of "group settlements" and the present intention, notably in Western Australia, is to create the village as the word is understood in England. The villages are found chiefly in places where the more intensive forms of agriculture have been developed. Some of the best flourish in the wine districts of South Australia, of which several owe their origin to German settlers from the Rhine and Moselle. The rural communities in the



AUSTRALIA. *Some enchanting bits of scenery enrich the Avon, the river that flows near Stratford, Stroud, and Gloucester in New South Wales*

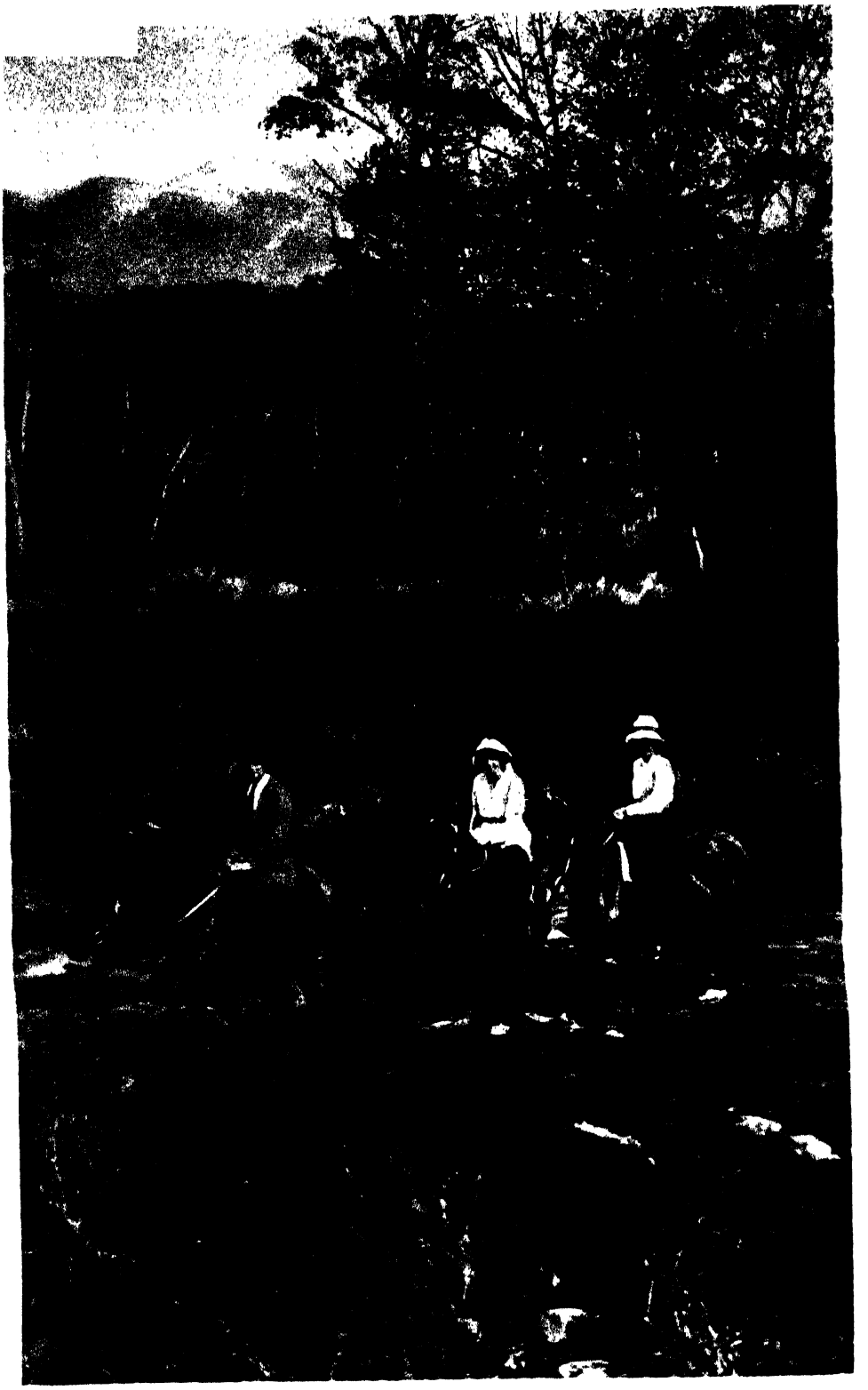


Australian Government

AUSTRALIA. *It is for wool that the Australian still primarily breeds sheep, and in the season ox-drawn wool teams plod their way from all parts of the Commonwealth to the sale-rooms at Sydney, Melbourne, and Geelong*



AUSTRALIA. *Upon this spacious site within a Federal enclave in Murray County, New South Wales, backed by the Alpine range, Australia's Federal capital Canberra was founded in* 1913 *on the banks of the Molonglo*



AUSTRALIA. *Here, near its source below the soaring peak of Mount Kosciusko, the stripling Murray has many a shallow and pretty ford*







AUSTRALIA. *Cedar logs from the forests of New South Wales are hauled over the rough tracks to Picton and other timber depots*



AUSTRALIA. *Silver mining flourishes round about Yerranderie and Burragorang in New South Wales, but there is no railway to the field and the precious ore has to be carted over mountainous roads to Camden*



AUSTRALIA. *Agricultural energy is dramatically displayed when the great strippers drawn by teams of fine horses sweep through the grain lands, as here in New South Wales, where the oats are being harvested*



AUSTRALIA. *Some of the fairest scenery in New South Wales is preserved for the delight of all posterity in National Park, a wooded region watered by the river Hacking that winds to its end in Port Hacking Bay*

newer irrigation areas, such as the Riverina and the Yanko in New South Wales, have great attractions and combine the advantages of town and country, the widely-spread smallholdings and farms coalescing at the centre into a roomy and open township.

The excessive population of the five state capitals is not a quality that as yet belongs to the Federal capital of Canberra, whither one day the government is to move from its present home in Melbourne. A lovely site has been chosen, some 900 square miles in all. It is about 2,000 feet above sea-level and the plan is attractive on paper; though it is being perforce altered the better to suit the contours of the country and to avoid cuttings for the roads. An observatory has been built and re-afforestation is well advanced. Near by is the military college, and a railway has been planned to connect Canberra with an ancillary piece of Federal property at Jervis Bay where a naval college for 120 cadets is in being.

Sydney and Melbourne claim precedence over all other cities in size and elaboration. Sydney is the bigger, but Melbourne, too, may soon reach the million. Sydney boasts the finest harbour in the world and Melbourne one of the most spacious highways. Both may be called cosmopolitan in the character of their buildings, their shops, their hotels and their way of life. The other capitals are more individual in certain aspects. Brisbane, as seen from the famous One-Tree Hill, includes a space big enough for four million people if the houses were as close as in London or New York. It may claim almost to rival Melbourne in the excellence of its racecourses. There is perhaps no other



MOUNT BOPPY, A GOLD-MINING TOWNSHIP OF NEW SOUTH WALES

Various methods of mining are employed in Australia: dredging is used to win the precious metal from streams, river flats and wet ground where sinking is impracticable; hydraulic sluicing is also common. This photograph illustrates the tanks and revolving sprays used in the cyanide process. Most of the gold of New South Wales comes from Hunter and Macleay District



Australian Go

SMOKE-STACKS THAT ARE THE EMBLEM OF BROKEN HILL'S PROSPERITY

Here is a view of some of the humming industry that maintains in prosperity the town of Broken Hill on the western borders of New South Wales. Out of its population of 30,000, 4,000 hands are employed by the Proprietary Mine alone. Another scene at Broken Hill, and some account of its varied mineral and pastoral resources, are given in page 418



Australian Government

SIFTING GOLD AND COPPER FROM QUEENSLAND ROCK

Mount Morgan, a town of about 10,000 inhabitants 24 miles by rail from Rockhampton in Queensland, owes almost all its prosperity to the gold and copper mine of the same name, part of which is illustrated above. It is a dreary scene that the bare debris from the workings presents, but in 1920 the mine produced over £1,000,000 in value of the two metals in conjunction



Australian Government

RURAL PEACE ON A NEW SOUTH WALES FARMSTEAD

Nearly 300 miles north of Sydney, in a lovely fertile hollow of the Liverpool and New England Ranges, are Tamworth town and district. Though gold is found there in some quantities and even diamonds, it is mainly characterised by such beautiful pastoral scenes as this, showing horses at large on a farm. The town itself is on Peel river and has a population of some seven or eight thousand

city where horse racing—a leading national sport in Australia—is so pleasantly arranged for the public, although of course no meeting can rival the Melbourne Cup.

Adelaide, the capital of South Australia, is made individual by its "hinterland," a range of lovely hills whose feet are placed in the suburbs. At the top are a succession of fair orchards, of smallholdings and residential houses, nearly all surrounded by gardens of exceptional beauty.

Perth, the capital of Western Australia, had at one time an evil reputation as a place of "flies, sand and ophthalmia," but it has long since got rid of the reproach. The Swan river and the great lagoon into which it opens give it the charm of a seaside city, though the harbour of Fremantle is ten miles away. The King's Park overlooking the city encloses between its wide drives, fringed with English trees each dedicated to a Great War hero, spacious tracts of native woodland and a great variety of wild flowers, the glory of Western Australia.

The suns of Australia, encouraging to perpetual activity a most athletic stock, have produced a type of men and women singularly "lithe and lean, with clean-cut features and firm mouth," to quote one Frenchman's description. The race is for the most part British in origin, more so, it is claimed, in Western Australia than in other states; but British everywhere, though quite a few years seem to influence the type, wherever the immigrants come from. The exceptional athleticism of the Australian type is conspicuous among the pastoralists and pioneers and reaches a climax in the teams of shearers who

travel from end to end of the country in pursuit of their calling. Among marked groups from countries other than Great Britain are the Germans in the vine-growing districts of South Australia and the Italians who have migrated in successive groups to the sugar districts of Queensland, where for the most part, unlike men of their race who work in America, they settle down in the land of adoption. It is their habit to work in cooperative groups, and as soon as the group saves enough money land is bought and one of the purchasers is selected to farm it.

The native races of Australia are now of small account and continue to diminish. No proper census has been taken owing to the wide spaces, unconnected by any transport facilities, over which they are scattered, and their nomadic habits. In the far past their ancestors, who neither tilled nor built, had much ado to support life and the hard struggle for sustenance in a dry country drove them to take measures and pass laws against an increase in the population. In most parts these habits and practices still continue at the same time that genuine efforts are made to arrest the extinction of the tribes, which is steadily proceeding owing to the advance of civilization. But in the half-known areas towards the north of Australia the tribes, which vary much in customs as in physique, are tolerably numerous. Many work on stations, but still they prefer to maintain life by hunting and fishing. Estimates of the total number of blacks in the continent vary between 80,000 and 100,000. Many are in a quite savage state and in general their disinclination to work, especially at agriculture, persists. But



CARTING GRAIN ON A COUNTRY ROAD IN NEW SOUTH WALES

On the dusty road to Tamworth, New South Wales. A formidable load of grain is being dragged by an eight horse team to town, through which the railway passes en route for Sydney. The photograph also well shows the nature of the surrounding countryside; a lovely park-like expanse in which fields and woods alternate, it might almost be a section of some southern English county



TRIO OF EMUS, SECOND LARGEST BIRDS IN THE WORLD

Among many birds found only in Australia is the emu, second in size to the African ostrich. The wings are rudimentary and the bird relies on its great running speed and formidable kicking powers for escape and defence. The eggs are green and incubated by the male. Emus are easily domesticated and readily breed in captivity, but in their wild state are seldom seen save in the remoter regions









Australian Government

KANGAROOS IN THE ZOOLOGICAL GARDENS AT MELBOURNE

There are many species of kangaroos, varying in size from the red kangaroo which measures over nine feet from nose to tail tip, and weighs 200 lb., to a pygmy variety, the size of a rabbit. Kangaroos go in herds and are herbivorous. This photograph shows them resting partly on their strong tails, a characteristic position. In colour they may be red, grey or nearly black



Elwin R. Sanborn



Australian Government

TOOTHLESS DUCK-BILL, LOWEST OF THE MAMMALS, AND THE TREE-HAUNTING KOALA

These two left-hand photographs show the strange Duck-Bill, or Duck-billed Platypus, a mammal that yet, like the duck, has a beak, web feet, and lays eggs. It lives in burrows by the banks of streams and the hind feet of the male carry poisoned spurs. On the right is a Koala, carrying its young one. This little ash-grey marsupial descends to the ground on dark nights to vary its diet with a few roots. Otherwise it spends most of its time in the tops of eucalyptus trees eating buds



Phalangers, often erroneously called opossums, are small animals with woolly coats and are confined to Australasia. The name refers to their ability to use the first toe of their hind feet like a thumb



Feeding largely on grasshoppers, the piping crow is so named from its remarkable powers of whistling. The plumage is black and white, and it is found throughout the country



The echidna or spiny ant-eater incubates its young in a pouch It burrows in the sand and captures insects with its slimy tongue



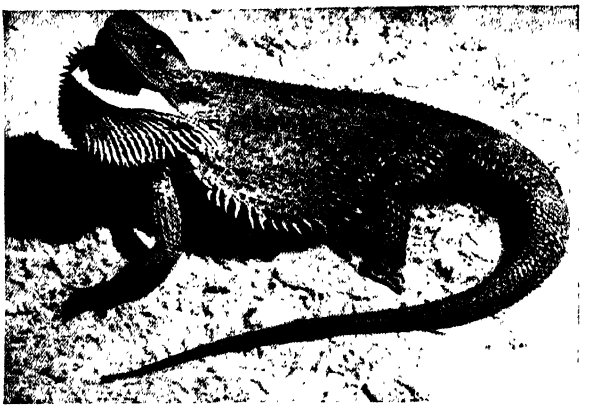
There are over fifty species of kingfisher peculiar to Australia. They are often found miles from any stream, when they feed on reptiles and insects A distinctive feature is the union of their third and fourth claws



Australian Government

At dusk and dawn the mocking cry of the laughing jackass sounds among the woods. Its feathers are brown and black and it eats snakes

FIVE PECULIAR SPECIMENS OF AUSTRALIA'S FAUNA



REPTILIAN FREAK OF THE ANTIPODES

Bearded lizards belong to a group exclusive to Australia and Tasmania. Also called Jew lizards, they are brown with black throats which they inflate when alarmed

they are not in any degree ferocious and have attractive qualities. It is remarkable that while the natives are not very long-lived and in some cases not very healthy, the immigrants find that the climate and surroundings and conditions tend to singularly good health and to long life. The death rate is perhaps the lowest in the world, with the single exception of New Zealand. The determination to keep the country a white man's country is almost universal, despite suggestions that the north will never be properly developed till wider immigration laws are countenanced. A great revival of definite schemes to encourage immigration from Britain began in 1922, and may have far-reaching effects.

AUSTRALIA: GEOGRAPHICAL SUMMARY

Location. 13° S. to 43° S.; 113° E. to 153° E. Rockhampton on Tropic of Capricorn. Cf. Rio de Janeiro and Hongkong. Sydney 34° S. Cf. Cape Town and Buenos Aires.

Physical Divisions. Western half—Western Plateau. Eastern Highlands. Between plateau and highlands the Great Plains, of which the Gulf of Carpentaria is a submerged portion.

Climatic Conditions. North: monsoon, tropical climate, with summer rains. Cf India. To the southward: summer rains, generally in large quantities on the east coast (Queensland), in small quantities on the west coast, and in slight amounts inland; temperatures high, especially inland, which has Saharan summer temperatures. Farther southward: a zone of indeterminate rainfall, heavy on east coast, slight on west coast, almost absent inland. South: warm temperate climate, with winter rains in the south-west and south-east corners, slight rains along the Bight.

Vegetation. North: jungle forest where rainy, grass lands where rainfall is slight. Interior: west, hot desert—cf. Kalahari; on the plains, scrub and grass lands; on the east coast, forest. South: forest where rainy, grass where dry.

Rivers. Lake Eyre basin of internal drainage; Cooper, Diamantina, etc. Cf. Chad basin. The rivers of the southern plains from the eastern highlands, the Murray system, Murray, Darling, Lachlan, etc., usually alternating between summer wadis and flood torrents after rain, frequently losing themselves in a wide braided course. Cf. Athara and Blue Nile. Coastal streams from the Western Plateau or the Highlands, Ashburton, Fitzroy, Hunter, Snowy.

Products. Sheep, about one-fifth or one-sixth of the world's really useful flocks, yielding about one-fifth of the world's wool; the product of the downs, pre-eminently the basis of squatting. Cattle along the east and south: dairy cattle, yielding dried milk, butter and cheese, reared on the rainy valley floors of the highland coastal edges; in the north-west and north, on the hot grass lands, beef cattle—cf. Brazil—a future source of meat for the world as yet slightly developed. Wheat, in increasing quantities, an important Imperial source of British flour, in the south-east. Vine products: wine, table grapes, dried grapes. Cf. California. Apples in Tasmania. Cf. Nova Scotia. Oranges in New South Wales. Cf. Florida. Tobacco, pineapples, cotton, cane sugar in Queensland. Cf. south-east United States and Cuba. Minerals: one-sixth of the world's gold, one-third of the coal of the Southern Hemisphere, considerable quantities of silver, lead, copper, tin and zinc.

Communications. Rapidly developing railway system, transcontinental line in south; good coastal steamer service; air mail services, good oceanic services; but no great navigable rivers

Outlook. People are needed. Experiment has shown that white people can provide the labour necessary for the exploitation and development of the resources of the continent, hence the demand for British emigrants and the ideal of a White Australia.

AUSTRIA

Its Alpine Grandeur & Great Resources

by Crawfurd Price

Authority on South-Eastern European Questions

THE state of Austria which survived the disruption of the Austro-Hungarian Monarchy in 1918 bears little relation to the great and mighty Empire over which the Hapsburgs ruled for centuries in such majestic splendour. In 1910 the inheritance of the emperors covered an area of 261,259 square miles, with a population of 50,000,000 inhabitants, geographically and economically complete in itself. The Treaty of St. Germain, however, made of Austria a grotesquely shaped unit only 32,387 square miles in extent with a population reduced to less than 6,500,000, of whom approximately one-third were congregated in the city of Vienna.

In the tracing of the confines of the new state physical conditions played but a secondary part. The Great War had been largely brought about by the rise of nationality in the Dual Monarchy, and when the Austro-Hungarian armies acknowledged defeat on the battlefield the peoples of the Czech, Polish and South Slav provinces immediately broke away and either declared their independence or amalgamated with racial brethren who had long enjoyed their freedom.

Delimitation by Nationality

The frontiers of the Austrian Republic, therefore, are mainly the result of the application of the principle of nationality — to its detriment and in the interests of its neighbours. What the spontaneous breakaway left undone in this respect was completed at the Peace Conference. By the Treaty of St. Germain (Sept. 10, 1919) the Allies excluded all compact masses of non-Germans and where, as often happened, racially mixed territories were encountered the decision was almost invariably unfavourable to the new state. Elsewhere, as on the Czecho-slovakian border, where German colonies were attached to the Bohemian industrial system, and in Tyrol, where Italy put forward a bold claim for a strategic frontier, large numbers of German-Austrians were detached from their fatherland and placed under foreign rule.

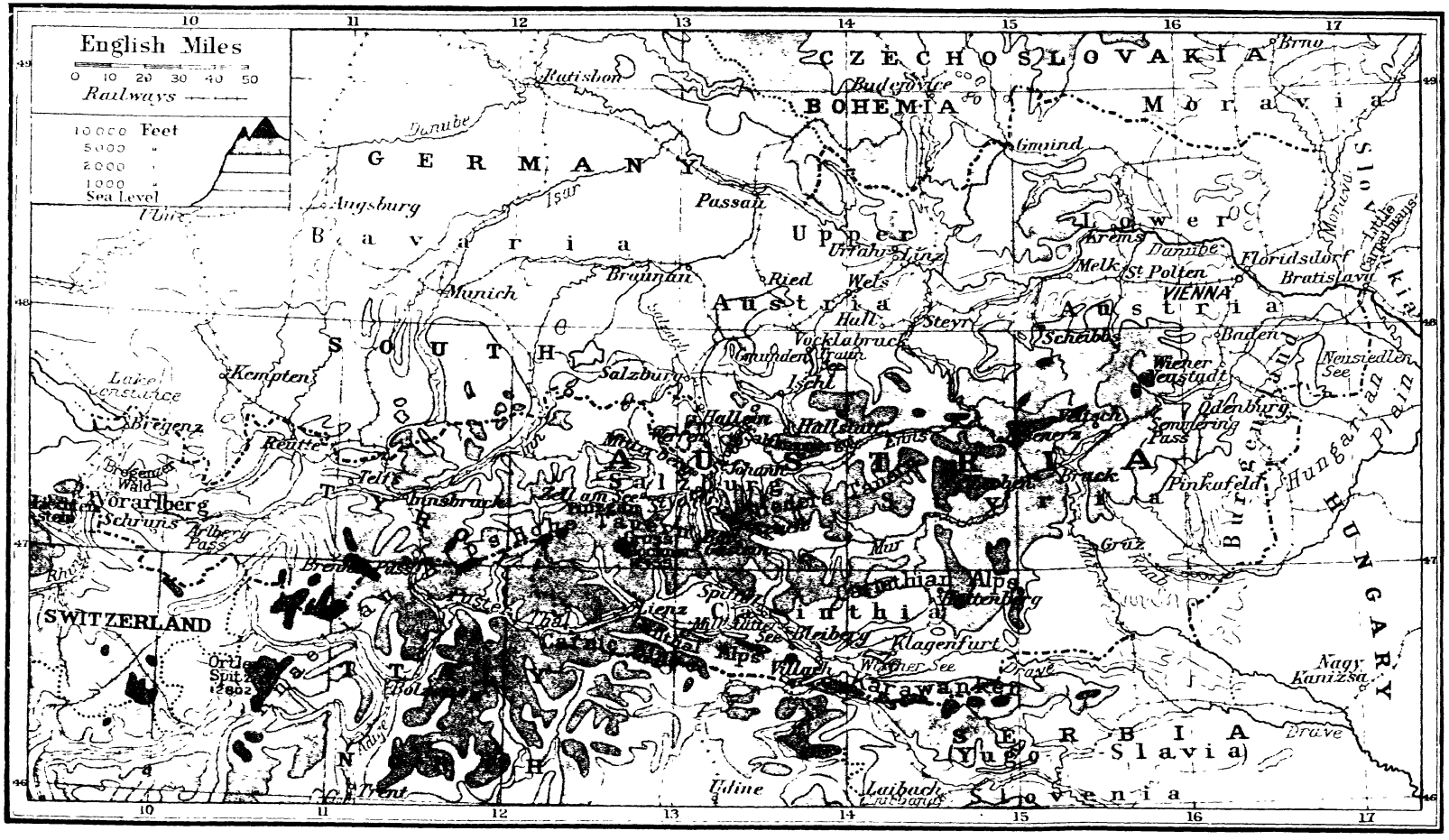
Constituent States of the Republic

Commercially related to Austria and, indeed, geographically a part of it, but still maintaining its sovereign independence, is the tiny principality of Liechtenstein, with its capital Vaduz; it lies in a narrow valley 15 miles long between Vorarlberg and the Rhine. Actual official partnership in the Austrian Customs Union was severed by the Great War; but it is an accident of politics and not of nature that keeps it a separate unit. Agriculture, weaving and industry occupy the 10,000 inhabitants.

Austria now consists of a federation of nine semi-independent states, whose area and population, according to the census of 1920, were as follows:

	Sq. Miles.	Inhabitants
Vorarlberg ..	1,005 ..	133,212
Tyrol	4,790 ..	306,304
Salzburg ..	2,763 ..	214,200
Upper Austria ..	4,628 ..	858,795
Lower Austria ..	7,462 ..	1,457,335
Styria	6,327 ..	953,684
Carinthia ..	3,684 ..	366,589
Burgenland ..	1,586 ..	290,891
Vienna	107 ..	1,841,326

While enjoying complete autonomy in local administration and legislation, these several states acknowledge the authority of the Federal government in all things appertaining to the constitution, foreign affairs, customs and taxation, civil and criminal law, communications, the military organization and



AUSTRIA : ITS MOUNTAINS AND VALLEYS WITH THE COURSE OF THE DANUBE



F. O. Hoppé

IN THE SALZKAMMERGUT, THE MOST BEAUTIFUL REGION OF AUSTRIA

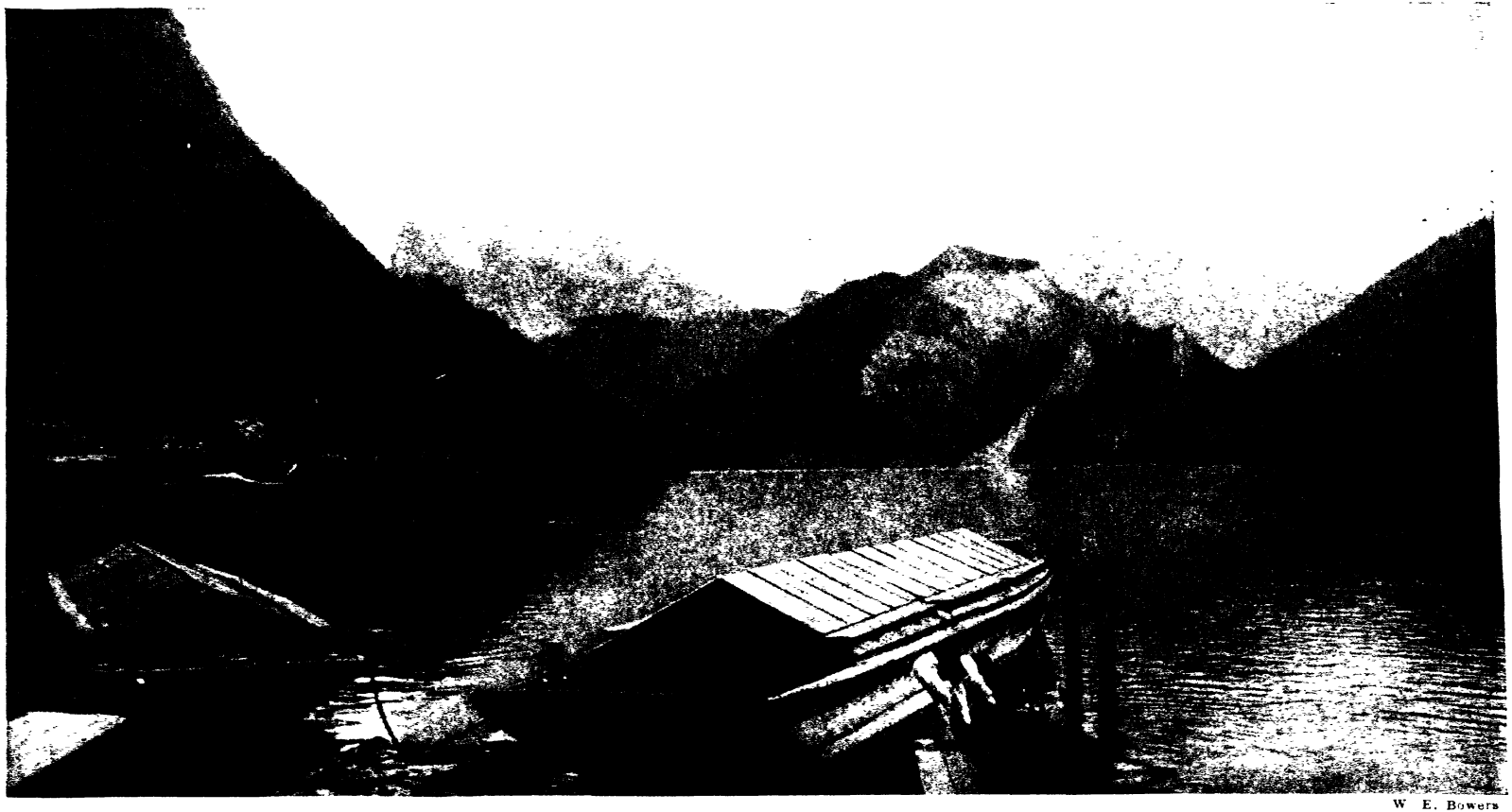
The Alpine district of Salzkammergut extends east from Salzburg into the states of Upper Austria and Styria. Famous for its natural beauty and for the charm of its lakes, of which the chief are Traun, Hallstatt, Atter or Kammer, and Mond, it is often called the "Austrian Switzerland." The inhabitants are mainly engaged in the production of salt, which is mined in large quantities

other matters of general interest to the Republic. The nominal head of the Federal government is a President elected by the National Assembly for a term of four years, whose position is chiefly representative since he controls neither the army nor the appointment of ministers and has no power to convene or dissolve parliament.

The present constitution was established on October 1, 1920. It consists of a National Council elected by the citizens of the Republic under a system of universal suffrage, and a Federal Council which enjoys the right to refer back all bills to the lower house for secondary consideration. Provision is also made, in certain circumstances, for a popular referendum.

Briefly put, Austria may be described as a state almost exclusively inhabited by South Germans, bounded on the west by Switzerland, on the north by Germany and Czechoslovakia, on the east by Hungary and on the south by Yugo-Slavia and Italy. Situated in the heart of Europe, between 47° and 49° N. and 9° and 17° E. of Greenwich, it is thus an entirely land-locked country forming, in general effect, a bridge between western and eastern Europe, between industry and agriculture and to a certain extent between the culture of the West and the immature civilization of the East.

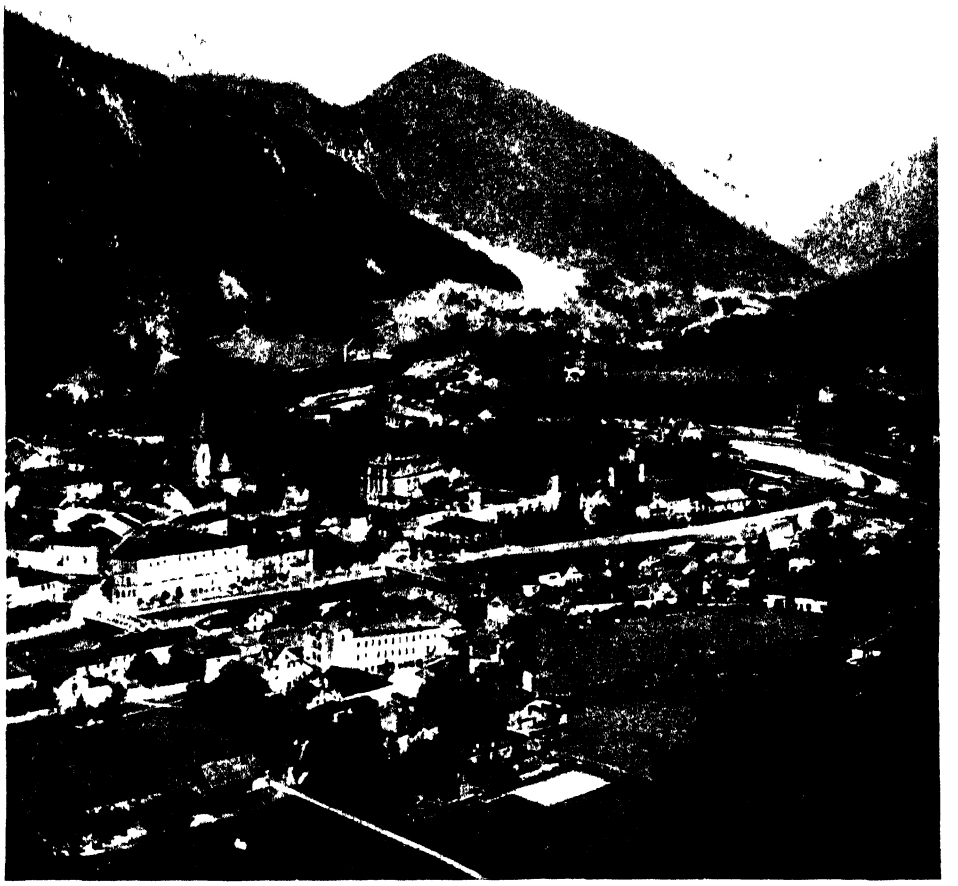
Physically, Austria is essentially an alpine country, for the great Central European Alps, crossing the frontier from Switzerland into Vorarlberg, continue their course eastward for a distance of 180 miles until, in the neighbourhood of Vienna, they bid adieu to the land of the Teutons and make their descent into the great plain of Hungary. In



W. E. Bowers

BY THE PLACID BLUE WATERS OF THE BEAUTIFUL TRAUNSEE, THE FAMOUS LAKE OF THE AUSTRIAN SWITZERLAND

Traunsee, a picturesque lake of Upper Austria in the Salzkammergut, is also known as the Gmundenersee, from the town of Gmunden, situated on its north shore. It is seven and a half miles long, more than 600 feet deep and 1,385 feet above sea-level, and is traversed by the Traun, the chief river of the Salzkammergut, which rises in Styria, flows through Upper Austria and joins the Danube near Linz. Precipitous peaks rise almost perpendicularly above the lake level, the culminating point being the Traunstein on the east side, towering to a height of 5,550 feet and shown in colour in page 472



I. N. A.

FASHIONABLE ISCHL, THE HEART OF THE SALZKAMMERGUT

Situated some 30 miles south east of Salzburg on a peninsula formed by the Traun and the Ischl rivers, Ischl (also illustrated in page 484) is a favoured summer resort of the Austrian nobility, whose villas abound in the valley. In addition to saline and sulphurous drinking-springs, it possesses excellent establishments providing salt, mud, sulphur, pine-cone and vapour baths

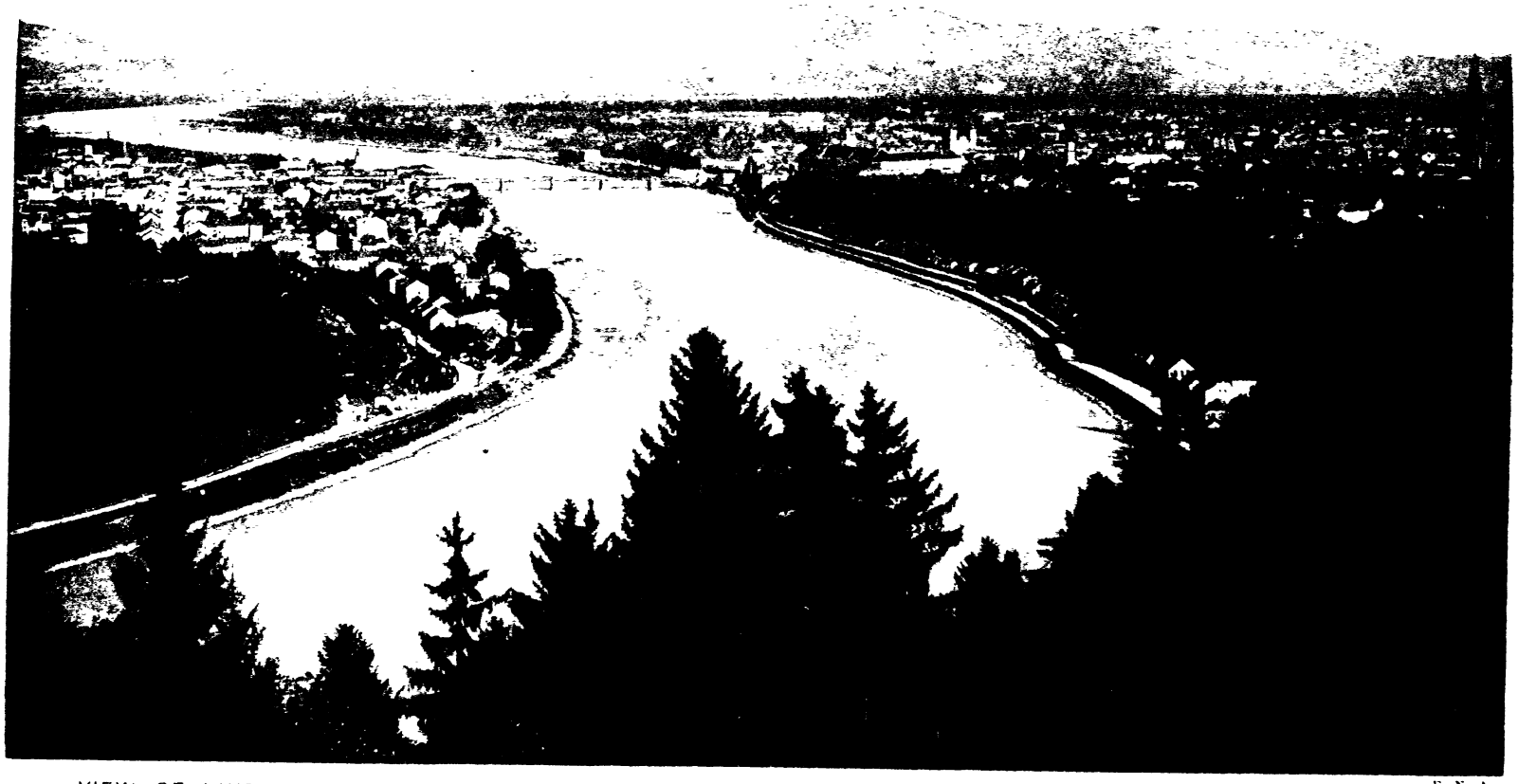
this mountainous area four geological zones are readily distinguished. In the north lies the sandstone zone—a spur of the real alpine world—with peaks rising to over 6,000 feet; but even here is found an abundant flora. On its southern side the sandstone merges into a northern chalk zone, beautiful in configuration, richly wooded and encompassing among others the famous upland forests of Bregenz, Salzkammergut and Semmering. Here also, nestling amid giant rocks with walls of solid chalk, are found a variety of hot medicinal springs of which the most renowned are those near Vienna, iodine (at Hall) and radio (at Bad Gastein and near Wels). Farther south lie the Austrian Eastern Alps—gneiss mountains of high elevation bordered by soft slate rocks in picturesque contrast. Some of the giant tors on these ranges approach a height of 11,500 feet and have long been a favoured resort of the most intrepid mountaineers. The gneiss mountains, like the chalk alps farther north, open out eastward towards the plain and continue a gradual descent through those wondrous sylvan districts which have earned for the province the name of Green Styria. The fourth, or southern chalk zone, is



GMUNDEN, PLEASANT TOWN AND POPULAR SUMMER RESORT LYING AT THE EFFLUX OF THE TRAUN FROM THE TRAUNSEE

E. N. A.

Thirty-eight miles east-north-east of Salzburg, at the spot where the Traun river leaves the Traun lake, at its most northerly point, to take a north-easterly course towards the Danube, is situated the town of Gmunden, one of the favourite and most frequented pleasure resorts of Upper Austria. It lies at an altitude of 1,400 feet above sea-level, and its convenient situation has made it a centre for numerous hill and lake excursions. From the shady esplanade a fine view of the lake is obtained: to the left lies the well-wooded Grunberg, while beyond is seen the Traunstein rising precipitously from the margin of the lake



E. N. A.

VIEW OF LINZ, CAPITAL OF UPPER AUSTRIA, AND THE TOWN OF URFAHR FROM THE JAGERMAYER HEIGHT

As the capital of the state of Upper Austria, Linz has flourishing manufactures and an extensive trade furthered in no small degree by its advantageous position on the Danube, 98 miles west of Vienna. Linz lies on the right bank of the great river directly opposite the town of Urfahr, with which it is connected by an iron bridge 308 yards long. It has several fine buildings, including the Museum Francisco-Carolinum, the Diet House of the province, an old castle, the seventeenth century cathedral and a new cathedral. The Jagermayer rises about one mile due west from the bridge across the Danube

formed by the Gailthal, Carinthian and Karawanken Alps—the most formidable ranges in the whole area—which are vested also with political importance by reason of the fact that their watershed constitutes the frontiers with Yugo-Slavia and Italy.

Danube Valley and Burgenland Plateau

Being thus so richly endowed with mountain land—the alpine region covers 92.3 per cent. of the whole—Austria is comparatively poor in plateau and plain. Only 4.5 per cent. of the total is open country and 3.2 per cent. moderately hilly. Such lowlands as exist are found principally in the Danube valley and in the Burgenland, which geographically forms part of the Hungarian plain. As an added compensation, however, the country has been favoured with a system of lakes and waterways which in their sheer beauty challenge the magnificence of the highlands. Most of the lakes are grouped in the vicinity of the Salzkammergut mountains and are most conveniently reached from Salzburg.

Of the rivers, the Danube is incomparably the most important. Navigable over its entire Austrian course, it enters the Republic at Passau and flows through the provinces of Upper and Lower Austria to Vienna. At Vienna the Austrians have constructed a spacious river port, equipped to handle large quantities of passenger and goods traffic, and, since shipping of considerable dimensions can reach the capital from the Black Sea, they are able to compensate themselves somewhat for the absence of a seaboard.

Beautiful Rivers and Waterfalls

Of the smaller rivers, which mainly invite the attention of the tourist, the most noticeable is the Inn, which rising in the Vorarlberg runs through Innsbruck, the capital of Tyrol, before, having struck a northern course into Germany, it bends eastward again and from Braunau to Passau forms a part of the Austro-German frontier. The Salzach, itself a tributary of the Inn, runs from the Krimmel waterfalls through the Pinzgau and Pongau ranges and having touched Salzburg forms the Austro-German frontier before its confluence with the Inn near Braunau, a town in Upper Austria.

In the south Austria shares the river Drave with Yugo-Slavia and Italy. On its Austrian sector it is principally noteworthy for the presence on its banks of Klagenfurt, a city which was incorporated in Austria following a plebiscite conducted by order of the Peace Conference, and Villach, the junction between Vienna and Trieste. Mention may finally be made of the Mur, the main river of Styria, which has its source in the Austrian iron-ore mountains and passes through Graz, the capital of Austria's richest province.

Variety of Climatic Conditions

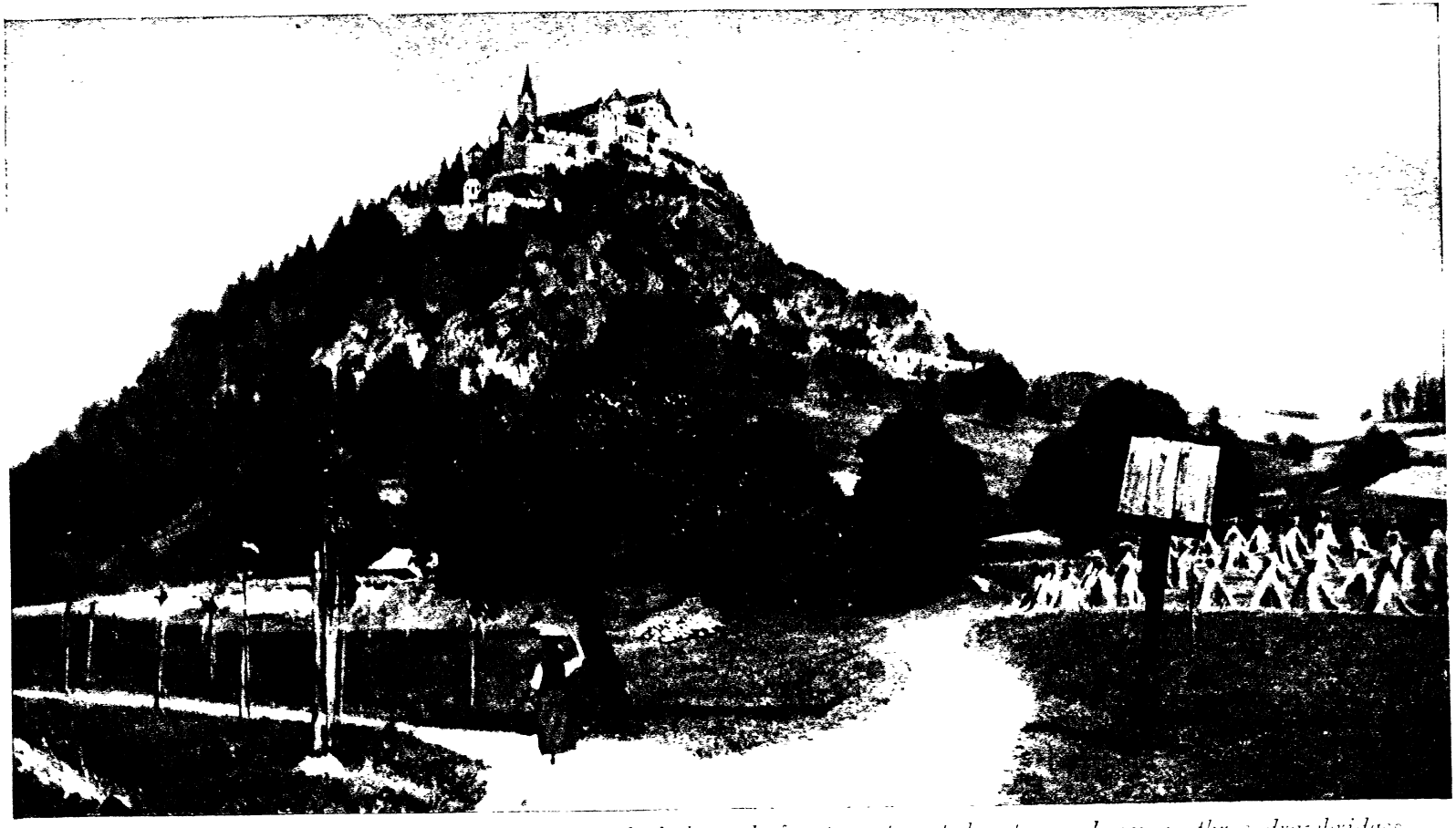
A country which varies in height from lowlands to 11,500 feet naturally experiences a variety of climatic conditions. As a general rule, however, extremes are experienced, the temperature being very cold in winter and correspondingly hot in summer. Much depends upon the direction of the winds. These are generally westerly; but a hot sirocco sometimes blows over the southern districts, while in winter currents sweep right across central Europe from northern Russia and are largely responsible for the piercing cold experienced in the east and around Vienna in particular. Nevertheless the atmosphere is exceedingly clear and the extremes of heat and cold are little felt.

In confirmation of this it may be remarked that forests are found at an altitude of 6,500 feet in the southern Alps and in the more sheltered regions cereals are brought under cultivation at a similar elevation. Eternal snowfields are not encountered until heights varying from 6,500 to 7,200 feet are reached, although glaciers descend into the valleys as low as 6,000 feet above sea-level. The total area covered by snowfields and glaciers is approximately 540 square miles. The rainfall is variable



AUSTRIA. *Founded in 1080 and re-erected 1701-38, the palatial Benedictine Abbey of Melk is one of the glories of the Danube*

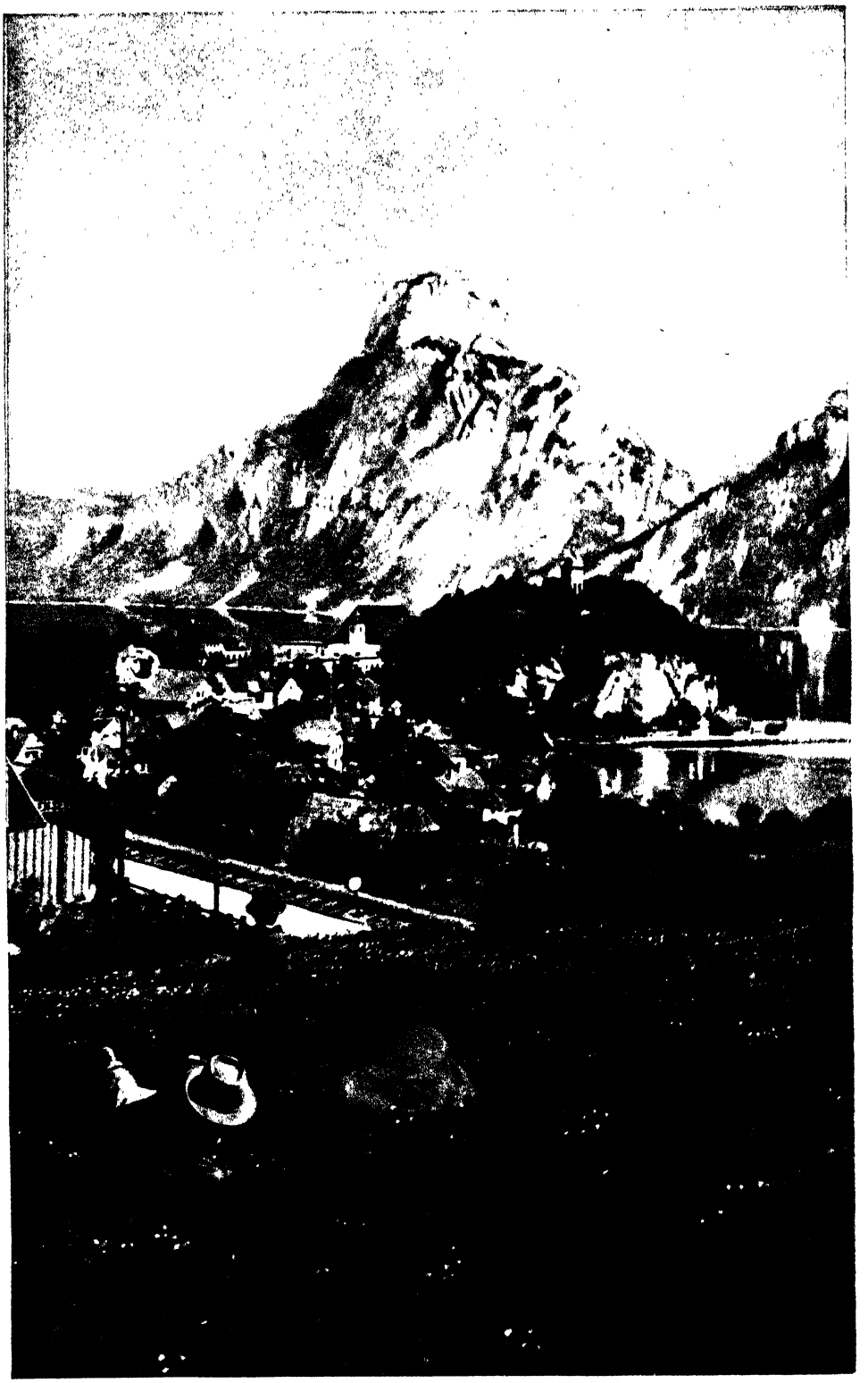
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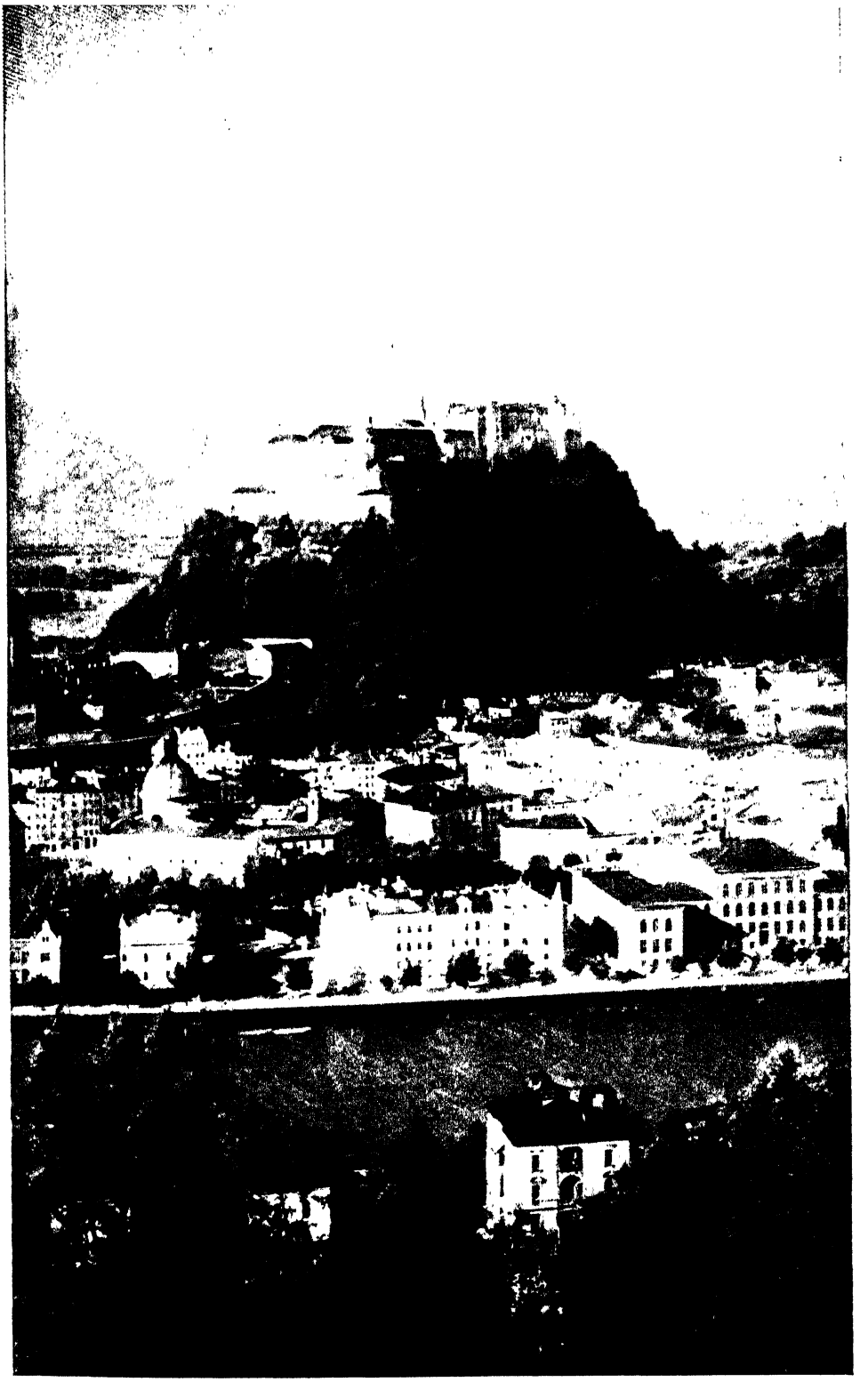
AUSTRIA. *Set on a rock 500 feet high and reached through fourteen turreted gates and across three drawbridges, Hoch-Osterwitz Castle, near Launsdorf, is an imposing specimen of a Carinthian medieval stronghold*



AUSTRIA. *Beautiful from source to sea, the Danube's loveliest reaches are between Linz and Vienna. Here named the Wachau, it winds through enchanting scenery shaped in an atmosphere of dreamy romance*



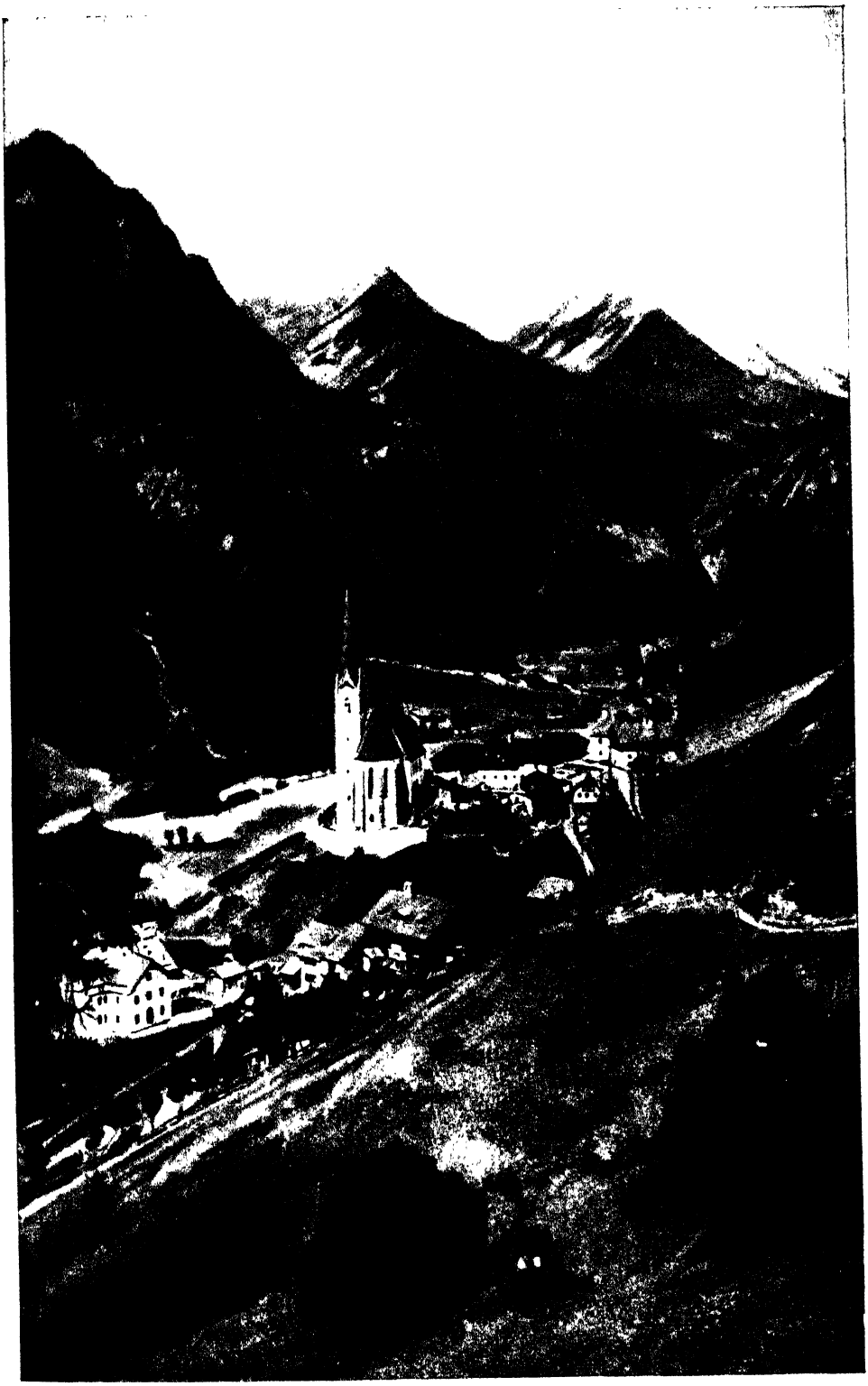
AUSTRIA. *Embayed on the west shore of the lovely Traunsee, Traunkirchen looks up at the Traunstein rising sheer from the lake*



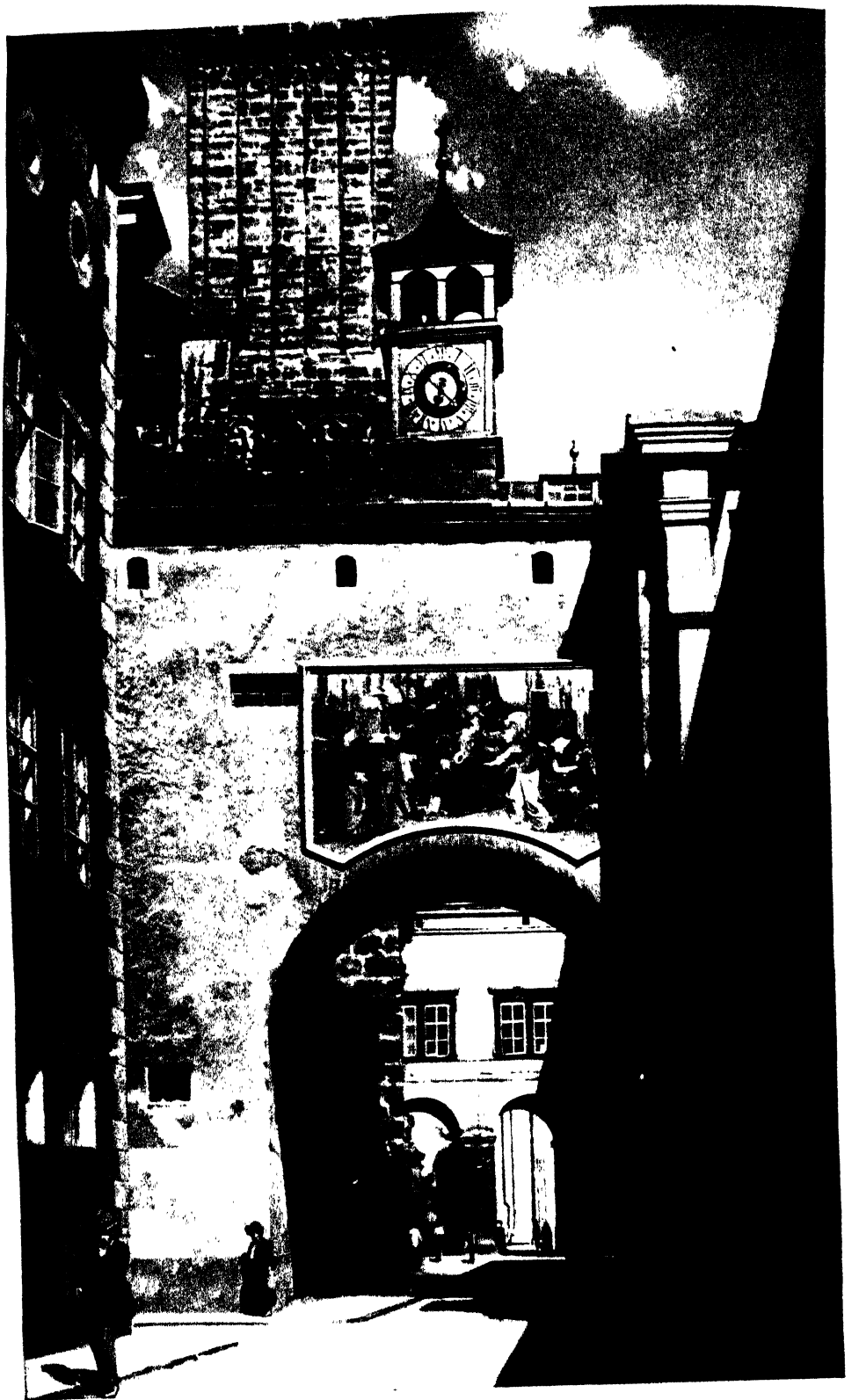
AUSTRIA. *From this great fortress-palace, the Hohen-Salzburg, archbishops of Salzburg formerly exerted the full power of temporal princes*



AUSTRIA. *Viewed here from the pretty Seebach Valley, the Ankogel is a notable peak among the Alps of Central Tyrol, soaring 10,793 feet skyward, a choice temptation to active tourists wandering through Carinthia*



AUSTRIA. *In the Alpine valley, sentinelled by the sublime Grossglockner, Heiligenblut guards its sacred phial of the Holy Blood*



Above: Through the fine portal Franciscan monks still pass to and from their monastery as when bishop prince ruled in Salzburg

both as to quantity and period, the total annual fall varying as much as from 30 to more than 80 inches per year.

Despite the fact that the Republic is essentially a mountainous country, half its area being unproductive or covered by forest, agriculture forms the principal pursuit of the population living outside the capital. The farming of cereals is mostly confined to the lowlands of Upper and Lower Austria and the plains of the Burgenland, often referred to as the Garden of Vienna. Here wheat, rye, barley, oats and maize provide the principal crops, but the production of potatoes is constantly increasing and a fair acreage of vineyards is under profitable cultivation.

Antiquated Agricultural Methods

The general standard, however, is low as compared with Switzerland, where the natural conditions are somewhat similar. This is largely due to the employment of antiquated methods, the insufficient use of artificial manures and the peculiar stratification of the soil. These difficulties are fully recognized by the authorities, who are not without hope that the use of better seed and the introduction of more intensive methods of cultivation will double the actual yield, which in 1922 was as follows:

Wheat	175,170	tons
Rye	320,333	,,
Barley	103,123	,,
Oats	248,698	,,
Maize	65,094	,,
Potatoes	1,287,036	,,

In the well-watered alpine regions dairy farming naturally flourishes and a fair quantity of butter, milk, eggs and cheese finds its way into the cities. Here, also, much of the land is devoted to cattle raising and grazing, while poultry farming is regarded as a profitable occupation, especially in Upper Austria and Styria. Nevertheless, and notwithstanding the prevalence of peasant ownership—only 6·1 per cent. of the land remains in the hands of large proprietors—Austria will probably never be in a position to feed herself, and the authorities have had to face the problem of importing more than 66 per cent. of the foodstuffs necessary to meet the national requirements.

By way of compensation, as it were, the Republic is particularly rich in timber. Forests, mainly of pinewood, cover an area of some 12,000 square miles or about one-third of its territory.

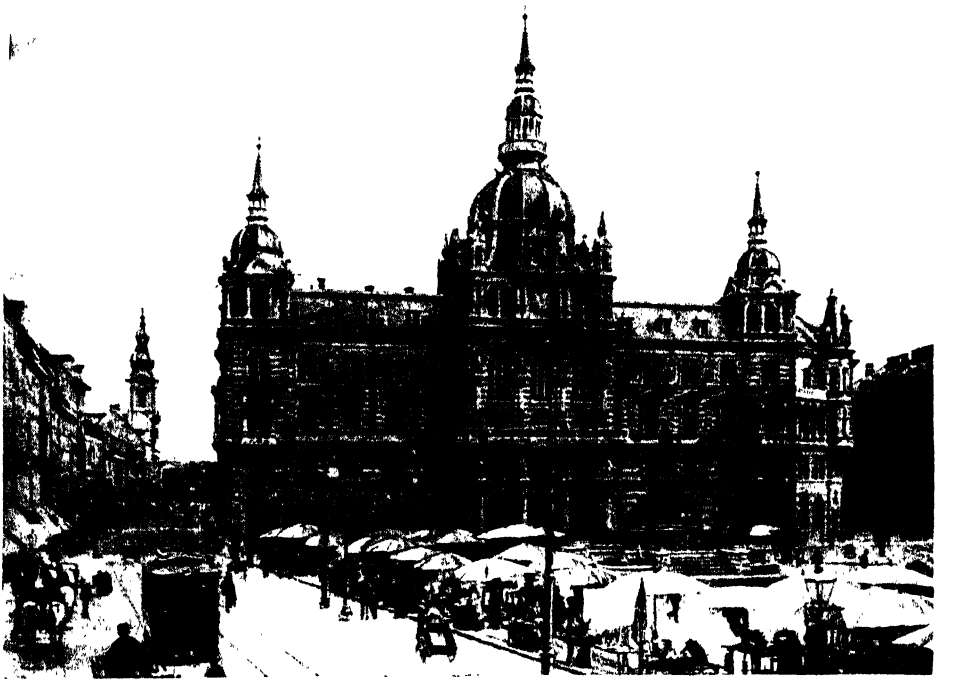
Wealth and Work in Forest Areas

Since half of these areas are the property of the state, their direct revenue value is considerable and they play no mean part in the provision of employment. The annual yield is about 12,500,000 cubic yards, to deal with which no fewer than 257 steam and 5,196 water-power sawmills are in existence. The timber is primarily used in building and for the furniture industry, while railway sleepers and telegraph poles are exported in all directions.

The mineral wealth of the Austrian Alps was well known to early settlers, and the remains of salt, gold and iron mines exploited by the Celts and the Romans are still in existence. The attention of modern research and technical science, however, has been mainly directed on the deposits of coal, gold, iron, graphite, magnesite and salt, some of which minerals exist in large quantities. The gold mines of the Hohe Tauern, for example, are second only in European importance to those situated in Transylvania. Coal is found chiefly in the form of lignite, but the total production only meets one-tenth of the requirements of the flourishing iron industry.

Mineral Wealth Still Unexploited

On the other hand there exists a superabundance of iron ore of excellent quality, the principal mines being located in the Styrian mountains at Eisenerz and Huttenberg. Among other treasures of the soil are rich deposits of magnesite, the largest being at Veitsch in northern Styria and in the neighbourhood of the Millstatter Lake in Carinthia. A copper mine near Mitterberg produces



WHERE THE OFFICIAL BUSINESS OF GRAZ IS TRANSACTED

The Rathaus of Graz, a city important as an intellectual and a commercial centre, stands in the Hauptplatz, or principal square, where a bronze statue of Archduke John may be also seen It is a handsome building in the German Renaissance style, erected between the years 1887 92, the façade of which is decorated with statues of men who figure conspicuously in the town's history

about 72,000 tons of ore annually, an amount which is insufficient for home requirements. Graphite, however, is present in huge quantities and is largely available for export. The average production is 15,000 tons, the principal deposits being in Styria and the north-western district of Lower Austria. In Upper and Lower Austria in 1920 very valuable discoveries were made of kaolin, which proved of the utmost importance to the porcelain industry. The following statement of the number of organizations engaged on the work of exploitation gives a comparative idea of the extent of the mineral deposits, although it cannot serve to indicate their individual value: Lignite (78), anthracite (24), iron and manganese (9), lead and zinc (12), gold (3), graphite (14), oil shale (6), salt (5) and sulphur (10).

Precisely to what extent these resources can be developed remains to be seen. It is generally agreed that under the Hapsburg regime the exploitation of the Austrian Alps was restricted, largely owing to the difficulty of obtaining adequate local supplies of coal and the competition offered within the frontiers of the Dual Monarchy by the Bohemian iron works, which had adequate quantities of fuel at hand It may be taken for granted, however, that the work of further research will be prosecuted vigorously, and that the development of water-power will so much reduce the coal consumption for industrial purposes that a considerable increase of the necessary fuel will be available for smelting

Indeed, it is not too much to say that the greatest hope for the commercial future of Austria lies in the exploitation of water-power. Within four years of the close of the Great War five large companies had been established with this end in view, their attention in the first instance being confined to the problem of harnessing the waters of Upper and Lower Austria and Styria.

But even so only the fringe of a gigantic undertaking has been touched, for it is computed that a total force of 2,500,000 h.-p. is already in sight.

Side by side with the exploitation of her raw material, Austria possesses a highly developed manufacturing industry for the production of commodities intended partly for home, but mainly for foreign consumption. Although by the Treaty of St. Germain she lost the great organization which had been built up with the assistance of Viennese capital in Bohemia, she was, nevertheless, left with about 60,300 works and factories employing over a million hands. Of these the most important, which absorb 40 per cent. of the total labour, are the iron, metal and electrical industries. These produce an extensive variety of articles, ranging from locomotives to the tin trumpery which finds a profitable sale in the poorer markets of the world.

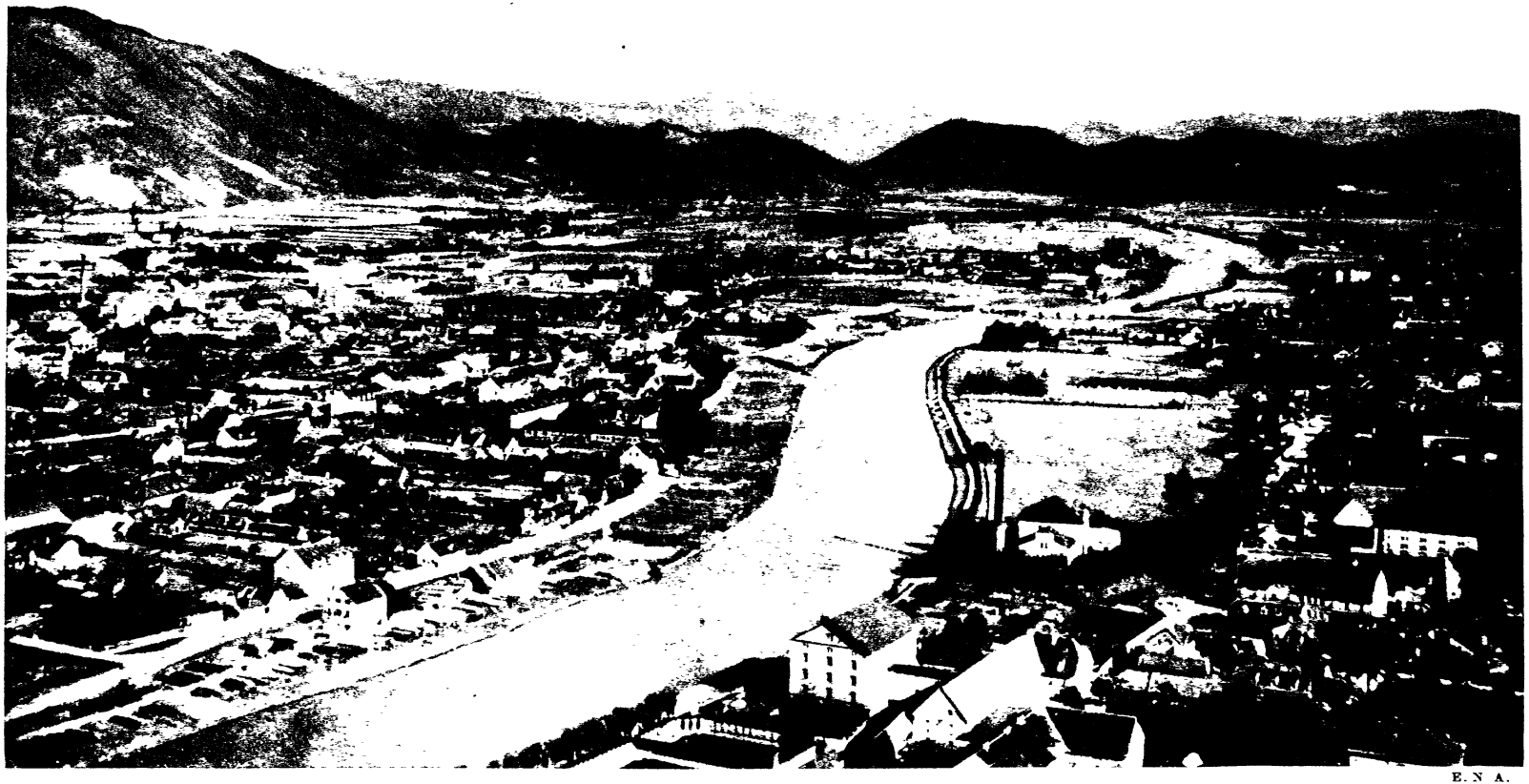
There exist, for example, no fewer than 150 iron and steel works and 250 machine tool factories, which consume a vast quantity of raw material annually. The locomotive and railway carriage works are equipped to finish 400 engines and 5,000 carriages per year. Electrical goods are produced by



E. N. A.

GRAZ, CAPITAL CITY OF THE STATE OF STYRIA ON THE MUR

The river Mur rises in the Eastern Alps in Salzburg and flows through Styria into Yugo Slavia, where it joins the Drave, of which it is the principal affluent. At Graz, 90 miles south-west of Vienna, it is spanned by seven bridges and adds much to the material prosperity of the town, which, situated on both banks of the river, has considerable industrial importance



E. N. A.

LOOKING NORTH FROM THE SCHLOSSBERG OF GRAZ OVER THE POPULOUS VALLEY WATERED BY THE RIVER MUR

Pleasantly situated in picturesque surroundings Graz, the capital of Styria, is one of the healthiest and most attractive towns of the Austrian Republic. The views from the lofty Schlossberg are justly famous, and the eye travels with delight over a broad expanse of country and follows the course of the Mur through the verdant valley, thickly studded with trees, among which the inhabitants of Graz have raised their homesteads, public buildings and factories. On three sides the city ranges of beautiful form, including the Alps of Upper Styria, fringe the plain, whose fruitful fields are chiefly devoted to the production of cereals



FORTIFIED SCHLOSSBERG OF GRAZ WITH ITS FAMOUS CLOCK TOWER

The original town of Graz grew up around the Schlossberg, a beautiful wooded eminence that towers above the town and commands a good survey of the surrounding country. The fortifications were constructed in the fifteenth century as a protection against Turkish onslaughts. A salient feature of the citadel is a remarkable clock tower with a colossal dial standing on the south slope of the hill.

35 large plants, and more than half their produce finds its market in the neighbouring states of Central Europe and the Balkan peninsula.

The textile industry in Central Europe is of comparatively recent growth, but prior to the Great War it had already reached a high stage of development. As far as the new Austria is concerned, however, the peace settlement somewhat upset the balance between the spinning and the weaving. The Republic found itself left with over a million spindles capable of satisfying the requirements of about 30,000 looms, while of the latter only 12,000 were allowed to remain in the country. In respect of two thirds of its product, therefore, cotton spinning in Austria is an export industry, the balance of the production feeds the local looms, which, in turn, supply the material for the manufacture of divers articles of clothing which find a ready market locally and in the Balkans and the Near East.

There are also carding machines with a total of 133,000 spindles, but here again there are no large weaving machines left within the frontiers of the Republic, except for heavy stuffs such as carpets and upholstering materials. Both raw cotton and wool have to be imported from abroad, but the industry is, in the circumstances, fortunate in being able to employ water-power and thus remain indifferent to the critical coal question.

Of the lesser industries, special mention may be made of the production of leather. Under normal conditions a sufficiency of hides is available to provide for home requirements and leave a substantial balance for export. Tanning material is abundant in the



ANCIENT DUCAL CHAIR OF CARINTHIA

On the Zollfeld, an extensive and somewhat marshy plain in the Federal State of Carinthia, stands the time-worn stone chair, fenced about by an iron railing, upon which the dukes of Carinthia, down to 1414, took the oath of fidelity to their subjects

shape of pine bark and a speciality is made of the production of the fine leathers used in the manufacture of the famous Viennese Luxusware, to which further reference will be made in the chapter on Vienna.

Cellulose is produced in large quantities at Hallein and the indiarubber products of the Semperit factory are largely exported all over the Continent and to England and America. There are rich deposits of the raw materials necessary for the manufacture of cement and the existing works have an annual capacity of 75,000 tons, one-third of which is available for export. There are also 785 brick and tile kilns which supply home needs exclusively.

Reference is also necessary to the manufacture of artistic articles, for the production of which Austria is world famous. The talents of generations of clever skilled workers were systematically engaged for centuries by the reigning emperors and their luxury-loving courts, with the result that the towns are to-day filled with experienced craftsmen who, in addition to the tawdry articles which fill the bazaars of the East, produce some of the finest examples of artistic workmanship extant. This industry, which naturally tends to concentrate in Vienna, is carried on in both large factories and small workshops and even in the homes of the people. The articles thus produced cover a wide catalogue of style and material. In many instances they reflect the individual conception of the craftsman, but almost without exception they are stamped with the personality of the Austrian people.

The national railways extend over a length of 4,140 miles, of which 2,876 are state property. From the point of view of total length, this may be regarded as adequate, but considerable inconvenience arises from the fact that the lines merely form one part of a system which was designed to meet the military and commercial requirements of a country which included Czechoslovakia, Polish Galicia, Hungary, Transylvania and the Bukovina, a large part of Yugo-Slavia and what is now the Italian Tyrol (called Alto Adige).

The result is that while Vienna remains the centre of an elaborate network of railways, and, indeed, the centre of transcontinental communications east and west and north and



E N A

LONELY GRANDEUR OF AUSTRIA'S MAJESTIC GROSSGLOCKNER

The Hohe Tauern range is a lofty group of the Eastern Alps in the Austrian Tyrol, and trends from west to east to the south of Salzburg, continuing west by the Zillerthal Alps and east by the Niedere Tauern. Its loftiest mountain is the twin-peaked Glockner or Grossglockner, in Salzburg; the higher peak Grossglockner being 12,455 feet high, the lower, Kleinglockner, 12,350 feet



E N A.

GROSSGLOCKNER, SHOWING THE GLOCKNER HOUSE IN THE FOREGROUND

The Austrian Alps are unequalled in Europe for variety of formation; nevertheless, they have become known to foreigners only in recent times. Grossglockner, the loftiest summit of the Hohe Tauern range in the easternmost division of the Alps, lies on the confines of Tyrol, Carinthia and Salzburg, and was ascended for the first time in 1800. The Pasterze glacier is fed by the Glockner snows



STREET IN ISCHL, THE UPPER AUSTRIAN WATERING PLACE

There are several noteworthy buildings in Ischl, of which another photograph appears in page 465. Among them are the Kurhaus, theatre, the parish church, built under Maria Theresa in the eighteenth century and restored in 1880, and numerous private residences belonging for the most part to the fashionable visitors who visit the town yearly to drink of its health giving waters.



STEYR, A TOWN OF UPPER AUSTRIA NOTED FOR ITS IRONWARE

Steyr, formerly the seat of the margraves of Styria, stands at the confluence of the Steyr and the Enns, 90 miles south-west of Vienna. It is situated directly between these two rivers and is connected with its several suburbs by bridges. It has some important steel and iron mines, and cutlery, paper, woollens and rifles are included among the manufactures.

south, many of the great termini lie in foreign countries and the individual needs of the small Republic are often ill served. Nevertheless, all the Federal states are linked up with Vienna and important junctions at Linz, Salzburg, Innsbruck, Villach and Bruck afford facilities for inter communication.

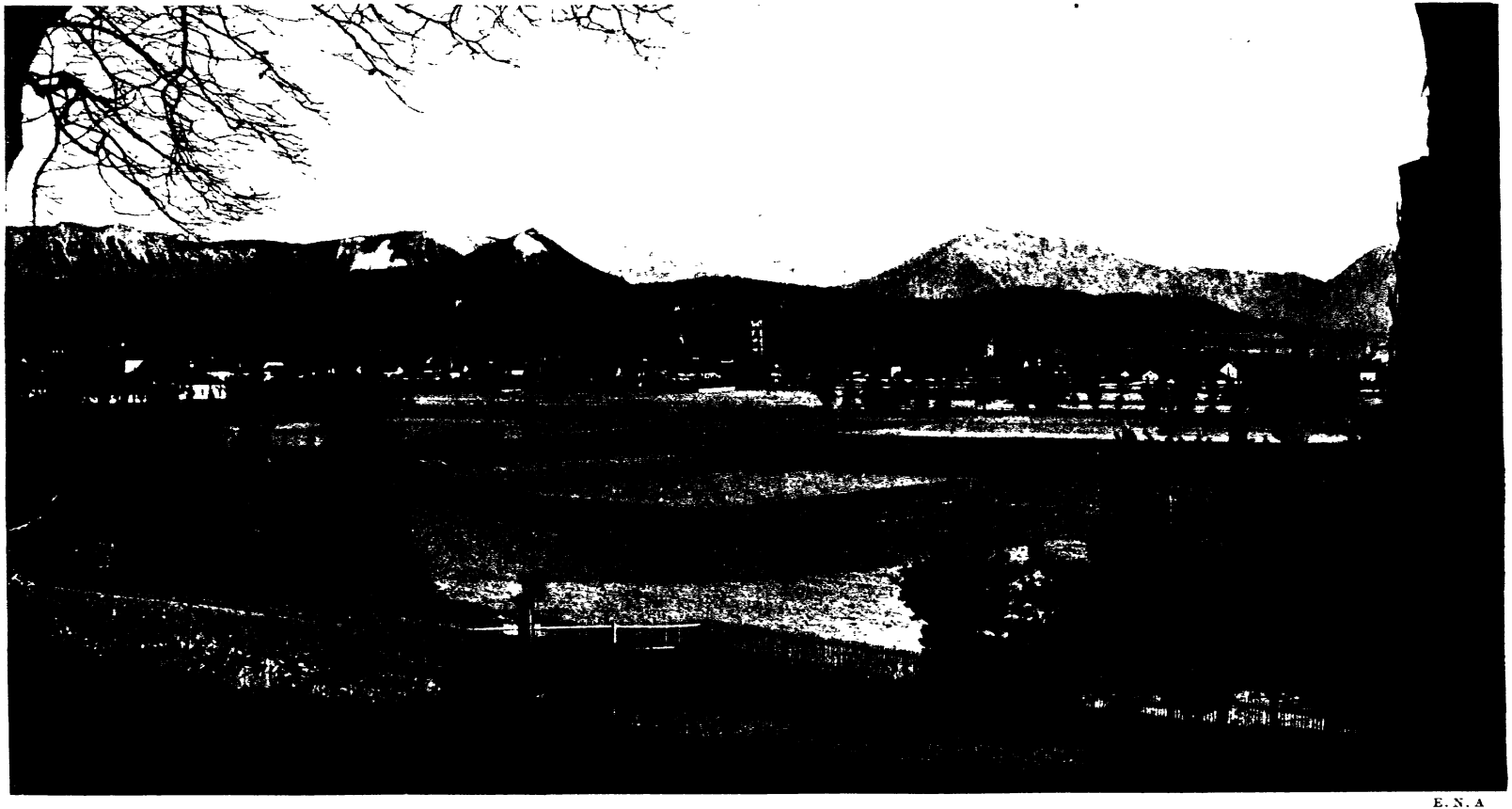
Most of the local lines necessarily run through Alpine lands and the enormous consumption of coal thereby involved has resulted in a consistent loss of money on their exploitation. For this reason efforts are being made to reconstruct the technical equipment and in course of time practically the entire system will be electrically propelled. A commencement has been made on the Western railway between Innsbruck and Telfs, and on the Arlberg line to Bregenz. Work is also proceeding on the picturesque Salzkammergut railways and on the Tauern line from Schwarzach-St.-Veit as far as Spittal-Millstattersee. The electrification of these 407 miles of permanent way alone is calculated to effect a saving of 400,000 tons of coal per annum.



TOWN GATE OF HISTORIC HAINBURG

A picturesque place is Hainburg, a border fortress of Hungary until 1942, and still surrounded by crumbling walls. On the Schlossberg is a ruined castle mentioned in the Nibelungenlied, while the Wiener Tor, or Vienna Gate, is another ancient relic

Connexions with other countries, although rendered annoying by vexatious customs and passport regulations, are otherwise direct and convenient, for grand trunk railways handling through traffic radiate in all directions and virtually every great capital in Europe can be reached with speed and facility. The most important of these transcontinental lines are Paris-Constantinople, Berlin-Prague-Bukarest and Warsaw (Varsovie)-Trieste, all of which cross Austrian territory and make Vienna their central junction. Of the rivers, navigation is important only on the Danube, but there it reaches proportions which enable Vienna to compare very favourably with many prosperous seaports. The Austrian Danube Steamship Company, which is mainly a British concern, possesses a fleet of about one hundred steamers totalling 45,000 h.-p. and a large number of tugs and barges of various types. Operations at present extend up the river to Passau and down to Constantza on the Black Sea, and there will be an enormous expansion of traffic when the projected canals intended to link up the Danube with the Rhine, Oder and Elbe are completed. In 1923 aviation was limited to two air lines flying between Munich and Vienna and between Paris, Prague, Vienna and Budapest respectively. Generally



E. N. A

DELIGHTFUL PANORAMIC VIEW OF CARINTHIA'S CAPITAL LYING AT THE BASE OF THE KARAWANKEN RANGE

Carinthia, the former duchy and crownland of Austria, with an area of 3,684 square miles, bordered on the south by Italy and Yugo-Slavia, is a mountainous district, largely covered by the Alps, and cut in two by the Drave, the chief river. Klagenfurt, the capital, charmingly situated on the Glan and connected with the Worthersee by a canal three miles in length, is the junction of four railway lines, and lies 24 miles by railway east of Villach. It was the capital of the duchy of Carinthia so far back as 880, became part of Austria in 1335, and contains several buildings dating from the sixteenth century

speaking, it may be said that the position of Austria in the very heart of Central Europe ensures to her an important rôle in the future organization of international communications. She stands as the gate to the unexploited south-east of Europe and the Balkans, and in spite of Belgrade's dominating position, her situation on the Danube permits her also to control a fair amount of the traffic on that important river.

The commercial problem which confronts Austria is capable of simple explanation. She must export a sufficiency of manufactured articles to pay for about 75 per cent. of the food required by her population and a considerable proportion of the raw material demanded by her industries. For the first few years of the Republic's existence there was a heavy adverse balance, but this has since shown a gradual reduction. Further amelioration may be looked for in an improvement in agricultural production and the greater employment of water-power, which would progressively reduce the deficit.

So far as manufactured goods are concerned, exports show a marked excess over imports, the only category in which the balance is on the other side being that of textiles. The tendency of the imports is to decline in proportion as the natural resources are exploited, and that of the exports to increase, particularly in the sphere of wood products, metal goods and machinery, paper, leather, jute and electrical appliances. There is also an expanding demand for timber and magnesite. The evolution which is rapidly proceeding affects also the markets to which Austrian produce is sent.

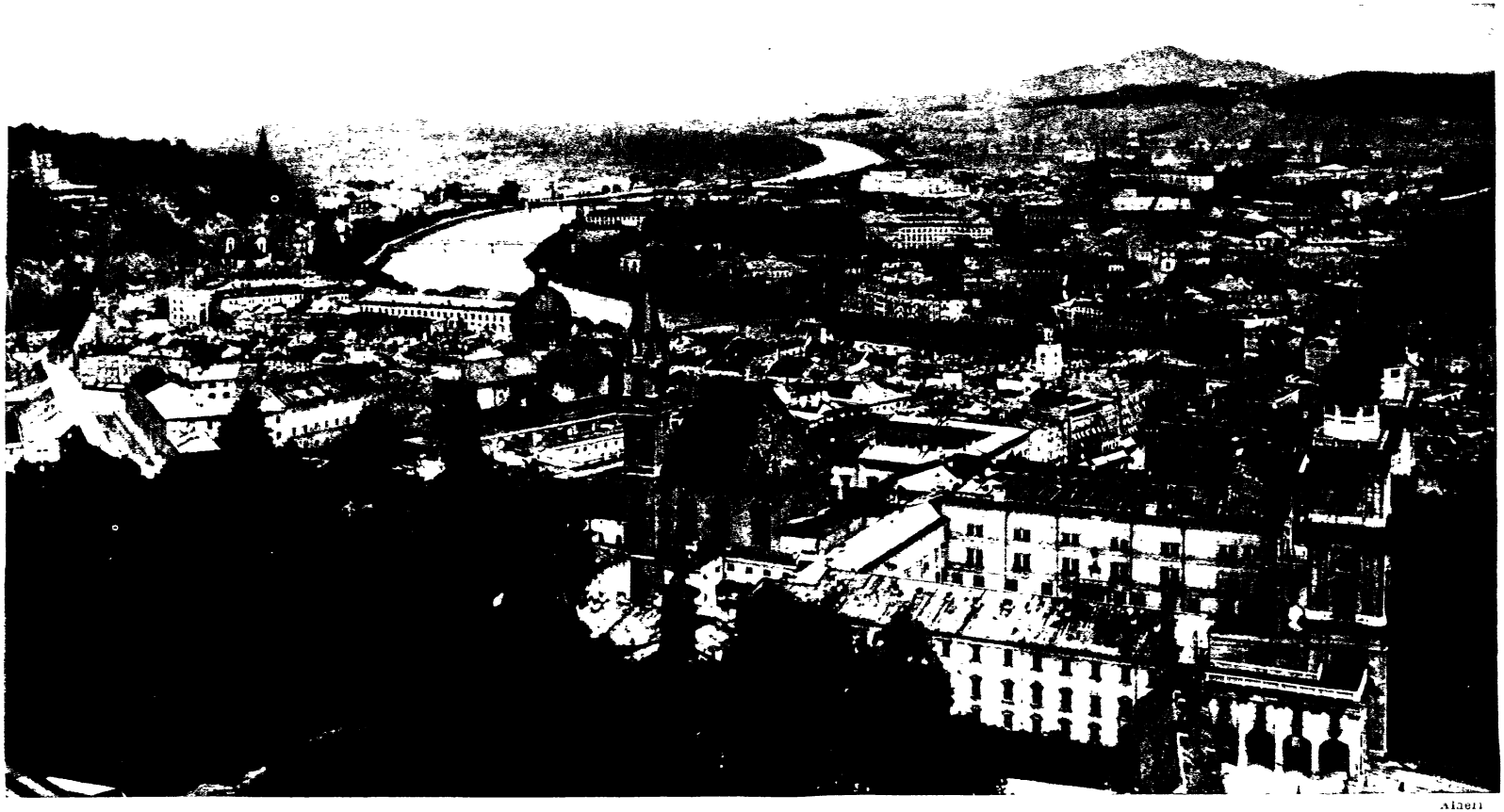
The neighbouring states which formerly represented part of the home market have erected high tariff barriers with



Austrian Legation

RIVER FERRY IN THE FERTILE COUNTRY OF THE BURGENLAND

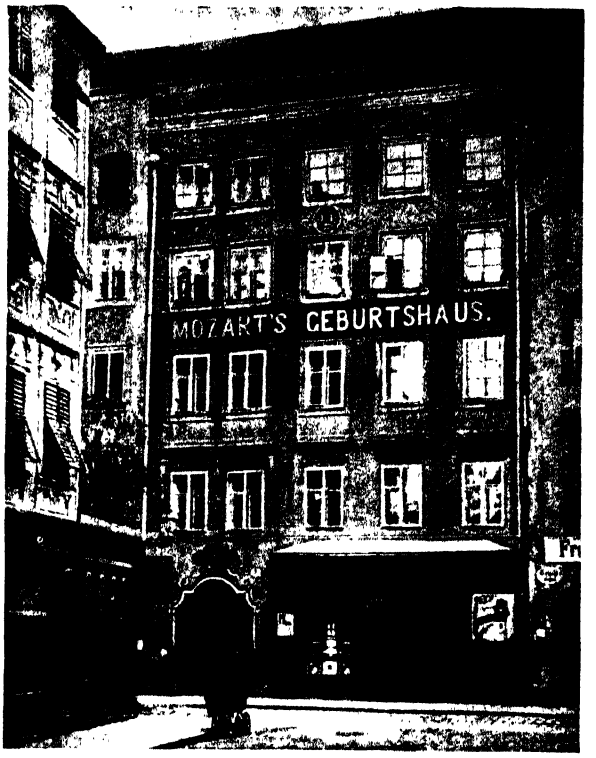
Burgenland is one of the nine semi-independent states under the Federal government of the Austrian Republic; it has an area of 1,586 square miles, and contains some 206,000 inhabitants. Geographically, the Burgenland forms part of the Hungarian plain and is mainly given over to the production of cereals, with such success as to be often referred to as the "Garden of Vienna"



Ahern

OLD AND NEW TOWNS OF SALZBURG AND THE SALZACHTHAL SEEN FROM THE CITADEL OF HOHEN-SALZBURG

Most of Salzburg's medieval buildings have been destroyed by fire, and several of the principal edifices still standing were erected by the archbishops of the seventeenth and eighteenth centuries, for Salzburg was formerly the capital of the richest and most powerful ecclesiastical principality in South Germany. On the right bank of the Salzach is seen the newer town stretching away across the fertile valley to the hill slopes beyond. Both sides of the river, which is spanned by several bridges, have fine promenades, and the beauty of Salzburg, no less than its historical interest, is responsible for the numerous visitors that frequent the city



reference to the extraordinary rôle played by the national banks. The headquarters of these concerns are, of course, concentrated in Vienna and a more individual description of them will be found in the chapter devoted to that city. It is necessary to note here, however, that while they have lost most of their branches in the now independent states, where they were generally taken over by local banks, the parent institutions succeeded in retaining large interests in the new amalgamations.

On the other hand some of the organizations have considerably extended their connexions in foreign countries, either by opening new branches or by linking up with great financial houses in Great Britain,



HOMES OF A WORLD-FAMED MASTER-MUSICIAN

As the birthplace of Mozart, Salzburg perpetuates his memory by the preservation of his dwelling-house in the Makartplatz and by the Mozart Museum, seen above, in the house in the Getreidegasse where the great composer was born

the result that Austrian manufactured goods are penetrating into Germany, the United States, the United Kingdom and other over seas countries in ever increasing volume.

The entrepôt trade through which Vienna, as of old, serves the neighbouring states, the Balkans and the Near East, is rapidly approaching its former proportions, while the intermediate trade, in which Austrian merchants act simply as middlemen between the various foreign countries and are not concerned with the produce of their own, tends to increase in consequence of the profound knowledge of the European markets possessed by Austrian merchants and the facilities afforded by the numerous Austrian banks.

No picture of economic conditions in the Republic would be complete without

America, France, Belgium, Switzerland and Holland. This affords them increased prestige abroad, while at home, far from resting content with the functions customarily exercised by financial institutions, they take an active part even in the management of large



W. E. Bowers

OLDER AND MAIN PART OF SALZBURG AT THE FOOT OF AN ISOLATED FORTRESS-CROWNED HILL

Few Austrian towns can compare with Salzburg for beauty of location. The city, which occupies the site of the ancient Juvavum of the Romans, lies on both banks of the Salzach, and is bounded by the Mönchsberg, which is on the left bank and by the Capuzinerberg on the right bank. The Mönchsberg, an abrupt wooded eminence, commands a splendid panorama, though perhaps not such an extensive one as that from the fortress of Hohen-Salzburg, which rises on its south-east spur This famous citadel, seen also in colour in page 473 was founded in the ninth century, but its present imposing form is chiefly of the early sixteenth century



W. E. Bowers

FERTILE VALLEY OF THE SALZACH FRINGED BY THE DESOLATE AND BARREN ROCKS OF A LOFTY ALPINE CHAIN

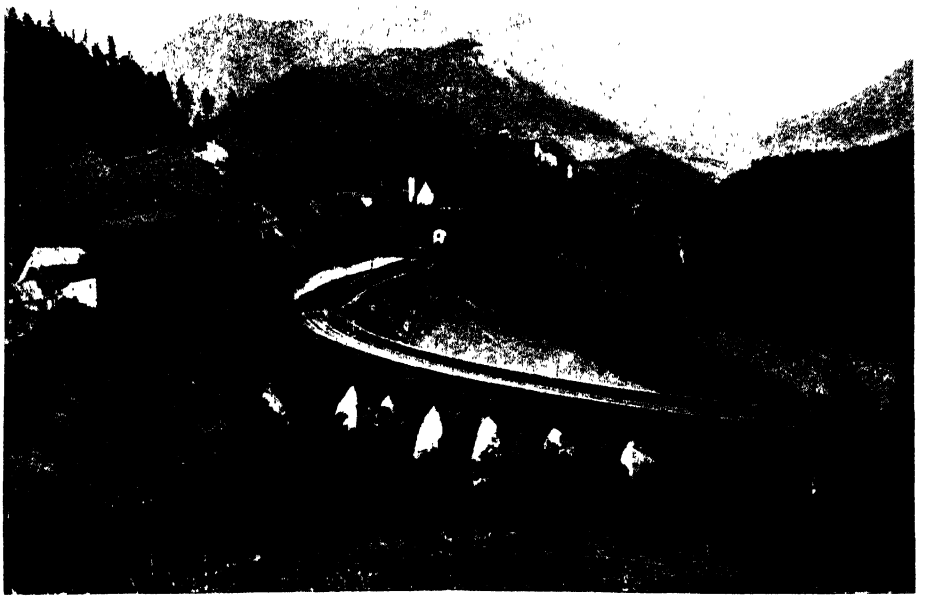
The village of Werfen, situated on the left bank of the river Salzach, contains only a handful of houses of unpretentious appearance ; the bulk of them clustering round the church, while a few are set at irregular intervals about the softly undulating valley. Behind the village rises slope on slope, thickly covered with conifers, and above these in the south-west tower the jagged peaks of the Uebergossene Alp, a mighty group, affording a never-flagging interest to the geologist and the lover of nature, and known as the Ewige Schnee or Perpetual Snow Mountains, which culminate in the Hochkönig, a height of 9,640 feet



E N A

SEMMERING ROAD AND RAILWAY: WONDERS OF THE EASTERN ALPS VIEWED FROM THE SONNWENDSTEIN

This magnificent view of the Eastern Alps is obtained from the Sonnwendstein, an imposing three-peaked mountain, 4,995 feet high. Below runs the old Semmering road, while along the rugged sides of a height in the central distance the famous Semmering railway makes its way. The Semmering pass is 3,300 feet above sea-level, and extends for 33 miles by railway from Gloggnitz to Murzzuschlag. It is on the historic route to Vienna from the south-west; in the thirteenth century it was a mere bridle path, the road was completed in 1728 and the railway opened in 1854



E. N. A.

FAMOUS MOUNTAIN RAILWAY OF THE EASTERN ALPINE RANGE

The Semmering railway runs from Gloggnitz in Lower Austria to Murzzuschlag in Styria, and between these two towns, a distance of 33 miles, it traverses fifteen tunnels and sixteen viaducts. It is the oldest of the great Continental mountain railways and is remarkable for its ingenious construction. The culminating point of the line is approximately 3,000 feet above sea level.

industrial enterprises. They act as the issuing houses for shares, buyers of raw material, foreign representatives, merchants and even transport agents for their clients.

Some banks have established magnificently equipped commercial departments where the wholesale activities of the companies which they control, or in which they are interested, concentrate; others have founded special agencies for a similar purpose. Thanks to this profitable co-partnership at home and collaboration abroad, commerce and finance march hand in hand and the Austrian manufacturer with orders to execute is rarely at a loss for capital or for such technical advice as will enable him to derive the utmost profit from the conduct of his business.

It must ever be borne in mind that one-third of the inhabitants of Austria lives in Vienna itself. However logical and workable this arrangement may have been in the days of the Empire, it represents for the little Republic an unbalanced distribution of the population from which arise numerous administrative difficulties. At the same time the division of the state into semi-independent provinces invests the Federal capitals with an importance they would not otherwise possess. They are all seats of government, market centres, and since from time immemorial the imperial regime paid great attention to the planning, building, development and equipment of the provincial cities, they are historically, culturally and commercially noteworthy.

Oedenburg, the old capital of the Burgenland, is now in Hungary and like Innsbruck (in Tyrol) and Vienna is referred to elsewhere. Of the others, Salzburg, a city of about 40,000 inhabitants and the Mecca of the tourist, was considered by Humboldt to be the third most beautiful city in the



E. N. A

MOUNTAIN, HILL AND VALE COMBINE TO FORM THE WONDERFUL, WORLD-FAMOUS ALPINE SCENERY OF AUSTRIA

Austria undoubtedly contains some of the most lovely scenery in Europe, and St. Johann im Pongau has long been known to the tourist for the majestic beauty of its environs. Lying in a fruitful valley surrounded by wooded hills, with an immense rampart of bare peaks and precipices in the background, the village, for it is little more than such, despite the fine modern Gothic church whose slim spires serve as a landmark for miles around, has few attractions save its lovely setting



E. N. A.

BAD GASTEIN: CELEBRATED THERMAL STATION IN AN ALPINE SETTING

The Gastein valley is a renowned health resort of Austria in Salzburg state at a height of about 3,000 feet. It is watered by the Ache which rushing through narrow gorges forms two beautiful waterfalls and contains several villages, including Hof Gastein and Bad Gastein. The latter, famous for its medicinal mineral springs, is the chief rallying point of visitors.

world. It is rich in historic buildings and artistic treasures and was the birthplace of Mozart. Linz, the capital of Upper Austria, with a population of 94,072, is an important railway centre on the Danube and is noted for its two cathedrals, the one ancient and constructed in early baroque style with a monumental front; the other a striking modern example of late Gothic architecture, and a large number of Renaissance and baroque buildings.

Graz, the seat of the government of Styria, is the second largest city in Austria. First colonised by early Roman settlers, it became in 1404 the residence of the Styrian line of the House of Hapsburg and now has a population of about 200,000. The cathedral, in late Gothic style, possesses some rich frescoes dating back to 1483 and attached to it is the famous mausoleum of Ferdinand V. There is also a striking modern university, while the Zeughaus armoury, built in 1642, contains a remarkable collection of arms. Klagenfurt, the capital of Carinthia, with about 40,000 inhabitants, lies on the Wörthersee at the foot of the Karawanken Range and is the junction of four railway lines. It possesses a renowned alpine museum which houses, among other distinctive treasures, Oberlercher's famous relief of the Grossglockner mountain group—a work twenty-six yards square.

The inhabitants of the Republic are almost exclusively men of the Teutonic stock which has been settled in the country for over 1,000 years, and of the total population 40 per cent. are engaged in agriculture, 35 per cent. in the industries and 17 per cent. in commerce and business. The remaining 8 per cent. are divided between the civil service and the professions. The state departments are heavily over-staffed and correspondingly unremunerated owing to the influx of bureaucrats formerly employed in the subject

provinces of the old Austro-Hungarian Empire. These abnormal conditions will doubtless right themselves in due course, but for the time being they inflict a heavy burden upon the resources of the Republic.

A country so liberally endowed with universities of European repute, in which the standard of education is maintained at an exceedingly high level, naturally produces an unusual percentage of candidates for the professions. Before the Great War the graduates were quickly absorbed by the Church and by the schools, administration and army of the monarchy. Their future, under the new conditions prevailing, remains to be defined. It may be noted, however, that Vienna itself is so important an international centre that the capital city is unlikely to lose the distinguished position which she has so long held in the realm of medical science.

There is a sharp division between urban and rural life, or in this case it would perhaps be more correct to say between the life of the one-third of the population who live in Vienna and the two-thirds who inhabit the provinces. Between the two there exists a constant economic and political feud, which became so marked during the years following the peace that the provinces refused to send food to the capital and declined to obey the laws promulgated.

Life in Vienna is typical of a large internationalised Continental city and provides no real example of how the Austrians live. Existence even in the large provincial cities is infinitely more restrained, for there the people live simply and quietly, families keeping more or less to themselves, with social gatherings as an exceptional occurrence. Outside the towns the peasantry are for the most part congregated in villages which, since the farms lie far apart, frequently cover large areas. Here, again, there is very little social intercourse, except when all forgather on Sundays at the village church. The national religion is Roman Catholic and the priests enjoy the full confidence of the people, excepting in the industrial districts where the spread of socialism has led to a certain laxity of religious observance.

For the rest, what internal differences exist to-day partake of the nature of family and political quarrels, violent enough at times but at their worst merely matters of internal economy. On the whole, whether one regards the peasant of the fields or the workman of the towns, the hardy mountaineers of the Alps or the cultured citizens of the capital, the Austrians represent a charming people, modest, artistic, frugal and temperamentally inclined to hope for the best.

AUSTRIA: GEOGRAPHICAL SUMMARY

Natural Divisions. As a whole, the land of the Eastern Alps. In parts, mountainous in the south, Alpine outliers in the east; in the north, part of the Danube valley, including the gorge between Passau and Linz and the historic basin of Vienna.

Climate and Vegetation. Central European climate of extremes of temperature, modified by the elevation and aspect of the land. Relatively heavy precipitation due to the mountains. Naturally a forested region, with summer meadows above the limit of trees and grass lands on the valley floors.

Chief Products. Cattle, cattle products and timber are the chief products of at least half the population which lives on the land. Cereal foodstuffs are grown in inadequate quantities. Manufactures—luxury articles, both artistic and valuable and cheap and trashy—depend almost entirely on foreign supplies of fuel and raw materials.

Communications. A truncated railway system centres on Vienna. The main lines have objectives outside Austria and will depend upon the trade currents and passenger traffic of the future. The local lines are, on the whole, insufficient for a good local service. Danube navigation equally depends upon foreign trade.

Outlook. Austria must compete industrially with Bohemia, the Lodz area of Poland and with Northern Italy as an industrial nation; the only important assets are potential water power and the many factories now in operation and channels of trade already in use, legacies from the old order. Exports are essential to pay for the food of the people.

BAGDAD

City of Returning Glory by the Tigris

by Sir Percival Phillips

Special correspondent in Mesopotamia, etc.

BAGDAD, the ancient domain of the Caliphs, and now the capital of the new kingdom of Irak (Mesopotamia), may be described as a city of disenchantment. The romance and mystery associated with the days of Haroun Al Raschid have long since vanished, and the traveller who expects to find a traditional setting for a series of Arabian Nights will come away sadly, with hardly an illusion left.

In comparison with other Eastern cities, such as Damascus and Cairo, Bagdad lacks distinction. The mosques and other relics of the past are dilapidated, the streets mean and squalid and the general aspect of the old quarter suggests steady decay and diminished prosperity. The real importance of Bagdad rests upon its commercial and political activity, and the possibilities of its future. It is very much alive amid the ruins of dead and buried cities which lie scattered over the plain of Mesopotamia, and much more intent on progressing along modern lines than on the preservation of a medieval Oriental atmosphere. Yet, in spite of the steady growth of Western influence, there remain fragments of the past which give a hint of its former glory, and in the teeming bazaars which still defy twentieth century innovations one can dimly visualise the days when the Caliph and his bowstring were all powerful.

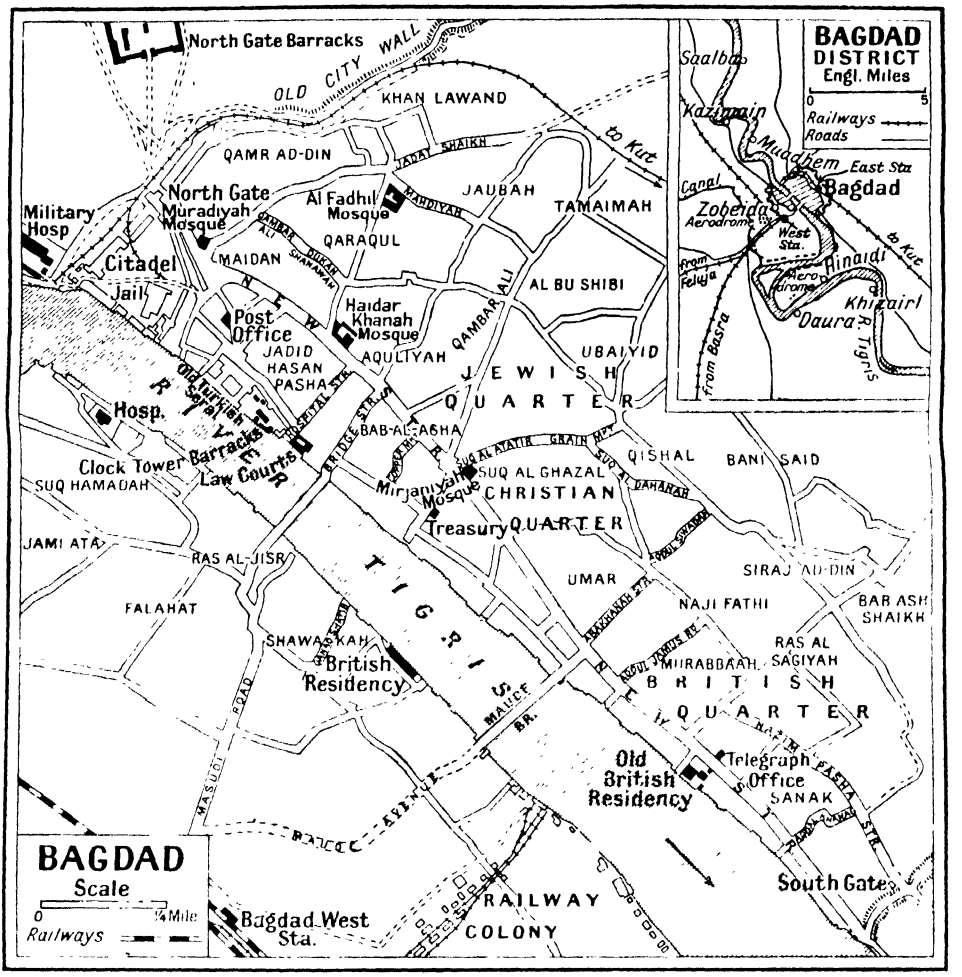
Pathetic Relics of Vanished Glory

Disillusionment comes first with the discovery that the Bagdad of to-day is not the historic capital of the Caliphs. Haroun Al Raschid and his successors ruled on the west bank of the Tigris. Their palace and the gardens surrounding it have been swept away and only a few obscure foundations and royal tombs—among them the shrine of Zobeida, favourite wife of the greatest Caliph—survive. On the site of the vanished city is a poor suburb of mud hovels adjoining the new railway station which is the terminus of the line from Basra and the Persian Gulf. A vast goods yard covers the plain where the old capital stood, and the trim bungalows and English gardens of the "railway colony" proclaim the modernity of Bagdad West.

Enchantment Lent by Distance

The present city is strung along the east bank of the Tigris for nearly two miles and appears to be struggling as near as possible to the water's edge. The result is a congested area perhaps five blocks deep where are found the principal bazaars, warehouses, Arab government offices, mosques and public buildings, and the mansions of the wealthy natives. The geographical limits are known as the North and South Gates, marking the main exits in the protective wall formerly enclosing the city. The population, before the Great War about 140,000, has increased to 250,000, of whom 70,000 are Jews.

Bagdad is best seen from a distance. The first view, whether from one of the flat-bottomed steamers which crawl upstream from Basra or from the railway terminus across the river, is likely to raise false hopes. Gloomy, massive buildings rise abruptly from the river bank, overshadowed by graceful minarets and bright-tiled domes and surrounded by cool green groves. Close lines of picturesque traffic press across two pontoon bridges and vanish in a maze of crooked streets. Native



PLAN OF THE STORIED CITY ON THE BANKS OF THE TIGRIS

boatmen in "gufas" (or kufas)—craft like enormous pudding-basins—navigate skilfully between the banks. There are life and colour and a vivid background to please the eye and whet the appetite of the traveller who goes forth in search of Oriental "atmosphere."

But unfortunately Bagdad will not stand the acid test of close inspection. The pontoon bridges lend further disillusionment, and the eager pilgrim searches in vain for the splendour of Haroun Al Raschid's day beyond the grim façade beside the Tigris. Even the fortress-like solidity of the outer shell is deceptive. The Tigris is constantly making war on the city, and in flood time it sweeps with tremendous force against the high brick walls which buttress the riverside buildings. The Maude Bridge, the new pontoon built by British engineers at a cost of £65,000, was on one occasion swept from its moorings and carried downstream, and on another occasion one wing of the old Turkish Serai containing the Ministry of the Interior and King Feisal's audience chamber crumbled piecemeal into the river after due warning, and the canopy of the royal throne floated away on the swift current amid the shouts of the crowds of excited Arabs.

The scene as one enters with the motley procession from the Maude Bridge is a further blow to cherished hopes. The traveller finds himself in a broad, straight, unpaved avenue running parallel with the river and this

might be the main street of a Balkan or a Turkish town. New Street is a heroic attempt to substitute modern traffic ways for the picturesque but impossible bazaar communications of the Orient. It is the symbol of a definite victory of West over East. The street has been driven uncompromisingly through a warren of ramshackle buildings, giving a clear passage between the North and South Gates. The Turks began it in 1916 to commemorate their capture of Kut, and the victorious British Army, which entered Bagdad in March, 1917, completed the work.

The influence of the British occupation is seen in other ways than road-making. Reluctantly enough the conservatism of the East is giving way before the invasion of European methods, and the result is a curiously confusing blend of past and present. Haroun Al Raschid would have undoubtedly devised special tortures for the followers of the Prophet who, however philosophically recognizing the inevitable, thus surrendered to the ways of the infidel. Sheikhs from the desert still make pilgrimages to the Holy Places—Bagdad is one of the centres of the fanatical Shiite sect of Mahomedans—



Harry Cox

OLD AND NEW RIVER CRAFT THAT SERVE THE NEEDS OF THE CITY

A little time spent along the riverside at Bagdad would be an education in the long history of ship building. Circular "gufas" ply from bank to bank identical with those found illustrated on the most ancient monuments of Assyria; boats but little less primitive are used for longer journeys; and on the same waters fussy steam launches bear hides, wool and dates to Basra



Col J G Edwardes

UNPAVED BYWAY IN PALM-GIRT BAGDAD

Modern traffic roads are not unknown in Bagdad, but the city, raised without the least regard for regularity, is composed chiefly of labyrinthine alleys in which the true Arab atmosphere and Eastern etiquette still prevail. Minarets and towers rise above the low houses of yellow red, furnace-baked bricks, but, strictly speaking, Bagdad is imposing only from the outside

with the savage zeal of their forefathers, and yet deign to use motor-cars and pocket cameras The gathering at the entrance to the Great Mosque might have been witnessed any time these five hundred years, yet the worshippers calmly accept aeroplanes as a factor in their daily life

New Street is the channel through which flow the intermingled elements of changing Bagdad and here you will realize how remote indeed are the times of the Caliph Bearded chiefs in flowing robes shoulder their way through the throng, followed by a little retinue of armed men At their heels



ONE OF THE BRIDGES LINKING THE OLD BAGDAD WITH THE NEW

Bagdad was first built upon the west side of the river, but a suburb grew up on the east bank which eventually dwarfed the old town. The two parts are connected by two pontoon bridges; the one seen here being some 270 yards across. All traffic goes over these bridges, save what can be carried in "gufas," circular baskets of reeds and bitumen. Two are seen moored in the foreground

presses a procession of heavily laden donkeys and then a groaning Ford car containing wide-eyed, amazed villagers. Jewesses in pink and yellow silks, with black mantilla-like veils, saunter past the shop windows where European goods are displayed behind plate glass, or ride grandly in tumbledown open cabs, drawn by starved horses under the direction of tattered Arab drivers. The traffic is controlled by smart native police trained under British officers. Beggars there are at every step, whining with outstretched palms, many of them blind, or half blind, or horribly maimed. And through the tumult moves Thomas



Col. W. J P. Rodd

MINARETS AND DOMES TOWER OVER THE CLOSELY PACKED MUD-BRICK WALLS OF NEWER BAGDAD'S HOUSES

Seen from the old city on the west side of the Tigris or even, as here, from above, Bagdad has a certain picturesqueness. Towering minarets taper high and swelling domes rise above the yellow of mud-brick walls and the green of occasional palms that give the atmosphere of Haroun Al Raschid's old city of romance. But in the town itself disillusion is quickly experienced, for the streets are mean, tortuous and ill-kept, and on either side of them stand sombre, dilapidated houses. Our view here is north parallel with the Tigris; the bridges connecting housetops are noteworthy



MODERN QUARTER OF ANCIENT BAGDAD SEEN FROM THE AIR

The first city of Bagdad was founded, or rather re-founded, on the west bank of the Tigris by the Caliph Almansur in the eighth century. To-day, however, the quarter on the eastern bank, which we are viewing from an aeroplane, is the most important. Shortened to admit the passage of larger river traffic is one of the pontoon bridges also illustrated in pages 499, 501 and 510

Atkins, just in from the cantonment at Hinaidi, five miles away, calm, indifferent and slightly contemptuous of the rabble around him.

The lower end of Bagdad which terminates at the South Gate is the British quarter. Here are the headquarters of the Royal Air Force, installed as the British army of occupation, lodged sumptuously in the old British Residency which towers above its neighbours on the river bank, a little below the Maude Bridge. It is the largest and most imposing building in the city. Between the old Residency and the South Gate are imposing Arab houses of yellow brick, many of them very old, with massive iron-bound doors giving access to broad courtyards, lofty chambers and terraces overlooking the Tigris. This portion of New Street is the Park Lane of Bagdad, and its original occupants, many of whom were dispossessed by the army of occupation, lived in great state under their Turkish masters. The European aspect of the southern quarter is emphasised by its officers' messes and clubs. Near the old Residency is a modernised hotel where Assyrian musicians play the latest jazz



NATIVE CRAFT ON THE TIGRIS

Circular frames of wickerwork overlaid with bitumen, the "gufas" of the Tigris have been used since the remotest times. They are a craft peculiar to Mesopotamia, and usually carry from a dozen to fifteen passengers

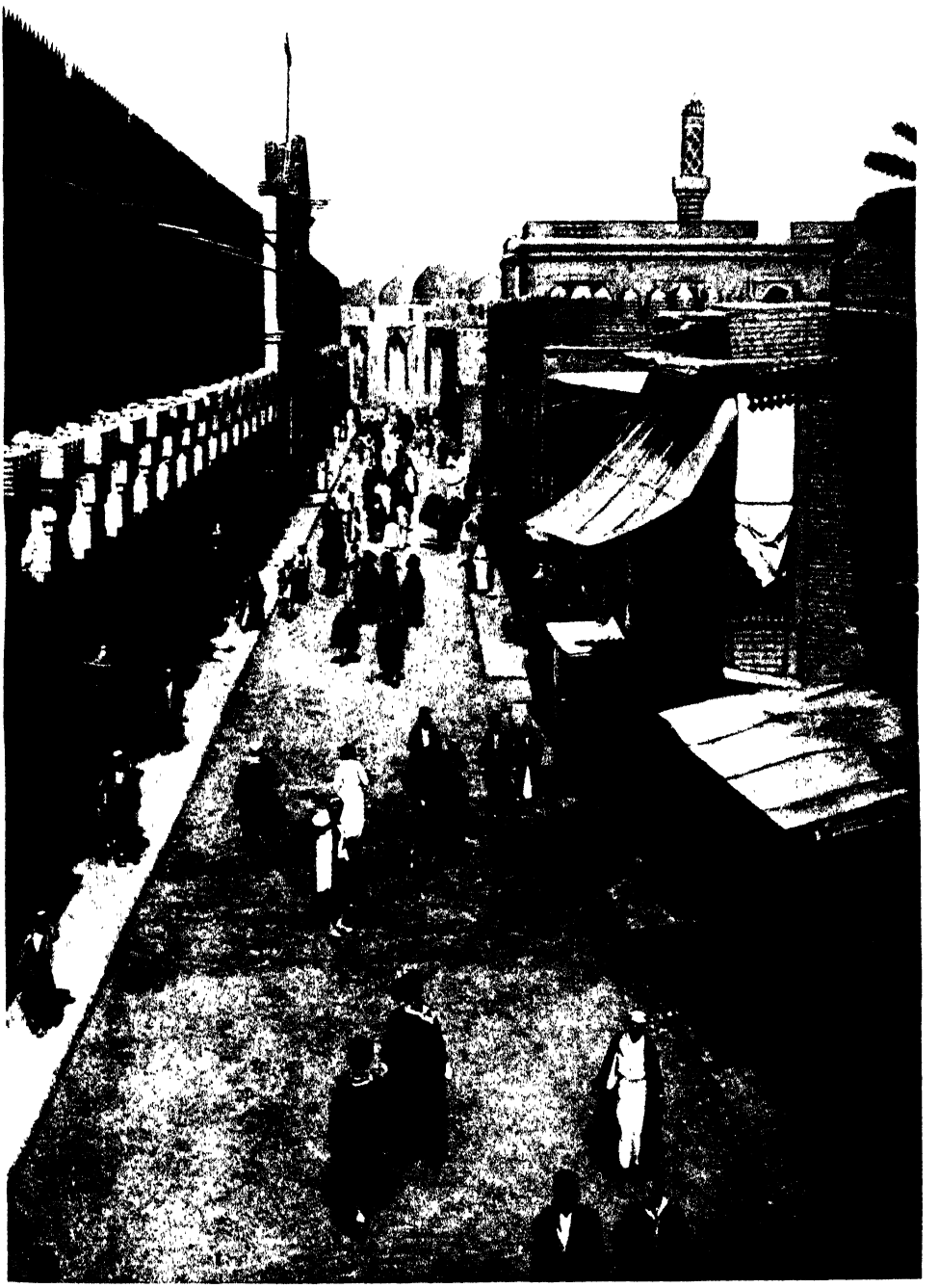
and members of the European colony foxtrot after dinner.

As you go north, however, New Street loses its nondescript semi-European character until it is swallowed up in the remnants of the Arab city. The shops on either side are mostly of the same transitory type, although new permanent structures are beginning to replace them, and it is not until the traveller dives into the labyrinth of dirty cross streets leading to the river that he finds the true flavour—and odours—of the Orient.

Here are the bazaars which contain the inner life of old Bagdad. Even they are disappointing, being no more than alleyways between decrepit houses which have been roofed over usually with matting and bits of wood—forming a series of tunnel-like, dimly-lit arcades crowded with a bewildering variety of merchandise. The caravans from central Persia are constantly adding to the wealth of the bazaars. The merchants sit in front of their cupboard-like recesses, watching with eager eyes for ignorant Europeans, and the din is deafening, for they shout and argue interminably over every article that attracts the gaze of the passer-by. You are offered carpets from Bokhara and Tabriz, uncut precious stones, hammered brassware, jade, amber, embroidered silks from Teheran, rare old Persian manuscripts and highly coloured paintings, furs, rare perfumes, and pistols inlaid with silver. The dingy recesses constantly yield new treasures as the merchant and his customer argue over tiny cups of scented Persian tea and bargain in the tedious fashion imposed by Eastern etiquette.

In the side streets between the new boulevard and the river are rows of coffee houses before which imperturbable Arabs sit cross-legged on high, uncomfortable wooden settles, smoking and talking politics by the hour. In one crooked passage are the silversmiths bending laboriously over their low benches, fashioning the raw metal into cigarette cases, umbrella handles and other ornaments for the enticement of the foreigner. In another alley are the leather sellers, surrounded by Arabs bartering over new saddles and gay trappings for their horses.

The mosques possess no special attraction. No city guards its places of prayer more jealously from foreigners, and the feet of the infidel have never



MODERNISED BAGDAD: IN THE STREET OF THE GOVERNMENT PALACE

This is one of the few streets of Bagdad worthy of the name in European eyes; in the older quarters they are narrow, tortuous, pent between windowless walls, and, in the case of the bazaars, roofed with dried grass and leaves, or even vaulted brickwork—more intricate than those of almost any other Eastern town. On the left is the old Turkish Governor's "Serai," now housing various ministries of state

penetrated beyond the portals of the Great Mosque, which is a place of pilgrimage for devout Shiites. Constant contact with European influence during the past few years has not diminished the religious antipathy of the Moslem ; he may accept motor-cars and aeroplanes as inevitable features of a new era, but he clings as steadfastly to the

improved by the gap thus created. King Feisal's palace, a mile beyond the North Gate is a modern mansion of mud-coloured brick, formerly a British hospital. The building is a relatively modest affair compared with the home of the British High Commissioner on the other side of the river. The main entrance, guarded by sentries of



LOOKING NORTHWARDS UP THE TIGRIS FROM THE AIR ABOVE BAGDAD

Seen from an aeroplane the windings of the Tigris appear like the coils of some huge snake ; in the foreground is the divided city of Bagdad, while the farthest point shown is full 50 miles away. The long road on the right leads from the North Gate, and the square enclosure beside it is the North Gate Barracks, where the wall abuts on the river is the Military Hospital

barrier which divides his faith from non-believers.

Near the bazaar district is the old Serai, a rambling, barrack-like structure built around a great courtyard on the river bank, which was formerly the headquarters of the Turkish administration and is now the home of the various ministries of the new Mesopotamian Government. The river wing vanished into the Tigris, as already related, and the remainder is not

the new Arab army, looks out on a strip of parched ground dotted with weeds and derelict fragments of machinery. The royal garage is a lowly shed with walls of mud. A pavilion for court functions—the St. James's Palace, so to speak, of Bagdad—was erected near by under the supervision of a British architect. It is a half octagon in shape and one storey high with an audience chamber or diwan and other ceremonial apartments, and



Col. W J P Rodd

AT THE ENTRANCE TO THE FORTRESS OF BAGDAD

Although the chief public buildings are to be found in the eastern quarter of Bagdad along the river-side, the oldest structures of the city are scattered around the North Gate, and very few of them are striking in either appearance or historic interest. In this vicinity is found the gloomy old citadel, rising just within the old wall line, encompassed by a high brick rampart with a lofty clock tower



COURT IN THE PILGRIM-HAUNTED SHRINE OF ABDUL KADIR

Of Bagdad's hundred mosques crumbling away under the lethargy of the East, the noble shrine of Abdul Kadir, founder of the Kadaria sect of dervishes, is one of the spots most visited by pilgrims. The beautiful pillars of this outer court are of red marble, and near by is an aqueduct from the Tigris, the last of a once fine system of city waterways. The shrine was built in 1253



K. N. Moyser

THROUGH A PORTAL OF OLD BAGDAD

Affording grateful shade during the midday heat, this gateway of ancient Bagdad, before which the photograph shows a water-seller chatting with a group of children, is of simple but not unimpressive architectural design

adorned with marble pillars brought from Mosul.

Of the great Moslem university being erected at Muadhem on the Tigris, two miles north of the city, only one wing will be completed at first, giving quarters to the engineering and medical schools; a theological college will follow.

Between King Feisal's humble palace and the North Gate are the primitive Turkish barracks and a racecourse which dates from the early days of British occupation. The oldest buildings in the city are clustered around the North Gate, but they possess little beauty or historic interest. The best example of the new Bagdad which will eventually displace these semi-ruins is the large brick and stone structure put up in 1921 as headquarters of the government printing establishment and now occupied by one of the ministries. It is modern in every respect and in strange contrast with the decayed Arab habitations which surround it in a side street near the Serai.

A grandiose scheme for a Bagdad on the lines of new Delhi was prepared soon after the Great War and a start was actually made in the desert south-east of the present city, but lack of funds prevented material progress and only a few costly bungalows and fragments of streets were completed. It was the intention to make this modern suburb a link between the present city and the military cantonment at Hinaidi, five miles beyond the South Gate.

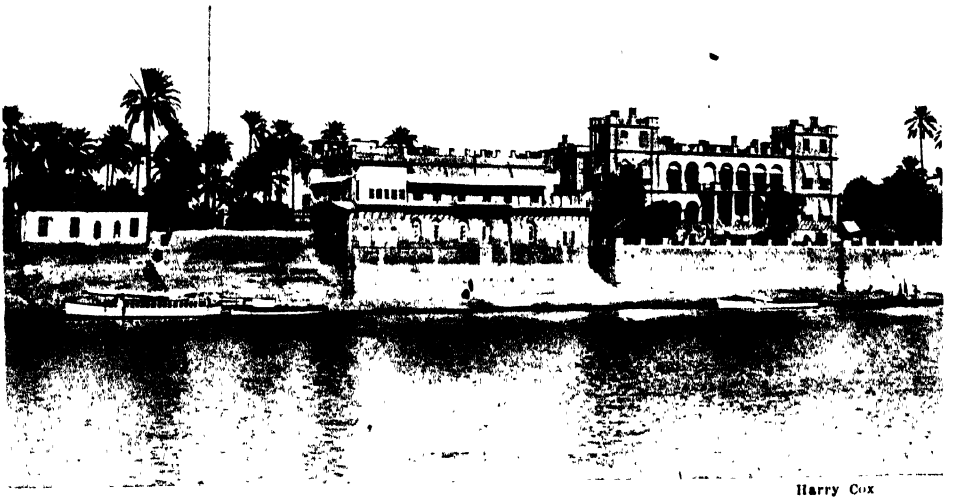
Hinaidi is a striking example of what can be done by British labour in the desert. It is a town in itself, with buildings of galvanised iron and sun-dried brick for the troops; it has pumping stations, electric light works, repair shops, aeroplane hangars and landing ground, shops, canteens and amusement centres. The cantonment has a perimeter of 14,000 yards and is surrounded by dykes to prevent inundation when the Tigris is in flood.

The new British Residency on the west bank of the Tigris, between the two pontoon bridges, is the only building of importance on that side of the river. It was originally the residence of Kiazim Pasha, a brother-in-law of Sultan Abdul Hamid II., who was deposed in 1909 and died in 1918. It was subsequently a British head quarters and in 1921 was purchased as the official residence of the High Commissioner.



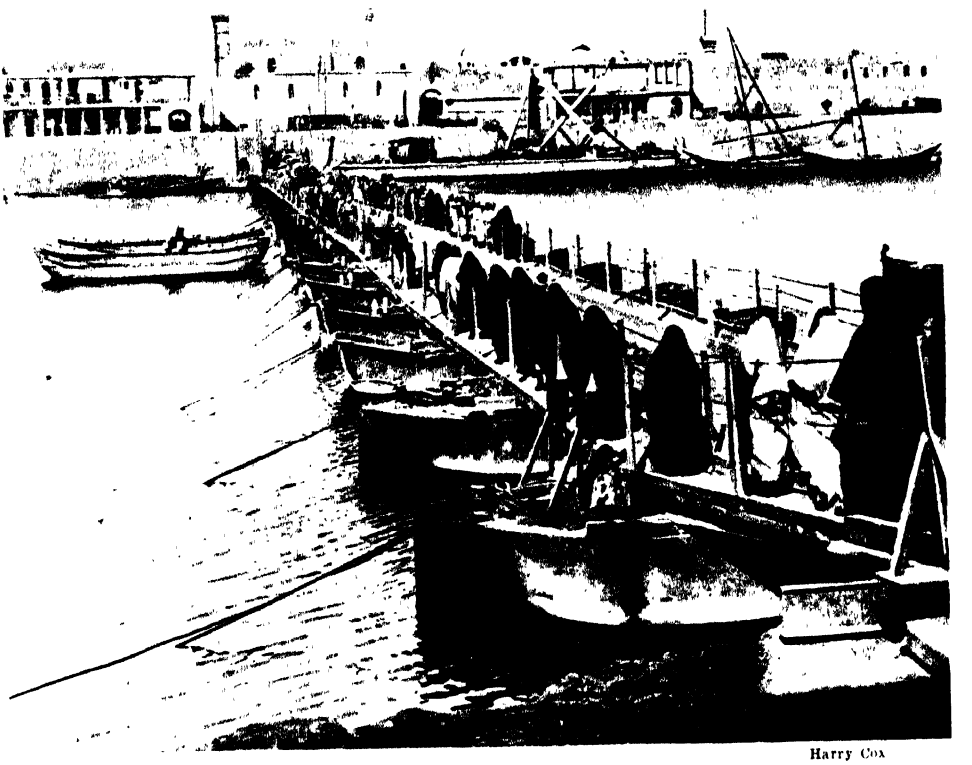
Col. W J P Rodd

BAGDAD. *Cool breezes playing along the water make the palm-fringed foreshore of the Tigris below the city a favourite evening promenade*



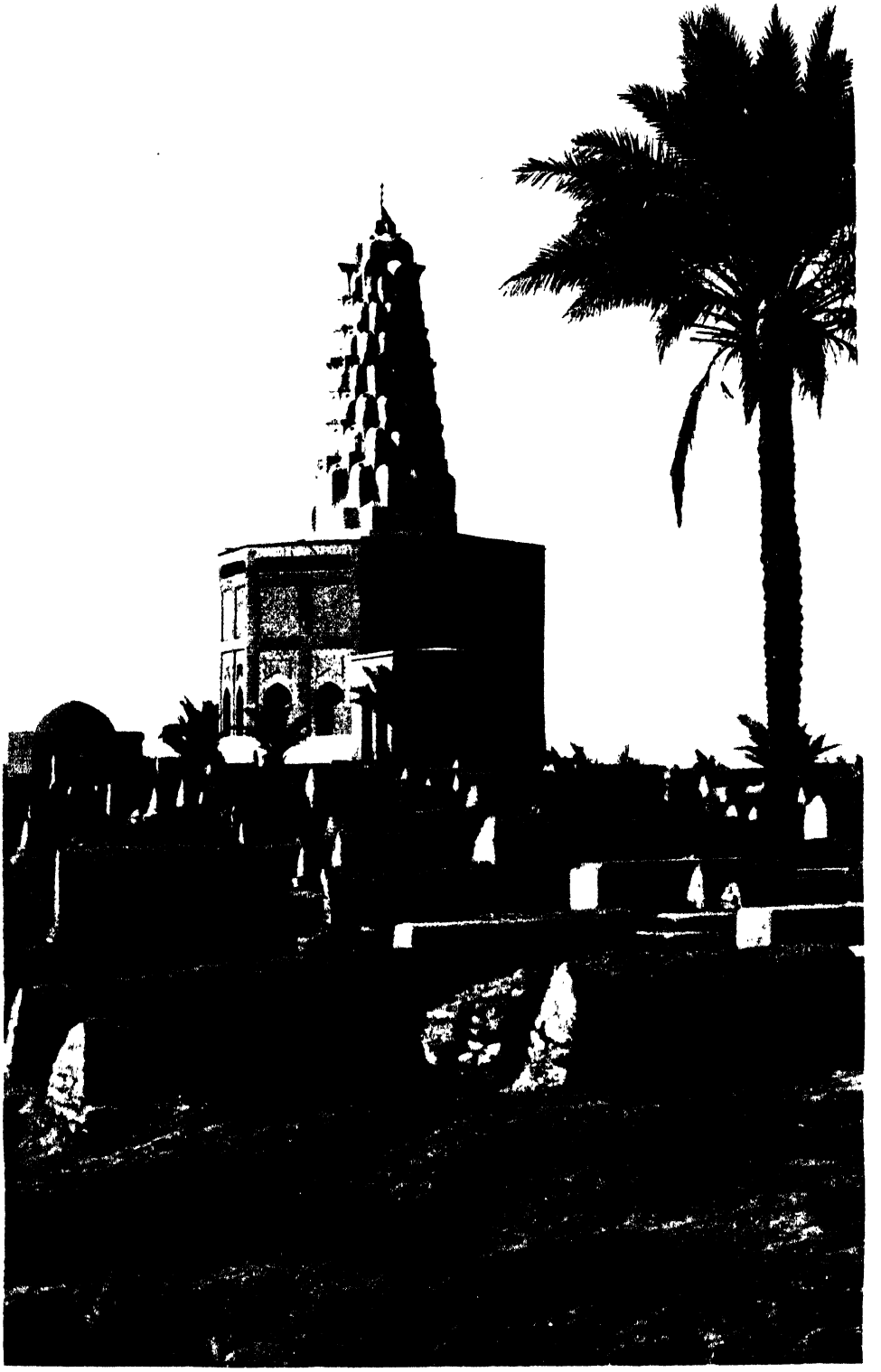
Harry Cox

BAGDAD. *Many fine buildings line the river front on the left, or east, bank of the Tigris. This palace was at one time the British Residency*



Harry Cox

BAGDAD. *Modern engineers approve the methods adopted of old time, and like the old bridge across the Tigris the new one is built of boats*

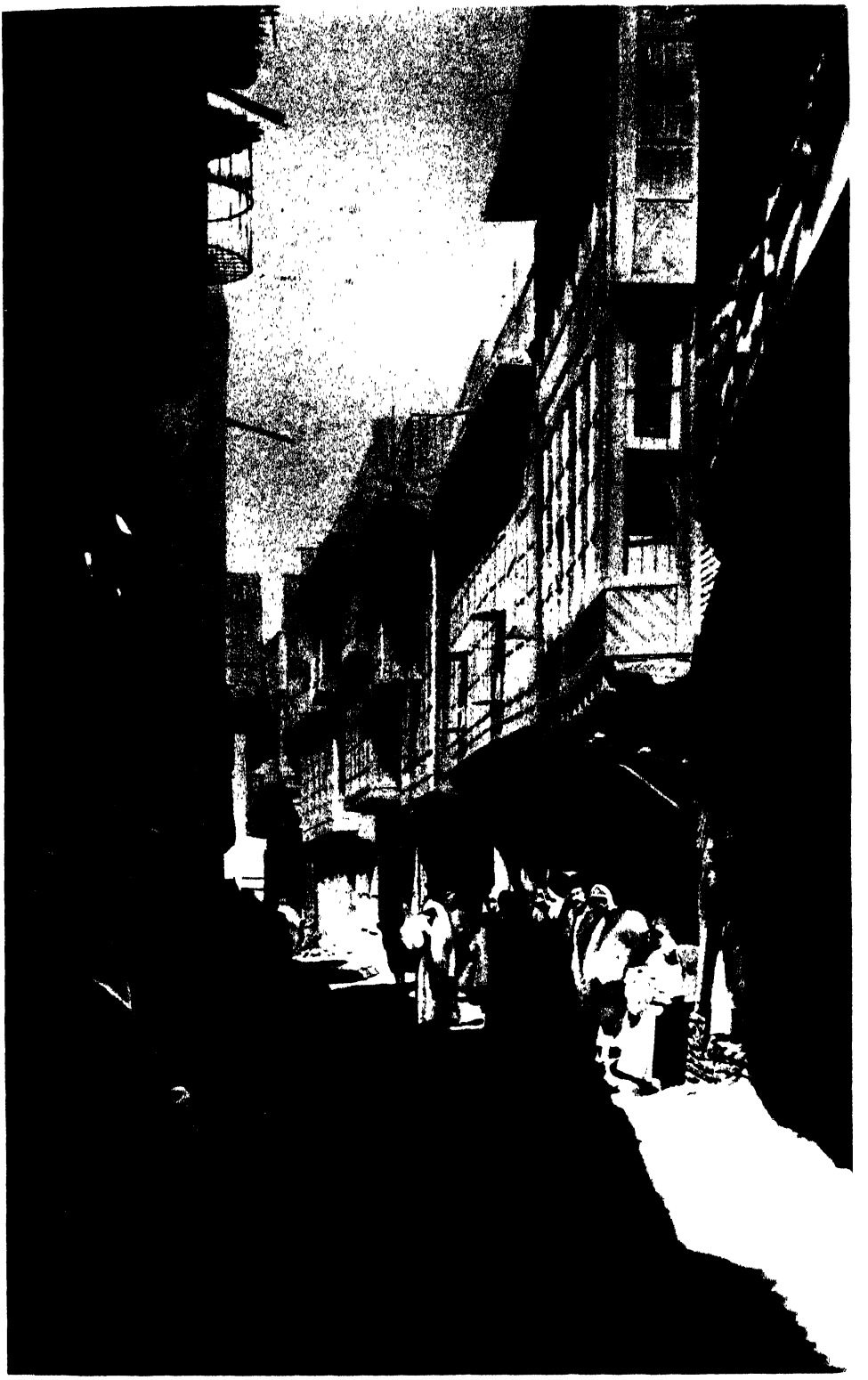


BAGDAD. *Reputed tomb of his favourite wife Zobeida, this fir-cone-domed shrine is one of the few relics of Haroun Al Raschid's city*



Col W J I Rodd

BAGDAD. *Sadly shorn of glory is the blue-domed Great Mosque. The ruined arches—ribs of its sawn skeleton—mark the line of New Street*



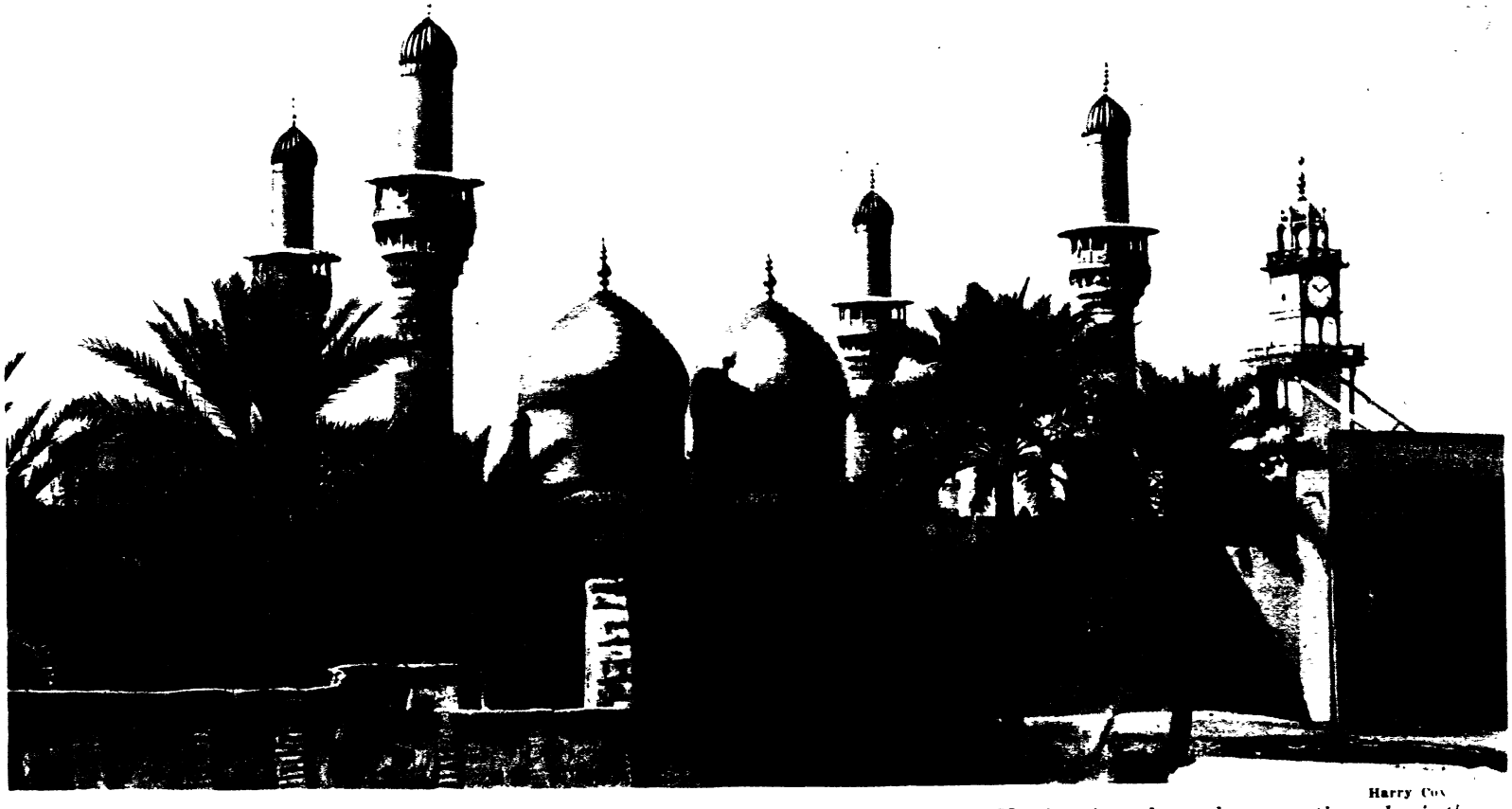
Col W. J P Rodd

BAGDAD. *While lacking colour and fine architecture, Bagdad's narrow, winding streets overhung by latticed windows have a distinctive charm*



Col W J P Rodd

BAGDAD. *Cut through the city in* 1916 *and commonly known as New Street, this is the only broad thoroughfare in Bagdad It is here viewed from the North Gate, and the Great Mosque is seen at the southern end*



Harry Cox

BAGDAD. *Moslem piety has lavished wealth upon the Shiite shrines at Kazimain where the seventh and ninth Imams are buried. The twin domes are sheeted with pure gold and the minarets encased in coloured tiles*



BAGDAD. *High brick buildings rise from the Tigris, leaving but a narrow bank where crowds gather round the passengers, livestock, and wares brought across stream by skilful boatmen in their antique gufas*

BALEARIC ISLANDS

Sea-Girt Outposts of Spain

by E. G. Harmer, F.R.A.I.

Writer on Anthropology and Archaeology

FLUNG like a chaplet across the Western Mediterranean, as if to span the blue expanse between Alicante and Sardinia, the Balearic Islands, varied, sunlit, productive, may well claim pride of place among Spain's fairest provinces. There are two groups. That to the east, the "Insulae Baleares" of the Romans, comprises Mallorca and Menorca—we call them Majorca and Minorca—with seven inhabited satellites, of which Cabrera is the chief. The western group, distinguished in classic days as the "Pityusae" or Pine Islands, consists of Ibiza—to us, Iviza—and Formentera, with four attendant islets, also occupied. Scattered between 1° and 5° E. long., in 38½° to 40° N. lat., they have a total area of 1,035 square miles.

Summits of a Sub-aqueous Ridge

Rooted beneath the sea-floor in the distant Andalusian sierras, the upland crest of the archipelago turns its convexity to the sun, as if to affirm that once it served as a glacis to the Peninsula. Nearly 60 miles of sea intervene between the easternmost cape of Alicante and Iviza; it is 50 miles thence to Majorca and less than half that distance to Minorca. Each island rests on a broad couch within the 100-fathom limit, with somewhat deeper depressions west and east of Iviza. The sub-aqueous ridge whose emergent summits make up the Balearic chain falls away sharply towards Provence, Sardinia and the Barbary lands, into the profounder Mediterranean deeps.

Between the Ivizan peak of Atalayasa and the distant Mount Toro in Minorca, both less than 1,800 feet high, the sierra rises again to skirt the long, precipitous north-west coast of Majorca, where it culminates in the 4,770 feet of the Puig Mayor. The sunward slope of this tumbled mass sinks into the tertiary alluviums which make of the Palmesan plain a garden of the Hesperides. Here are no perennial streams, but rocky torrent beds, usually dry, and the aspect of the land betokens at once the need for irrigation and its triumphphant accomplishment by human hands.

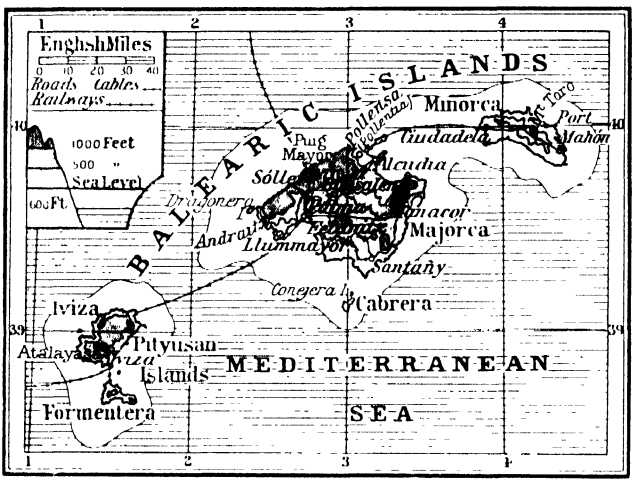
Beneficent and Equable Climate

For whereas the uplands present a rugged framework of hardened jurassic limestones, scantily encrusted with softer soil, the hillsides display that patient system of terraced cultivation which arose out of the old Mediterranean civilization. Here steep scarps and counterscarps of unmortared boulders buttress the narrow terraces. Even the arable plains are scored by massive walls, representing age-long efforts of man to rid the soil of its stony encumbrance. In Minorca's more arid expanses there are barrancos or glens silted up by seasonal torrents whose sediment perforce lay as it fell, under the indulgence of the tideless sea.

Happily the terrestrial conditions are conjoined with a climate of exceptional suavity. Palma itself, protected from the northerly winds by its crescent of highlands, seldom knows a temperature below 41° F. on a winter night, although snow lies scantily on the distant summits now and then. The air of a December noon may reach 68°, but a hot summer's day would mark no more than 90°. The daily range is singularly equable, with a sharp drop towards sunset, counterpoised by an increasing warmth after the dawn. Rains, sometimes

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torrential, are not normally persistent, and although concentrated mainly upon the spring and autumn months, cannot be looked for, year in year out, on more than one day in six. Heavy clouds may appear for a time, but the resistless sun bursts through almost while you watch.



CONTOUR MAP OF THE BALEARIC ARCHIPELAGO

Winter gales are not unknown, and the feluccas sometimes lie windbound in the bays for days together. Minorca's mistral days are comfortless, because no mountain belt protects the capital, Iviza, which also knows the touch of the northerly blast, knows, too, the scorch of the sirocco from far-away Africa. But for the most part the breezes are kindlier and often zephyrous, while few days in the year register a stagnant calm. From August to October the well-to-do Mallorquins retire to their hillside villas where the air is fresher and the mosquito, non-malarial but irritant, is left behind.

To say that the Balearic vegetation is an insular variant of the Mediterranean flora is to call up a vision of coastal plains bestrewn with hoary olives, with opulent vineyards and intrusive colonies of prickly pear. As one ascends the scrubby hillsides behind Palma, with their garment of carob trees, their undergrowth of lentiscus and bushy heath, and in the springtide their riot of anemone and cistus, one reaches at length the zone of evergreen oak. The Aleppo pine is to be seen at all altitudes, down to the lapping of the waves, and an avenue of palms confronts the busy quay. Rabbits and hares provide the Mallorquin with four-footed game. Some hunt them with the lean yellow greyhounds which are descended from the old desert breed brought by Phoenician mariners from the ancient Nile Valley, as depicted in Tutankhamen's tomb. Partridges were introduced by King Sancho more than six centuries ago. The winter migrant feels singularly at home with the bird life which shares his southward flight, although now and then he encounters unfamiliar forms also, a skein of Balearic cranes or a community of flamingoes from the salinas.

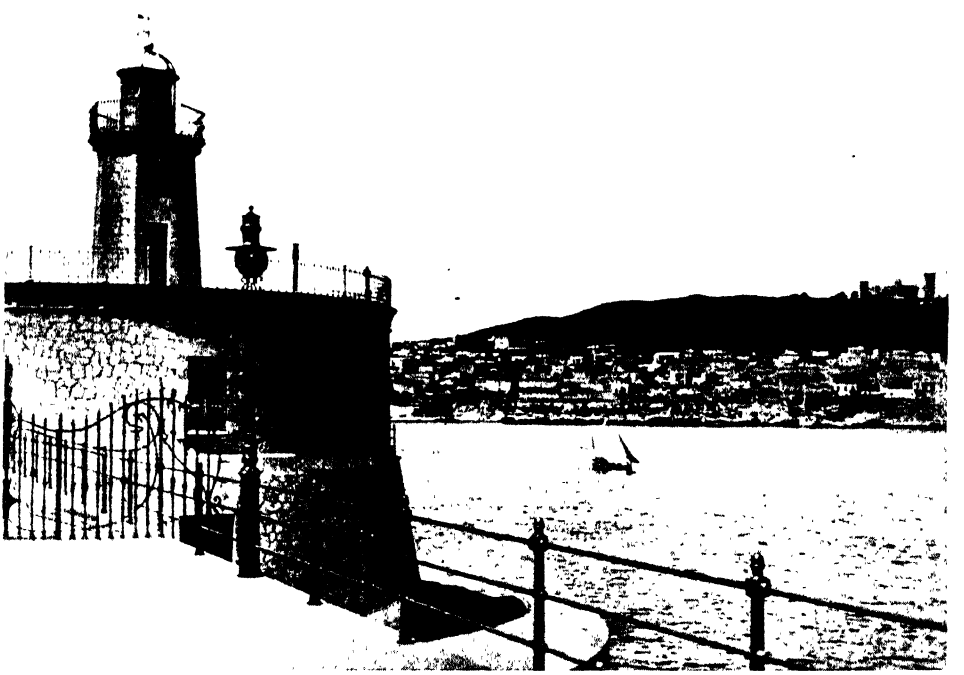
Above all, Majorca is an orchard and a garden. Five centuries of Moorish industry left behind many a vestige, in aqueduct and well, breastwork and garden steading, which Catalan energy has turned to account or used as an example, and everywhere the rains are conserved in giant cisterns, often holding a year's supply. In some places the cultivator must pay for his irrigation water, which is served out to his lands in rotation on fixed days, as in ancient Mesopotamia. Happily, in a clime so kindly, the return is sure. No January but finds the Andraitx hills a mass of almond bloom, no March when garden vegetables and oranges are not at their juiciest, no November without its harvest of olive, persimmon and fig.

Except some Devonian outcrops on the north Minorcan coast there are no primary rocks. The sierras are built up of secondary formations, much faulted and contorted, in which liassic beds predominate, with masses of triassic dolomites here and there. The tertiaries lie upon these older series in the plains. When the Thames was

depositing the London clay, the material furnished by the denudation of the calcareous rocks of Balearica was being redistributed through the medium of nummulites, and Balearic lakes were submerging the brown lignites which are mined to-day at Binisalem and elsewhere. Unequal in calorific value though they be, during the Great War they eked out the supply of Asturian coal, which now encounters once more the effective competition of English and Welsh coalfields. This is why the 50,000 tons of lignite mined in 1920 dropped in the following year to barely three-fourths of that quantity.

Here and there patches of intrusive rocks are accompanied by metalliferous ores and other minerals. The mines of copper, iron, lead and silver are now of little account, but there is an active exploitation of red and white marbles, jaspers and rock crystals, and other useful stones. Of the freestone much use has always been made, as the ramparts of Palma, with its Gothic triumphs, the Lonja and the cathedral, bear witness. On the east coast the stalactitic caves are among the largest in Europe, and are paralleled on a corresponding scale in Minorca.

Time was when these island-bred Catalans were the best geographers and chart-makers in the world, when they built 30-bench galleys alongside the Palma mole, and manned 460 vessels to try conclusions with the Barbary corsairs. With an inherited aptitude for seamanship, the present Balearcans are skilful fishermen and boatmen; to watch their feluccas strung out like a rosary from cape to cape is a perennial delight, even though the strident chug-chug of their motors is insistent nowadays. Apart from its welcome consignments of fresh fish, the toothsome lobsters which Palma sends to the Barcelona shops bring in a yearly revenue of £8,000 or more. The forests, although yielding little



E. N. A.

ISLAND OF MAJORCA SEEN FROM THE LIGHTHOUSE IN PALMA BAY

The Balearic Islands, consisting of four large and several small islands, lie in the Mediterranean off the east coast of Spain. Majorca, the largest, is 60 miles in length by 48 miles in breadth, with an area of 1,325 square miles. Palma, its principal town, is built about the base and slopes of an amphitheatre of hills overlooking the bay of the same name



L. N. A.

VILLAGE LIFE IN THE TRANQUIL COUNTRYSIDE OF MAJORCA

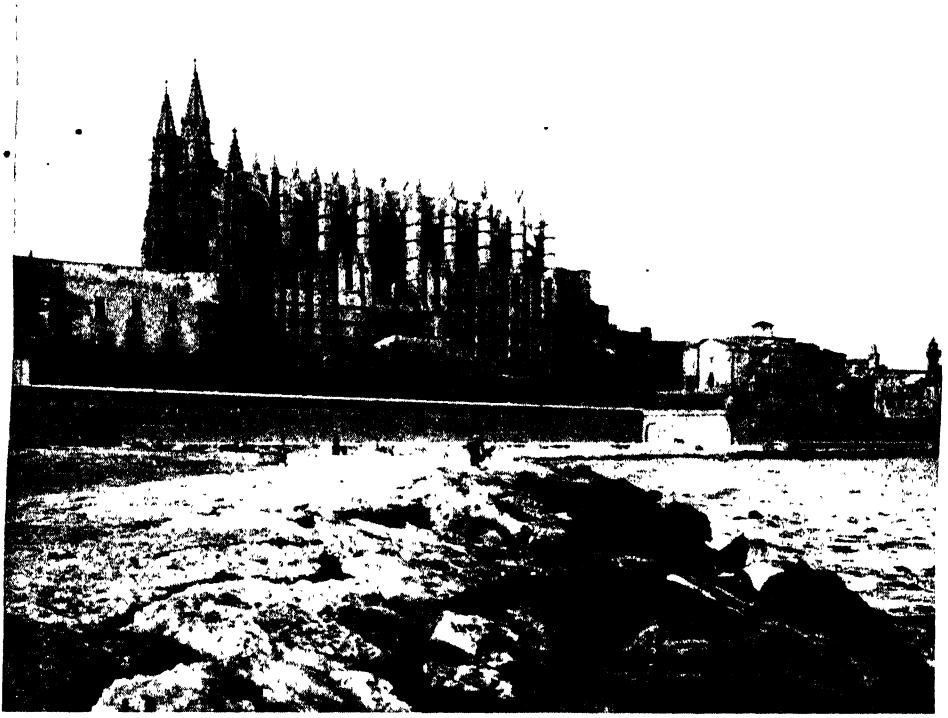
Though the Balearic Islands are out of the beaten track of the tourist, Majorca is steadily growing in favour as a haunt of the artist and archaeologist. A pleasing feature of the island is its tranquillity. It is free from brigandage. In the remotest mountain village may be found a delightful hospitality, coupled with a matchless honesty which prevents the slightest exploitation of the unwary traveller



E N A.

MAJORCA. AT THE ENTRANCE TO A COUNTRY COTTAGE HOME

There are a simplicity and charm about the Balearic Islands that make few places in the Mediterranean better worthy of a visit. Majorca, especially, has innumerable attractions, not the least of which are its varied scenery and rich vegetation, for the soil is fertile and the island, on the whole well-irrigated, produces wine, olive-oil, cereals, figs, oranges, lemons and other fruits in abundance



Ernest Peterffy

FLYING BUTTRESSES AND PINNACLED TOWERS OF A FAMOUS MINSTER

The Gothic cathedral of Palma is built of golden-brown sandstone, and was begun by Don Jaime I. soon after his conquest of Majorca, and completed, with the exception of the modern west façade, early in the seventeenth century. It stands on the east side of the harbour and dominates the view over land and sea. In the interior is a marble sarcophagus containing the body of Don Jaime II

good timber, half the annual importation of 4,000 tons being from the Baltic, provide occupation for a large population. After meeting its local needs, Majorca sends away an annual total of 11,000 tons, including material for Valencia fruit boxes and wine barrels, besides nearly 2,000 tons of wood fuel, and more than half that weight of furniture, wickerwork and esparto ware. The total return to the island amounts to £94,000. Many young pines are being sacrificed for pit-props, and even for fuel. There is no evidence of any provincial programme of reafforestation, and it becomes a serious question how far the present policy of indiscriminate denudation, encouraged by the demand for ground for almond culture, will in no distant future bring about radical changes in the geographic control. An Arbor Day inaugurated in the spring of 1924 may set a much-needed example.

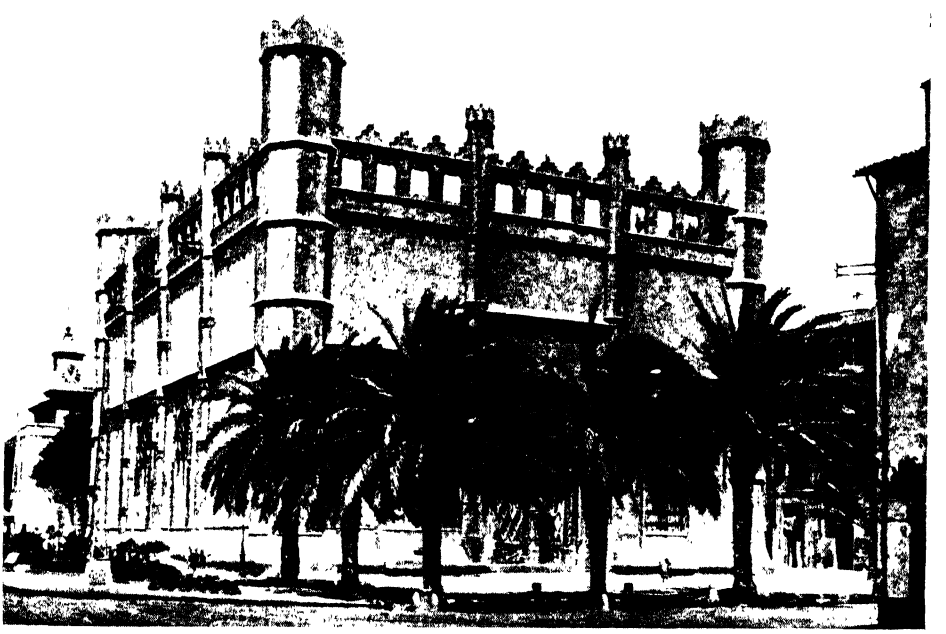
The area under arable cultivation may be put at 200,000 acres, nearly one-fourth of the whole land surface, with an almost equal area, partly overlapping the other, devoted to the care of the olive, vine, almond and carob. The value of the agricultural harvest is £1,600,000, including the portion which goes to Spain, France and Algeria. The tendency is to devote more and more attention to almond and carob, at the expense of olive and vine, and—as in Iviza—to nurse the apricot supply. The rice grown in the marshy swamps near Alcudia may date back to Punic times. In Minorca there is a profitable production of honey, butter and cheese.

Some attention is given to horse-breeding. Mules are highly valued and there are substantial herds of sheep and goats. But the principal interest of the live-stock breeder centres in the pig, for which the forestal conditions are peculiarly favourable, while the fodder supply is supplemented for weeks together by a surfeit of fresh figs. In Minorca the pig population is housed

in palatial structures simulating the old megalithic architecture, and many a pig-breeder contentedly puts the comfort of his own habitation in the second place. Barcelona and Valencia look forward with avidity to their supply of Majorcan and Minorcan pigs, which may fetch ten pounds apiece and have been known to figure in the export returns at 60,000, not to mention several hundreds of tons of hog products.

The primitive methods by which agrarian operations are carried on are in strong contrast with the up-to-dateness of current manufacturing developments. Within recent years, and especially during the Great War, the Balearean people have successfully claimed admission into the general comity of modern mechanical industrialism. The old Moorish ramparts, once Palma's jealous pride, are fast being effaced in favour of factories which may vie in size and equipment with those of Barcelona itself. Boots and shoes are turned out both by co-ordinated home labour and in commodious works. The insular embroidery shares with these the appreciation of Spanish and South American markets. The Mallorquin aptitude for masonry and joinery is innate. The most remarkable of these industrial movements is the production from imported silver, gold and platinum wire of chain-mesh bags and purses which find an eager demand in every part of the world. In all these and similar enterprises Minorca sustains with success a keen competition.

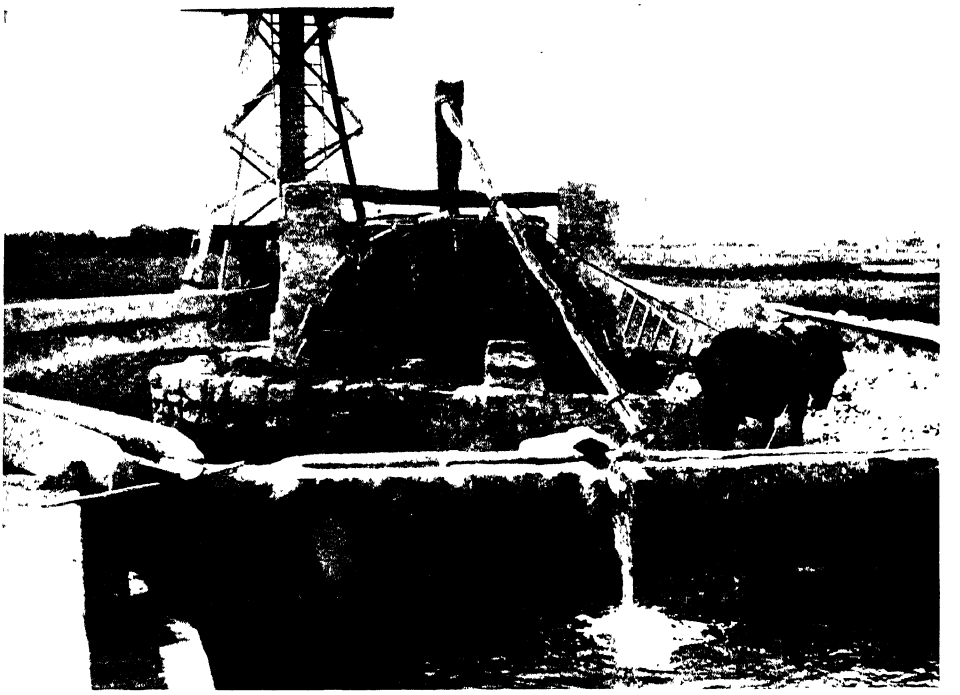
The new social conditions created by this industrial organization, with its apparatus of strikes and labour controversies, are destructive of the aristocratic serenity of the past. The inherited wealth of the old landed families, whose ancestors came in with the Conquistador in the thirteenth century, is being inevitably sapped. Out of the 573 farms and urban properties of which King Jaime despoiled the Moor



Ernest Peterffy

ONE OF PALMA'S MOST BEAUTIFUL AND HISTORIC BUILDINGS

The Lonja, once the Exchange, a sandstone building of considerable architectural merit, resembles a Gothic castle with four corner towers, two slender turrets between each, and a fantastic parapet surrounding the roof. It was erected during the first half of the fifteenth century and rapidly became the centre of important commercial activity; it is now used as a provincial museum



IRRIGATING THE FIELDS IN THE ISLAND OF MAJORCA

This strange type of well is still in use in the Balearic Islands. Many wealthy land-owners have erected wind-motors alongside their wells to replace the work of the mule whenever the breeze makes it possible. In calm weather, however, the wells are operated by the patient, blindfolded mule that does its duty all day long like a living machine. The scaffold of the wind motor is seen in the background.



Ernest Peterfly

FILLING THE PITCHER IN AN OLD-WORLD CORNER OF PALMA CITY

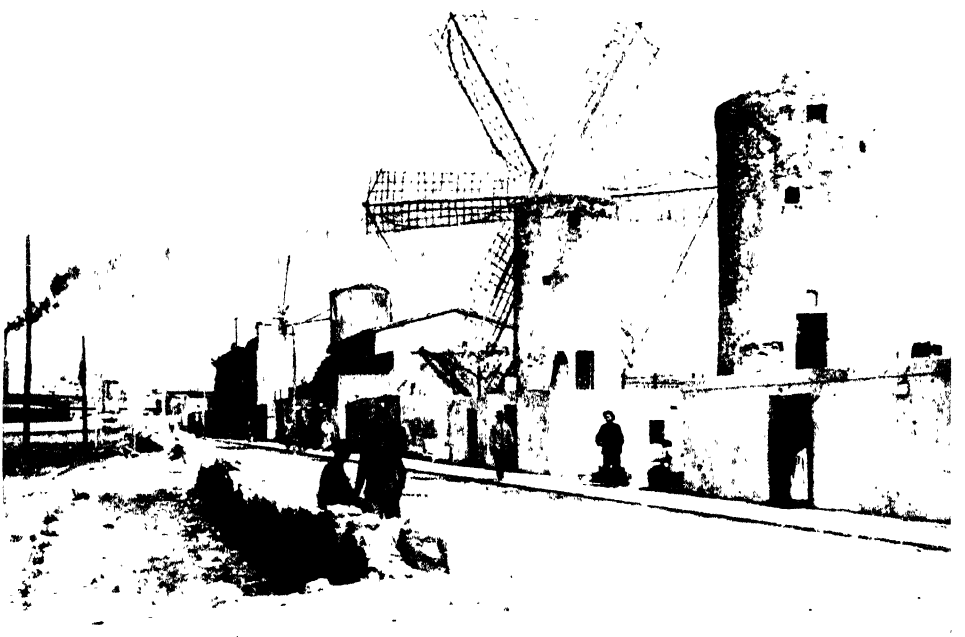
The progress of modern times has by no means done away with, but only modified the use of the primitive wells to be found in the towns and country places of the Balearic Islands. This photograph shows a curious turning well at Palma. By means of wheels worked by hand, the water, pumped into pipes, discharges through a spout, the flow being regulated by a small hand-wheel.



Ernest Peterffy

DIVERSE DWELLINGS ON THE OUTSKIRTS OF PALMA

Dwellings of every description may be found in and around Palma, including the windmill home of the peasant, two examples of which are seen above on the hill, and the relatively palatial residence of the aristocrat. Many houses are in the Moorish style, for the long period of Arab rule has left its mark on the people's customs, and to some extent on their physical type.



Ernest Peterffy

OBSOLETE WINDMILLS GIVE SHELTER TO PALMA'S POORER PEASANTRY

The numberless windmills impart an air of great activity to the suburbs of Palma. Originally they were used for crushing olives, but many of them are now inhabited and it is said that their inmates highly appreciate them as cool dwellings. The inhabitants of Majorca are mainly Spanish with a mixture of Moorish blood, and in character they are hard working, honest and hospitable.

for his followers' benefit many have passed into other hands. A new order is arising. The banker and lawyer are now a power in the land. The medical practitioner, for all his medieval ways, has bacteriological laboratories at his command, and even the fisherman may, if he will, take counsel of his marine biological station. The Instituto in

efficient service. The mail steamships which ply between this port and Barcelona four times weekly are supplemented by other services—weekly, with Port Mahón and Iviza, Valencia and Alicante; monthly, with Algiers and also with Marseilles.

Apart from the land-lines and submarine cables, over which Palma handled



Ernest Peterffy

SPREADING FISHING NETS TO DRY IN PALMA

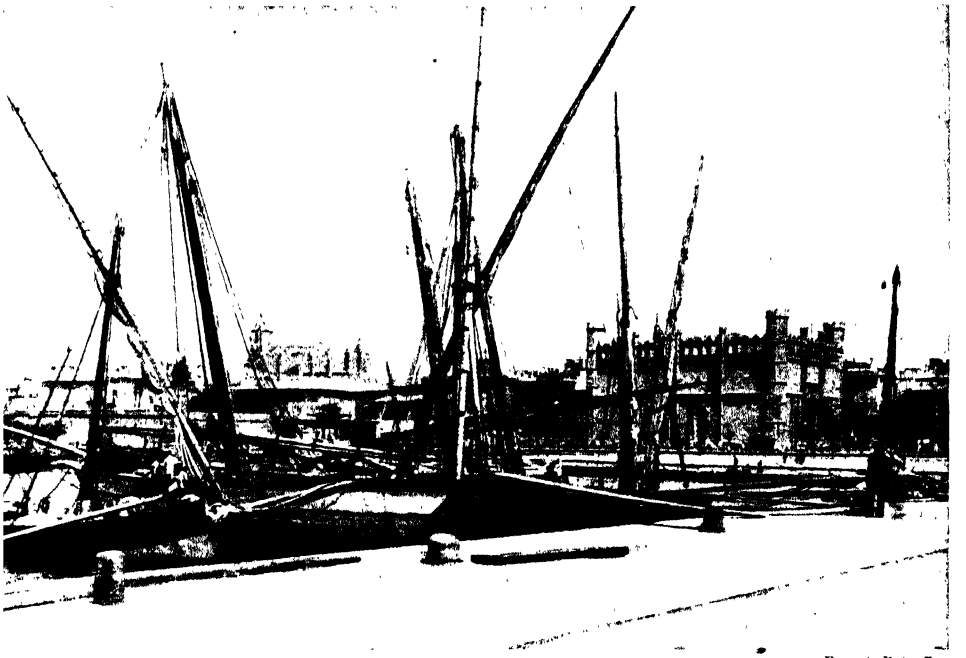
The name Balearic, or Slingers', Islands, is said to have been derived from the skill of their original inhabitants in using the sling, chiefly in the armies of Carthage and Rome, for these islands passed successively under the rule of Greeks, Carthaginians, Romans, Vandals and Arabs. Fishing is an important industry, and many of the coast-dwellers of Majorca depend upon it for their livelihood

Palma, affiliated to the Barcelona University, focuses the provincial education, which, despite much illiteracy, is no whit behind the mainland standard.

Notwithstanding the growing zest for motoring, the public roads are but indifferently good. There are 415 miles of provincial highways in the main island, with 45 miles of local rate-supported roads, and many exiguous mule-tracks. The 75 miles of railway link up the main market towns, and auto-buses are replacing the picturesque mule-drawn carts. In Palma itself eight miles of electric tramway provide an

448,922 telegrams in 1921, there is a Telefunken wireless station at Port Mahón within reach of the mainland system, and a Marconi station at Sóller with a range of 500 miles, dealing with both ship and shore traffic. An Aero-Marítima Mallorquina has high hopes of future aerial transport, and an air-post with Barcelona may come in the immediate future.

When the present-day tourist glides into Palma Bay shortly after the dawn, and lands upon its fourteenth century mole, his first thoughts are for the amber-tinted gleam that irradiates the



Ernest Peterffy

FISHING BOATS MOORED IN THE HARBOUR OF PALMA

As the capital city and the residence of the Captain General, Palma enjoys considerable prestige in the Balearic Islands. As a port it carries on a prosperous trade chiefly in fruits and vegetables, in addition to exports of woollen cloth and other locally manufactured articles. In the background rises the beautifully proportioned Lonja, or old Exchange, testifying to Palma's former commercial importance



Ernest Peterffy

IN PALMA BAY: THE FISHERMAN'S HOUR OF EASE

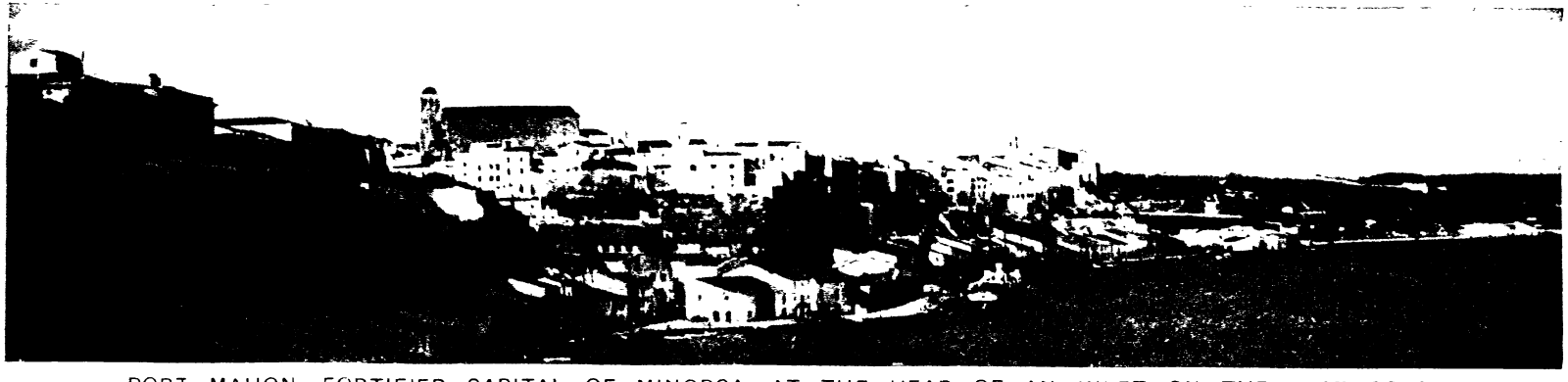
The small casks contain fresh water, a precious possession in Majorca, and as glasses are generally considered a luxury among the fisherfolk this man performs almost an athletic feat to quench his thirst. Beyond the waters of Palma Bay is seen the village of summer residences called the Terreno and the suburb of Santa Catalina, while crowning the wooded hill is the old royal Castle of Bellver



J Roig

MINORCA'S OLD CAPITAL AND THE NARROW WATERWAY WHICH CONTRIBUTES TO THE TOWN'S PROSPERITY

Ciudadela, situated at the west end of Minorca, was the capital of the island until the arrival of the British at Mahon, and the fine road running across the island between these towns is of British construction. It is now the second largest city, the see of a bishop, with a fourteenth century cathedral, and fragments still exist of the ancient walls which fortified the town in former times. The inlet on which it stands is so narrow that only small vessels can ascend to the town in fine weather, nevertheless it has a considerable foreign trade, including exports of cattle, wool, cheese and stone



PORT MAHON FORTIFIED CAPITAL OF MINORCA, AT THE HEAD OF AN INLET ON THE EAST COAST

Mahon, or Port Mahón, is the capital of Minorca, the island second in size, with an area of about 290 square miles, and the most easterly of the Balearic Islands. Port Mahon has a remarkably fine harbour, one of the best in the Mediterranean, and is strongly fortified. In former times several foreign fleets were wont to shelter here during the winter months. The town, which was occupied by the British in the eighteenth century and ceded to Spain in 1802, was known to the ancients as Portus Magonis, and stands on a hill on the south side of the harbour. It has an arsenal and a wireless telegraphy station



Ernest Peteiffy

WOMAN WATER-SELLER IN THE STREETS OF PALMA

Water has a commercial value at certain times and in certain places in Majorca, and the scarcity of fresh water is the only drawback to many a lovely rural spot, while in the bigger towns the water-seller is both a familiar and a welcome figure. The large, two-handled earthenware jars are of local manufacture, for pottery, particularly the glazed majolica, is a time-honoured industry of the island

city, with its crowning cathedral glory, and its Saracenic spell. But the spell is soon broken. The raucous rattle of a couple of three-ton electric cranes, and the exigent posters announcing the day's cinema or "futball" attractions, combine to establish Palma's claim to a place in the modern world.

The annual returns for Majorca, typifying in a corresponding degree those of the sister islands, visualise a complex web of trade. In 1921, 1,532 vessels entered its ports, bringing 143,034 tons of merchandise, valued at £2,900,340. They carried away 58,145 tons, of the value of £2,135,180. In the former the dependence upon the outside world for the primary needs of life is shown by the 55,000 tons of imported foodstuffs, of which half comprised wheaten flour and grain, and the 20,000 sheep, besides cattle and goats, and even by the importation of a supplementary supply of 2,000 tons of olive-oil.

Although the primitive alternation of fallow survives, the soil is regenerated with 18,000 tons of phosphates and other manures, while the industrial life is sustained by 30,000 tons of coal and coke, 10,000 tons of petrol and 5,000 tons of metals. The exports are no less varied. Pride of place belongs to the almond, responsible for an annual revenue of £500,000. Dried figs and poultry—notably turkeys—each account for £50,000. Of manufactured goods, boots and shoes yield £250,000, and textile yarns and fabrics £366,000.

Of the total provincial population of 350,943, Palma claims 78,363, Mahón (Port Mahón) 18,679, the old Minorcan capital of Ciudadela 9,369, the city of Iviza 6,657. Palma is growing faster than its namesake Las Palmas in the larger and more populous province of the Canaries, and already surpasses it by 10,000. Of the other Majorcan towns thirteen range from 12,000 to

J. Roig

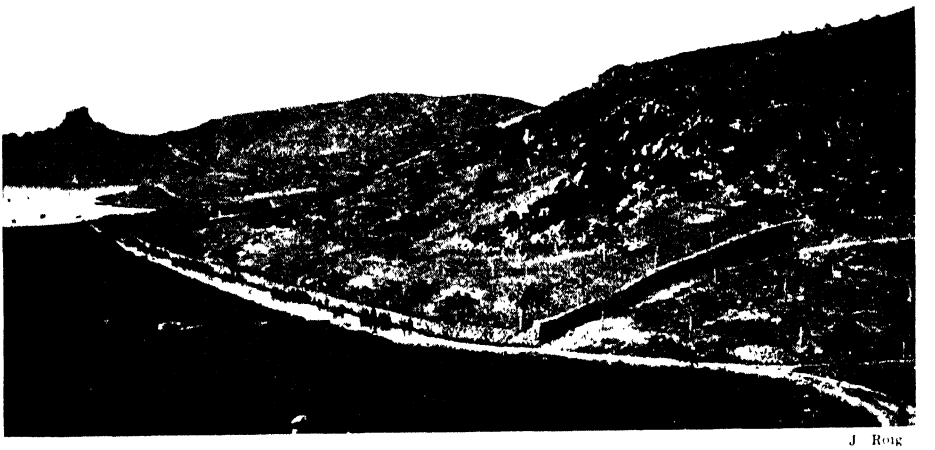
PROSPECT OF THE ISLAND AND HARBOUR OF IVIZA, WITH A GLIMPSE OF ITS CAPITAL IN THE FOREGROUND

The island of Iviza is the westernmost of the Balearics. It has an area of some 229 square miles is hilly and wooded with a healthy climate and picturesque scenery. The soil is fertile and produces good crops of corn, while figs and prickly pears are abundant and some mineral deposits are exploited. The population of about 24,600 persons is scattered and the only important town is Iviza the capital which exports fruit salt and lead and manufactures hosiery. A thirteenth century cathedral still exists and there is an old castle built by Philip V., from which this fine view of the island is obtained

LANDSCAPE OF THE FERTILE SPANISH ISLET OF FORMENTERA IN THE WESTERN MEDITERRANEAN

J. Roig

The smallest and most southerly of the Balearic Islands is Formentera, lying seven miles to the south of Iviza, with an area of 37 square miles, and an approximate population of 2,600. Fishing and salt-mining are among the chief industries, and the excellent corn produced is said to have been responsible for the island's name, derived from Frumentum. This view is from the church of San Francisco; in the far distance is seen the long undulating mountain range of Iviza island which, together with Formentera and some smaller islands, formed part of the group known to the ancients as Pityusae, or Isles of Pines



J Roig

ROCKY ISLET OF CABRERA LYING TO THE SOUTH OF MAJORCA

The only important features connected with Cabrera are the sheltered harbour and the old castle built on a rocky eminence. The island, occasionally visited by tourists, is an almost uninhabited tract of land, three miles long by four broad. It acquired considerable ill-fame during the Peninsular War on account of the harsh treatment meted out to the French prisoners interned there

5,000 apiece, and the largest of them, Manacor, Felanitx and Llummayor, are a standing witness to the town-planning genius of the first Majorcan king. There are thirty-five villages of 5,000 and under, and in the uplands old Moorish eyries still harbour scantier populations. In Iviza, with its flatter relief, the people tend to congregate in four villages averaging 4,500; in more arid Minorca, five villages average no more than 3,000 apiece.

The flat-roofed houses, the patios, the miradors, the closed lattices, the house-wells, all testify to the Moorish domination, just as Mahón's sashed and lace-curtained windows, unbalconied, unshuttered, recall the distant years when Minorca was a stronghold of eighteenth century Britain. Although there is a provincial committee of health and another for infant welfare, the old-world pharmacy-jars and mortars, redolent of medieval alchemy, are still to be seen here and there. The separate storage of potable and domestic water makes for health, and the exemplary cleanliness of the Balearic fonda would put many a village inn in England to shame.

Palma still retains its old narrow streets and Moorish palaces around the cathedral and the exchange, but its present ambit of four miles embraces 5,000 houses, some of them in great blocks of many-storeyed offices and undistinguished dwellings. Sóller is a dream of delight in an orange orchard. Alcudia is as active as when Roman exiles, 2,000 years ago, wrought its massive walls and handsome mosaic pavements. From this port one may cross to Ciudadela, the quondam capital of Minorca, and drive over a British road, two centuries old, into Mahón, one of the finest ports in the Mediterranean. To Iviza the tourist makes a run in order to visit its salinas, or to meditate upon the rock-cut hill which once was deemed a sacred place of sepulture.

BALEARIC ISLANDS: GEOGRAPHICAL SUMMARY

Natural Division. Summits of a submarine ridge of tertiary origin, continuations of which connect with the Sierra Nevada and the Alps, to the east is the sunken basin of the Western Mediterranean.

Climate and Vegetation. Both the mistral and sirocco are felt though hills give shelter to many parts. Insular Mediterranean climate, with hot, dry summers. Mediterranean flora; olive, vine, almond, carob.

Products. Timber, lobsters, pigs, figs, fresh vegetables, almonds, oranges, olives, persimmons, turkeys, boots, shoes and textiles.

BARBARY STATES

Morocco, Algeria & Tunisia of To-Day

by Henry Leach

Author of "Along North Africa," "France in North Africa," etc.

THE BARBARY STATES is a suggestive name of ancient flavour applied to that part of North Africa which embraces Morocco in the west, Algeria in the middle and Tunisia in the east. Each of these states extends southwards until in effect it is lost in the great Sahara.

From the Barbary coast the French are now dropping several lines into the depths of the desert and the idea is being developed of a great central railway from Lake Chad up through Tunisia along an ancient desert track and another from Timbuktu to the Algerian coast. For such and other reasons these Barbary States, which but yesterday, as it seems, were the home and headquarters of fierce pirates who made things continually uncomfortable for all navigating Christendom, loom now as jewels of the new French Empire and a grand source of supply of warriors and food. They constitute probably the most fascinating colonising proposition in progress in the world.

Physical Uniformity of North Africa

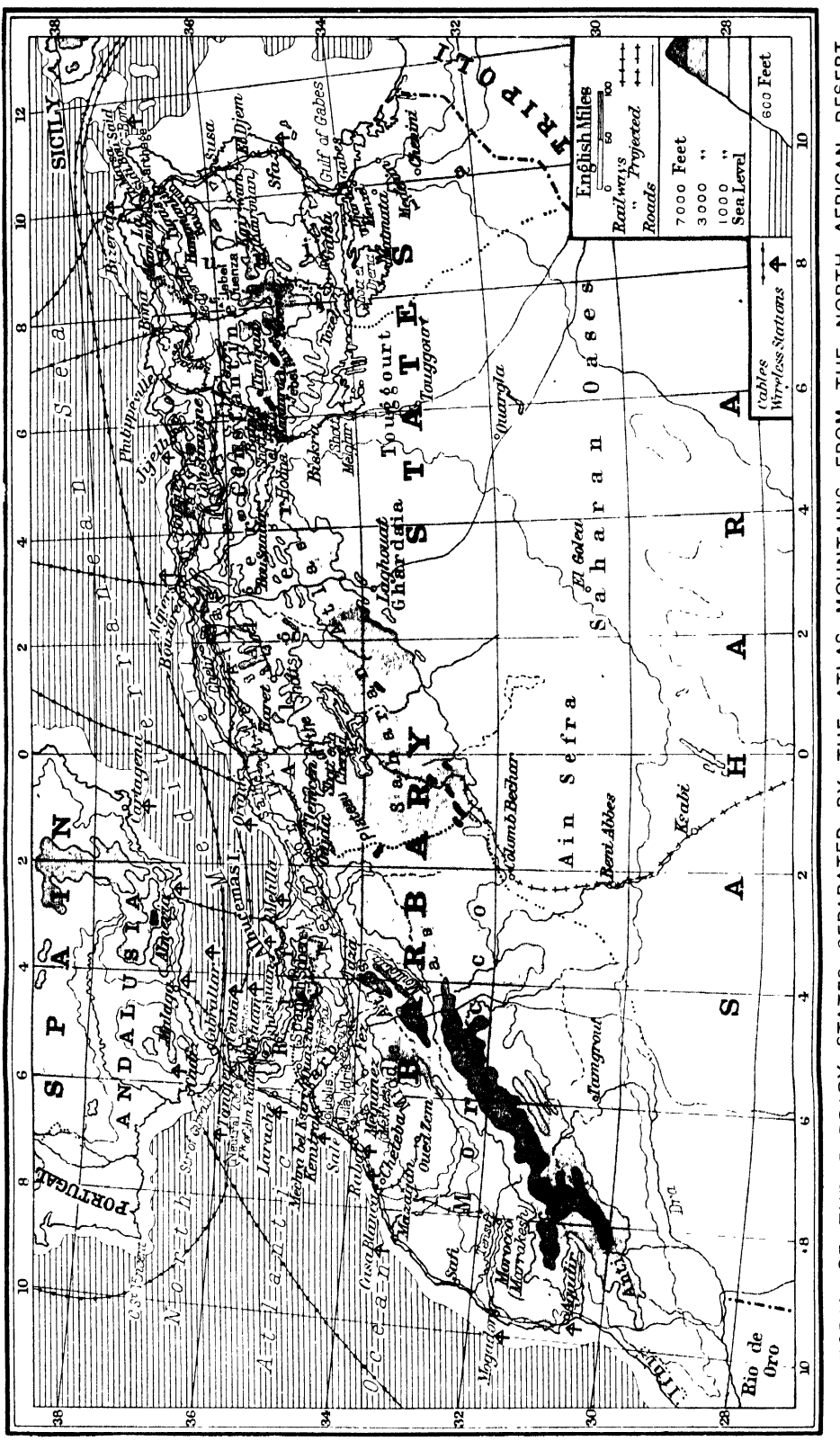
We do not include Tripoli (Libya) because, for one reason, Tripoli is dealt with separately in this work and, for another, it belongs to a different North African system; but to the three representative parts of our Barbary States two others should be added—the so-called international zone of Tangier and the patch of northern Morocco, including the Rif, which constitutes the Spanish zone.

Geographically there is little to distinguish these different parts of North Africa from each other. There is a smoothing from west to east as the force of the Atlas Mountains spends itself. The littoral is for the most part backed by formidable ranges of hills, whose jagged and pointed features are conspicuous, and beyond, gathering in size and consequence westwards, are the dominating Atlas Mountains, after which in Morocco is a larger patch of fertile plain than is found elsewhere in North Africa. Such coastal ranges, constituting the Rif, are an important feature of the Mediterranean coast of Morocco and are occupied by warlike tribes who have tested Spain almost to the breaking point of her effort in Africa.

Latin Influences on the Land

Again, east of Algiers are the Kabyle ranges inhabited by a people who have preserved most of their original Berber blood and customs and are almost self-governing though living in that part of North Africa which is the most French of all. Good workers and agriculturists, they have a general independence of thought and action. They have accepted the religion of Mahomet, but almost alone in Islam they have contracted out of many of the obligations imposed upon the Mussulman by the Koran, especially in the matter of the civil law; while their women, like those of the Tuareg bandit race of the Sahara, but not to the same degree, occupy socially and politically a high place, walk about unveiled, have their rights, and usually hold their husbands to monogamy. The Kabyle country is thick with villages and is densely and increasingly populated.

The Berber, the Roman, the Arab and now the French—those are the chief eras of North Africa from our point of view. The Romans made a


SPAIN
ANDALUSIA
PORTUGAL
Sea
Mediterranean
Atlantic Ocean
Gulf of Gabes
SICILY
ALGERIA
TUNISIA
TRIPOLI
Sahara
Oases
Ain Sefra
Kenadsa
Beni Abbes
Kerzaz
Igli
Timimoun
Touggourt
Ouargla
El Goleah
Ghardaia
Laghouat
Biskra
Tebessa
Constantine
Bougie
Algiers
Tenes
Mostaganem
Oran
Tlemcen
Nemours
Melilla
Alhucemas I.
Tangier
Gibraltar
Larache
Mazagan
Mogador
Saffi
Marrakesh
Morocco
Tarudant
Agadir
Tamgroute
Rio de Oro
Cape Bojador
Cape Blanco
Cape Juby
Cape Spartel
Cape Tenes
Cape Bon
Cape Matifou
Cape Carbon
Cape Ghir
Cape Rhir
Cape Nun
Cape Aghir
Cape Blanco
Cape Juby
Cape Bojador
Cape Blanco

tremendous mark upon the land; they have left the most amazing and impressive monuments of their occupation behind them, principally the city of Timgad in Algeria which rivals Pompeii, and the amphitheatre of El Djem in Tunisia, which is second only to that of Rome itself. Observe now the different degrees or shades of the present French occupations of the North African territories. Here France, with her greater resources of modern civilization, an élan and imagination which certainly none of her predecessors exceeded, is renewing the great enterprise of the ancients. It varies in the three places or countries according to political circumstances and necessities, and makes a difference, apart from all geographical, native or other considerations, which all may see.



Donald McLeish

THE CATHEDRAL, CENTRE OF MODERN TUNIS

Opposite the palace of the resident-general of Tunisia is the Roman Catholic cathedral. Gaudy tiles adorn its unlovely façade and a figure of Christ with arms outstretched in benediction crowns the arch of its main doorway

Algeria in the middle is altogether French, having been formally annexed and virtually made a "department." In Morocco there is a Sultan in apparent authority, with the "maghzen" which is his ministry about him, but the authority of the protecting power has steadily increased and that of the maghzen has to a like degree declined.

In Tunisia, where the native ruler is called the Bey and the government the Regency, the natives are not precisely of the same way of thinking as the Moors of Morocco, and the somewhat vague Tunisian element, largely Oriental but not Arabic in origin—big, splendid fellows who to some extent suggest the Turk—accept the French Protectorate but do not unanimously rejoice in it, although the major and better elements freely admit its value and efficiency. The situation in Tunisia is further complicated somewhat by the large Italian colony coming from Sicily, by the conjunction of southern Tunisia with Tripoli (Italian) and by the difficulty the French experience in inducing sufficient immigration from France itself.

It might be said that the whole country from western Morocco to eastern Tunisia is the result of a system and effect of nature of which the Mediterranean and southern Spain, with Sicily also, are a part. It is certain that in the past Europe and Africa were linked, and probably by something stronger than an isthmus at Gibraltar, while even now in their separation they maintain a correspondence.

Mountains are massed most formidably in big ranges of great height in the middle of Morocco, the Great, the Middle and the Little Atlas, which shut off the low, green, cool and well watered enclosure of Atlantic Morocco from the rest. Picturesque and an enticement to adventurous mountaineers, they are always snow-covered, and sometimes a rosy tint is given to the peaks which is attributed to dust of granite blown by the wind that way. Their prime effect is that of a wall affording protection against the Atlantic winds and rains.

The ancient Greek mariners who sailed this way were vastly surprised to see these towering heights, and more surprised again to observe them laden at their tops with heavy masses of cloud. Their poetic imagination leaped, they exclaimed that here was the giant Atlas veritably carrying the world on his shoulders, and the title stood. Much of North Africa is covered with mountains of smaller dimensions than the Atlas, and they only begin to fade and slope away when the Tunisian eastern borders are approached. But though they have different names they are all outcrops from the Atlas and belong to the family. Along the coast is a strip of flat territory and beyond it a line of wall-like hills called the Sahel. Beyond these hills again is a tableland, a confused mass of big hills and dales, which extends over the whole area of the country, giving way on the southern side only as there is a fall to the level of the Sahara.

The effect is that of a highly pimpled and serrated tableland, into and through which invaders in the past have found it very difficult to penetrate. However, there are gaps in the ranges and between them are big wide valleys in which for a distance from the northern limits cultivation is continually extending. Through past ages natives have conducted elementary agricultural



Henry Leach

SUBTERRANEAN HOMES OF AN ANCIENT NORTH AFRICAN RACE

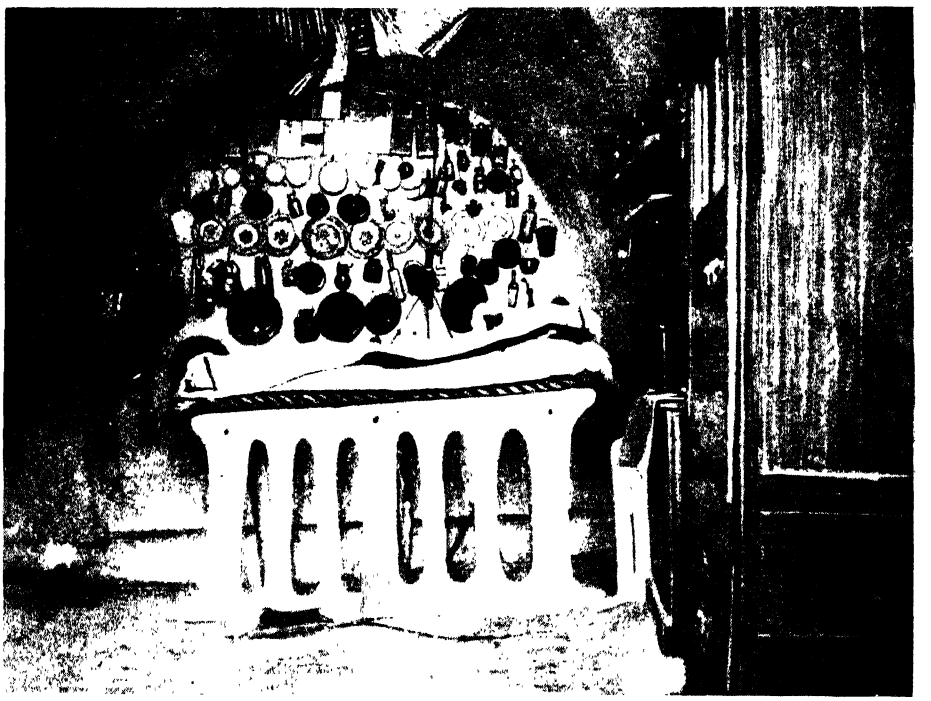
Half a day's journey south-west of Gabes are found the palaeolithic caves still inhabited by the scarce-civilized Libyans of Matmata. This courtyard is at the bottom of a deep shaft and is reached by a sloping passage cut through the earth. Around are sleeping chambers and caves for live-stock, also cut out of the earth; a donkey is seen in the one on the right



Henry Leach

MAHOMEDAN SHRINES THAT ATTRACT THE PILGRIM TO TUNISIA

The landscapes of Tunisia and other parts of North Africa are freely studded with these strange-looking tombs known as marabouts. Each little sanctuary consists of a plain bare-walled and earth-floored chamber in which the remains of a marabout, or holy man, are buried. On the south-east desert track from Gabes is found this group of marabouts, to which many Moslems come on pilgrimage from afar



Henry Leach

CHERISHED TREASURES OF A TROGLODYTE CHIEF

Broken bits of mirrors, empty sauce and pickle bottles and odds and ends of common European crockery that can be picked up are regarded as treasures from civilization and cherished for the adornment of the sleeping chambers of the Matmata people; they are generally arranged in this fashion. Notice the peculiar high trestle bed on which there is just room for the troglodyte to extend himself



Henry Leach

IN THE COUNTRY OF THE TUNISIAN TROGLODYTES: AN INVISIBLE CITY OF FIVE THOUSAND INHABITANTS

This rugged landscape, displaying little more to the eye than a few lonely palms and some coarse herbage, is on the edge of the eastern Sahara near to the Tripolitan frontier. Beneath its bare sandy surface are vast caves teeming with human life, for a population estimated at 5,000 people houses in these subterranean passages. One or two marabouts and a mosque of modern construction may be seen above ground, but the people all belong to that very rare class known as troglodytes, or cave-dwellers, and are content to pass their days in earth-holes just as, it is claimed, their ancestors did many centuries before them

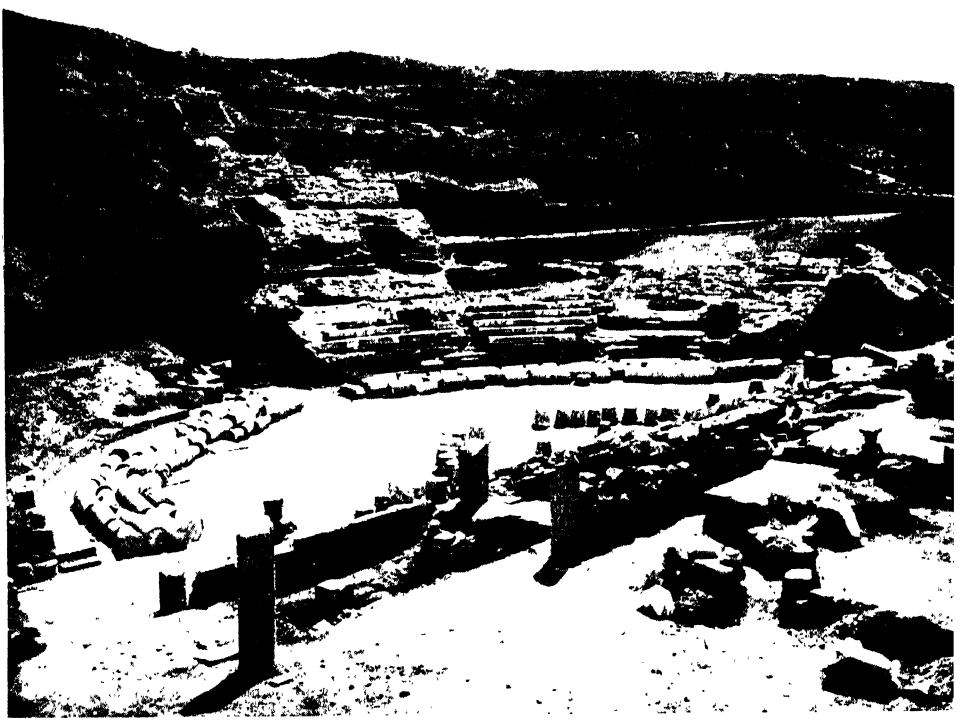
Henry Leach

MAIN "STREET" OF METAMEUR, A REMARKABLE TOWN IN THE SEMI-DESERT REGION OF SOUTHERN TUNISIA

These surface caves, built one above the other, their curious shape serving as a protection against thieves, are probably an evolution from the underground habitation of the troglodytes. Used as storehouses and dwellings, they are known as "rhorfas" by the Arabs, and are constructed mainly of earth and stones, with a small outside entrance to each cave—a low dark chamber which is complete in itself. Access may be had to the upper storeys only by projecting stones, here and there arranged to form steps. Metameur and its sister town Medenin are both easily reached from Gabes

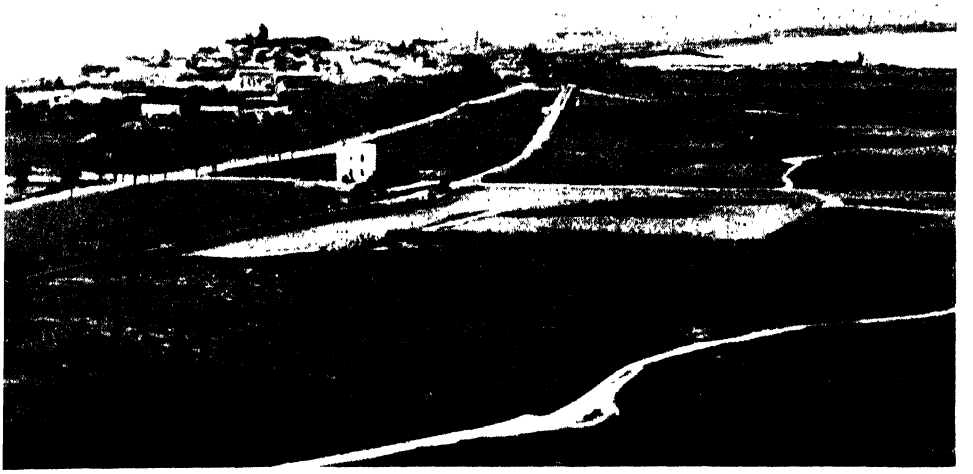


TERRAIN AND POOLS OF MIGHTY CARTHAGE, QUEEN OF THE SEAS - Within a very short distance of modern Tunis—about 10 miles to the north-west—lies the site of ancient Carthage. The tramway line from Tunis to La Marsa, the city's holiday resort, passes near by, and in the mornings and evenings the cars are crowded with business people who live now on the same historic ground that the far-adventuring armies of Hamilcar Barca and the crafty Phoenician merchants trod of old



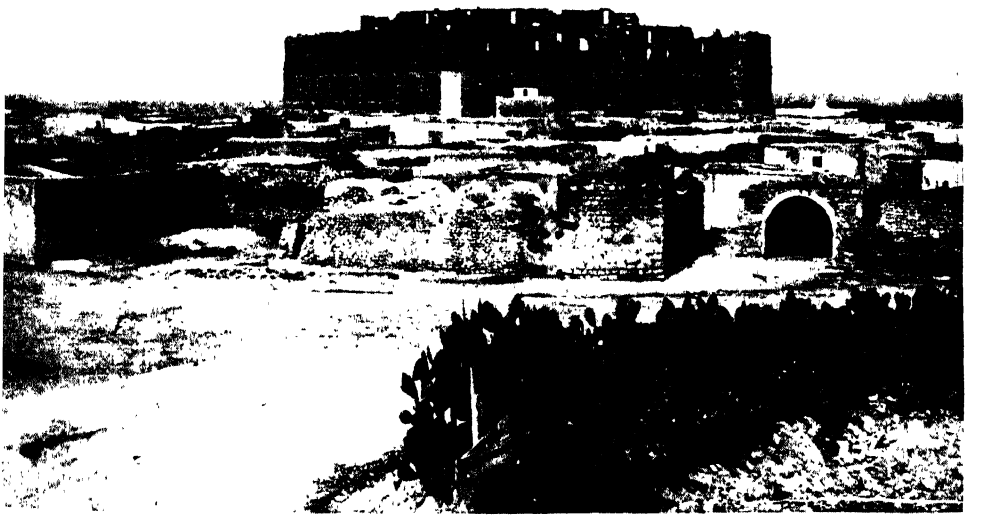
UNEARTHED BY THE SPADE: THE ROMAN THEATRE AT CARTHAGE

Carthage, the Phoenician city whose power was once so great that she became a redoubtable menace to Rome, is gradually being uncovered from beneath the mounds 10 miles from Tunis. Among other notable excavations, such as the Amphitheatre and the Odeum, the Roman Theatre has been uncovered. Partial restoration has taken place, and the entrance and exit passages may be clearly distinguished



—SEAT OF A FAR-FLUNG MARITIME EMPIRE OF ANCIENT DAYS

On the extreme left is the circular pool with the island in its centre on which stood the Phoenician admiral's headquarters, while the other pool to its right was the commercial harbour once filled with the galleys of those ubiquitous traders who braved much peril in unknown seas and penetrated even as far north as the shores of Britain. Across the wide bay of Carthage towers the sinister mass of Jebel Bou Cornin



L N A

WHERE ROMAN COLONISTS AT EL DJEM SAW THE GLADIATORS FIGHT

Built about A.D. 240 of limestone carried 20 miles across the desert, the amphitheatre of El Djem (the Roman colony of Thysdrus) remains to-day one of the grandest sights in Tunisia. Its great bulk would verily seem to rise out of the barren wilderness of desert and it towers in massive splendour over the squalid Arab village beside it. El Djem is situated about 50 miles south-east of Kairwan

pursuits upon the strip of country next the sea, extending it as far as they could inland, and by skill and science the width of this cultivated and productive strip, called the Tell, is increasing.

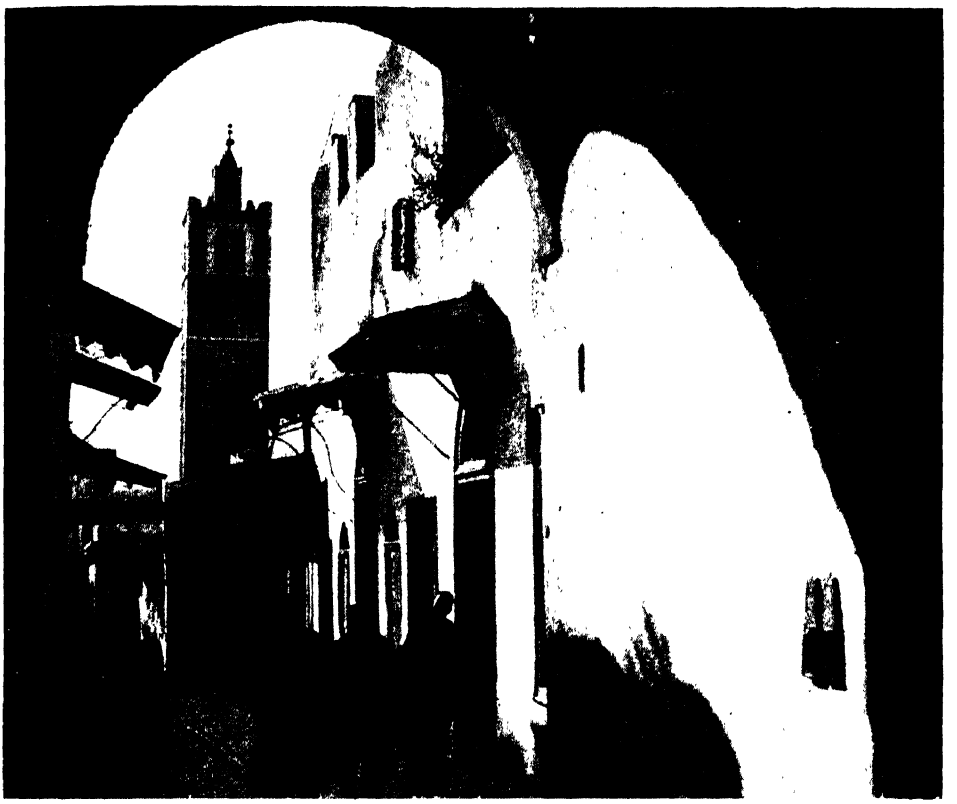
But when this apparently confused mass of mountains is considered closely and analysed it will be perceived that not only are these hills subordinates of the majestic Atlas, but they exhibit their affinity in a remarkable manner by all the lines of the ranges pointing in the same way. All these chains, big and little, slant in the same direction from the south-west upwards to the north-east and the lines are practically parallel with each other. From this monopoly of North Africa by the Atlas there is a conspicuous exception in the chain of mountains called the Rif, alongside the coast of Mediterranean Morocco. These seem to work round in a bend which ends abruptly at Tangier, to be resumed on the other side of the straits where the hemicycle is completed along the Andalusian coast of Spain. The lines of the Atlas have been not inaptly compared to a gridiron



Henry Perrin

RICH TREASURES OF WARM CLIMES IN A TUNIS BAZAAR

It is in the heart of old Tunis that is found the romance of Barbary; this is the region of the bazaars, the Spice Market, the Slave Market, now the domain of dealers in antiques, and the Saddle Market. This view shows the Souk des Etoffes in which are displayed silks and woollen stuffs, carpets from Kairwan and rugs from Djerba



J Dearden Holmes

NARROW, DARK PASSAGE OF THE CARPENTERS' BAZAAR

In Tunis are 50 mosques, and of these nine have schools or colleges attached to them. In the background here is seen the minaret of the mosque of the Souk el Belat, or Carpenters' Bazaar, in which our photograph was taken. French occupation has made no change in the bazaars except that the streets are now paved

There are the Tell Atlas, the Saharan Atlas and, among the outpost ranges, the Jebel Aures, pushing their last spurs near to the ruins of Timgad, the old Roman city, on the edge of the desert.

These Barbary States have no rivers like the Niger, the Congo or the Nile, and such as they have, the wadis or oueds are often dry. So it is a common thing to find them stopped up for irrigation purposes. Far inland the streams have developed into the shotts or shallow lakes of the plains.

In broad characterisation it might be said that this land is wetter and cooler in the west than in the east. In late May, for example, I can find it pleasant in Marrakesh (or Morocco City) though Tunis begins to be unbearable, save in its delicious evenings when one may lounge in pleasant avenues and listen to the Arabs calling out the "Yasmine!" that they have for sale in little nosegays laid on trays. There is a wet period of variable length in the winter, longer and heavier in the west than the east, and sometimes it may be cold, while, though rarely, there may be a slight visitation of snow. For the most part, however, a winter temperature averaging something nearer 60° F. than 50° F. in the daytime may be expected. Towards the end of May 90° become regular and high temperatures are reached in the farther inland parts bordering on the desert, followed by cold nights.

Thus within a span of twenty-four hours one may constantly need both flannels and furs for comfort. The changes of temperature are more pronounced and frequent as one travels farther inland and comes under the influence of the Sahara; by the coast



Aerofilms, Ltd.

WHITE HOUSES OF TUNIS CLUSTERED THICK BESIDE THE BLUE WATERS OF THE LAKE

Tunis lies at the head of Lake Tunis, an almost enclosed projection of the gulf, and steamers must proceed from La Goulette, the small seaport on one of the outer tongues of land, by the famous El Bahira canal, a dredged channel five and a half miles long cut through the lake. This air photograph gives a general view of city and harbour; on the right the canal bank is seen connected to the mainland by a bridge carrying the tram lines which run from the city down the tree-bordered Avenue Jules Ferry to the harbour and thence along the canal bank to La Goulette, Carthage and La Marsa



GENERAL VIEW OF THE NATIVE TOWN OF TUNIS TAKEN FROM THE BEY'S RESIDENCE

The Dar el Bey, or Bey's residence, is one of the most historic buildings of the old town ; parts of it date as far back as 1232, and it contains many rooms beautifully decorated in the Moorish style of the eighteenth century. From it a view of the whole native town spreads itself before us. On the right here is the minaret of the mosque of Sidi-ben-Arous and in the foreground is the flat roof, punctured with triangular lights, of one of the " souks " (bazaars). Underneath are hundreds of natives buying and selling the wares of the country



Henry Leach

CENTRAL MARKET OF TUNIS IN THE FRENCH TOWN WHERE TRADING IS CARRIED ON IN THE EASTERN MANNER

Modern Tunis is a city of many contrasts. Cheek by jowl with up-to-date Western buildings one will find in the French or modern town such places as this, the Arab Market, where the whole atmosphere is Eastern and the animated bargaining of the Orient holds unquestioned sway. These new markets, established primarily for native use, are a prominent feature of the French system of colonisation and protection. Here in numbers and enthusiasm come dusky-skinned countrymen with the produce of their gardens and orchards, and every day they are actively engaged in the selling of all kinds of fruits and vegetables



E N A.

PANORAMA OF ALGIERS, THE FINE CITY WITH WHICH THE FRENCH REPLACED A STRONGHOLD OF PIRACY

On coming in from the sea Algiers is seen to spread itself along a hilly coast-line in terrace above terrace of white-walled houses whose whiteness, upon a nearer approach, is seen to be pierced with a thousand windows with panes all winking in the sun. Behind, the hills rise like a wall from the top of which, near the cemetery, this photograph was taken. Directly below the observer is the suburb of Belcourt, and seaward the harbours stretch out from the water-front. To the left the houses slope up to the Kasbah, the old castle, and, at its back, the sky line of the hills can be descried all dark with woods

there is more steadiness. Again, while the influence from the south is naturally dry, that of the Mediterranean is humid. So in these regions we have many kinds of climates and much variation with that main general system of two seasons and no overwhelming extremes.

Below the surface in one part or another nearly every kind of mineral is found. In Algeria are important iron and zinc mines, while phosphates are found in the department of Constantine and elsewhere.

Land of Dates, Wine and Oil

The palm, the olive and above all the vine flourish and fair attention is given to agriculture and the production of cereals. Palms are everywhere, especially in the oases of the desert regions. In southern Tunisia there are 1,000,000 date-palms producing about 90,000,000 pounds of dates each year. Algeria, from which alone more than 100,000,000 gallons of wine have been exported in a single year, makes a greater feature of its vegetable and fruit products than its sister states do. In addition to exporting wheat, barley and oats in large quantities, she is first to supply the European markets with the new season's vegetables, exporting about 20,000 tons of potatoes alone in a season, chiefly "Dutch" and "Royal Kidney."

Countless Flocks of Barbary Sheep

Cotton and tobacco are grown in different parts and there is an inclination here and there to new productions and new industries, as in Algeria, for example, where about 3,000 people are engaged in the vegetable fibre industry. This fibre comes from the dwarf palm and is used for making mattresses, carpets, baskets and so forth. Ideas are held also that it may come into extensive use for papermaking. A weak feature of the agriculture is that the natives are slow in appreciating and employing modern implements.

But above all, sheep breeding is the thing on the pasture lands. Here in their millions are the veritable "Barbary sheep." Algeria itself exports more than 1,000,000 sheep in a year and nearly 9,000 tons of wool. There are extensive fisheries along the coast. Otherwise, in industrial development Algeria displays little progress. Some porcelain and chinaware is made, there are a few tile factories, some tinning of foods and making of macaroni, but nothing of great consequence.

In the busy Algerian towns and cities, especially near the coast, we find up-to-date trade and commercial methods and systems in full force, just as in France. There are banks of state origin in each state, and all the leading French and some other banks have their agencies. Each of the three states has its own monetary system, and paper money for even the smallest amounts was the regular thing after the Great War until 1922 when metal alloys were largely substituted for it. In trade matters close rivalry exists between the three states. There are customs walls between them for one thing, and varying railway rates cause frequent argument.

Harbour Communications with Europe

The main harbour communications with France and Europe generally are Algiers, Casa Blanca and Tunis, with numerous secondaries. Here and elsewhere we see the white Europeans, the Arabs, the Berbers, mixed varieties in various shades of skin colour, Senegalese and negroes in a general conglomeration, with the Jews, who are an affinity to the Arabs throughout North Africa, running through them like a strong and powerful stream. Thus in Morocco they constitute more than 10 per cent. of the native urban population and in the native towns, round which the new French cities are built, they have their own recognized quarter; but otherwise they correspond closely to the secular life of the Arabs.

In the hinterland the French and other modern villages are neat and well-equipped. In Algeria one sees the village



BARBARY STATES. *Sacrosanct to Mahomedans is the shrine of Mulai Idris II. at Fez, and in these precincts no infidel may set foot*

Photographs on pages 549 556, I. N. A.



BARBARY STATES. *In the salt lagoon region of southern Tunisia, Gafsa is an oasis that preserves its immemorial charm despite its invasion by commercial enterprise seeking the phosphates in which the district is rich*



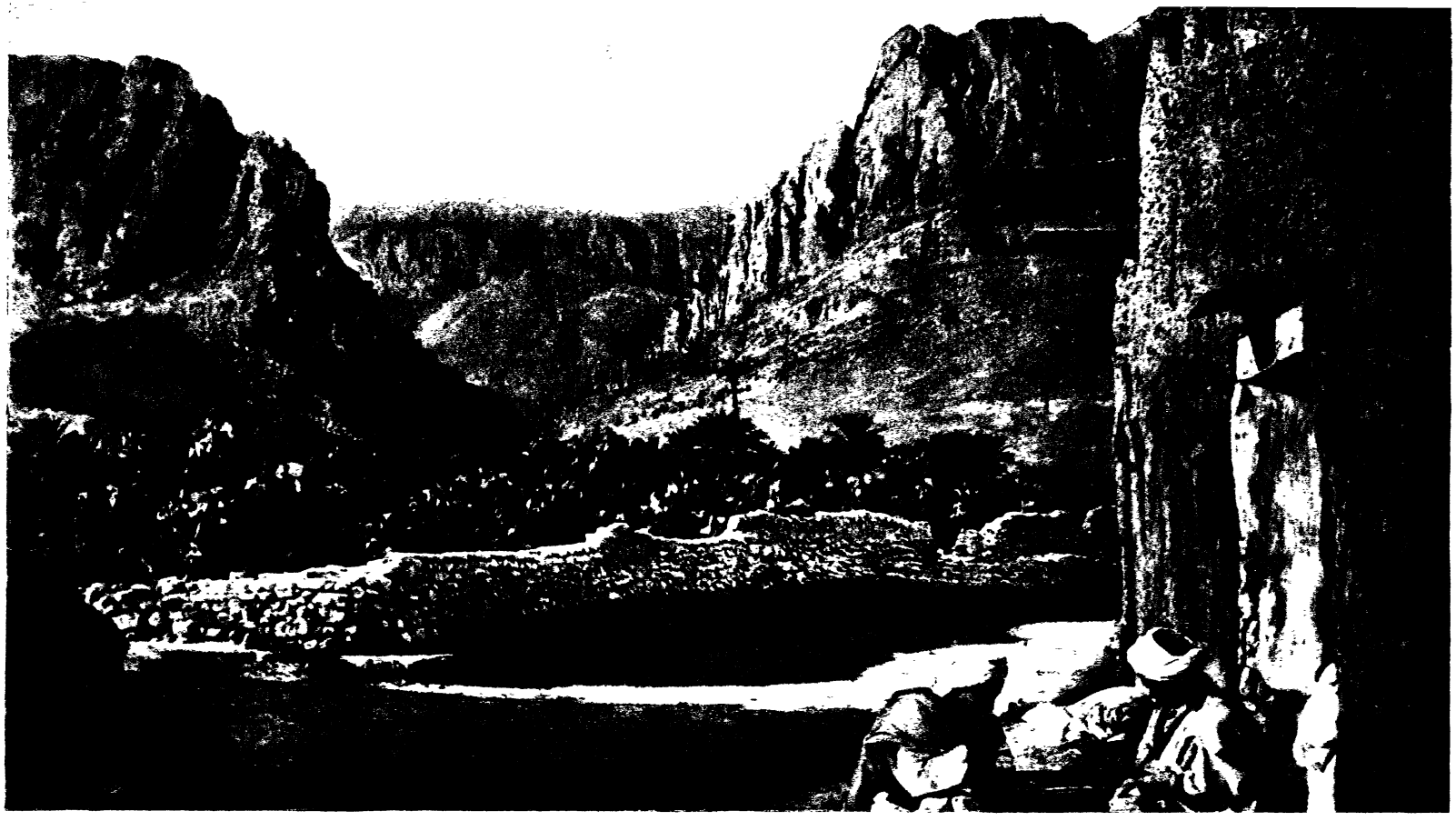
BARBARY STATES. *Islam's holiest city in all Africa, Kairwan attracts a perpetual stream of pilgrims. The minarets and swelling domes of close upon four hundred mosques proclaim its sanctity from afar*



BARBARY STATES. *Luxuriant date palms glorify the native quarter of Biskra, the Algerian oasis famous as the Garden of Allah*



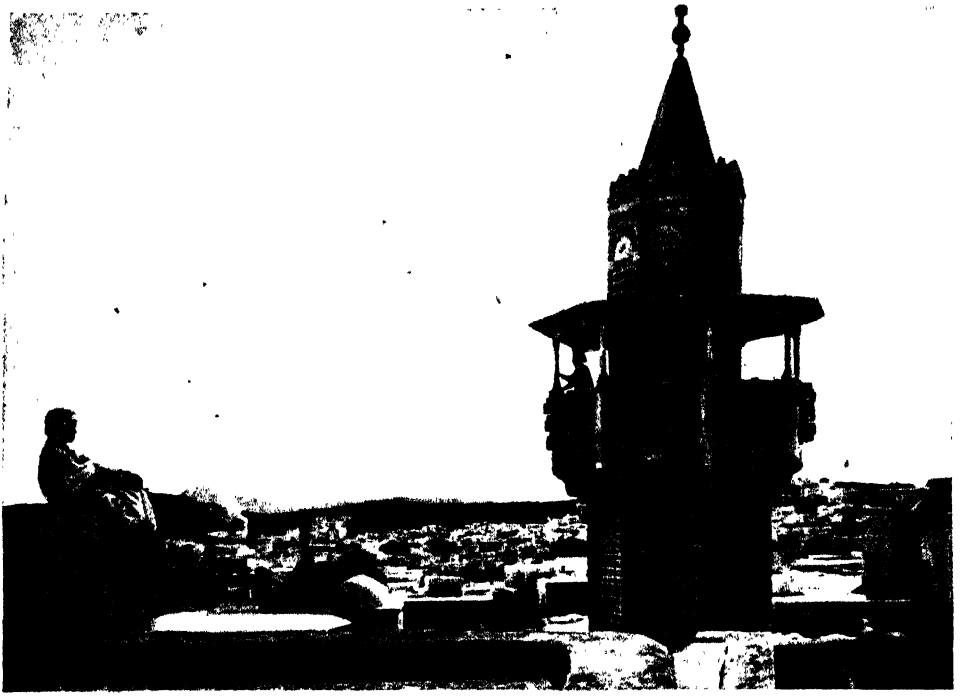
BARBARY STATES. *On the edge of the Shott el Djerid, Nefta is an entrancing oasis famed for its palm groves and its luscious dates*



BARBARY STATES. *Bold red rocks of the Aures mountain system close in at El Kantara to form the narrow gorge called the "Gate of the Desert" abutting southwards abruptly on the wastes of the Sahara*



BARBARY STATES. *Although their tricolour now flies from its walls, the French have left Kairwan almost untouched, and life proceeds within its ancient gates much as when it was founded about the year 670*



Five times daily on this minaret overlooking the roofs of Tunis the muezzin turns his face towards Mecca and calls the faithful to prayer



BARBARY STATES. *Once the home at Constantine of the Algerian deys this garden-girt gem of Moorish architecture is now a museum*

square with its little church, the mairie, the school, the post-office, the barber's shop, all complete, and often a little bandstand as well. Full educational facilities are provided by the French for their own people and much also for native children in most parts. Near by may be a native village where house construction has been conducted on more primitive lines, perhaps with stone, perhaps with brown or black earth, bricks or slabs. Then in the lonelier places sticks and straw come into the reckoning, and the tents of the Beduins. In southern Algeria and Tunisia one sees earth-made houses wherever natives live. The floors are bare soil, there may or may not be peep-holes for windows, and the hygienic conditions are what might be expected. This, after all, is Africa. It is the land of the mosque and the muezzin, of a vast population whose faith mainly is Islam and whose enlightenment, apart from matters of faith, is small, but where the French, with Italians and Spanish, are engaged in a grand endeavour to form a new civilization and help towards satisfying the increasing needs of Europe.

Transformation by French Genius

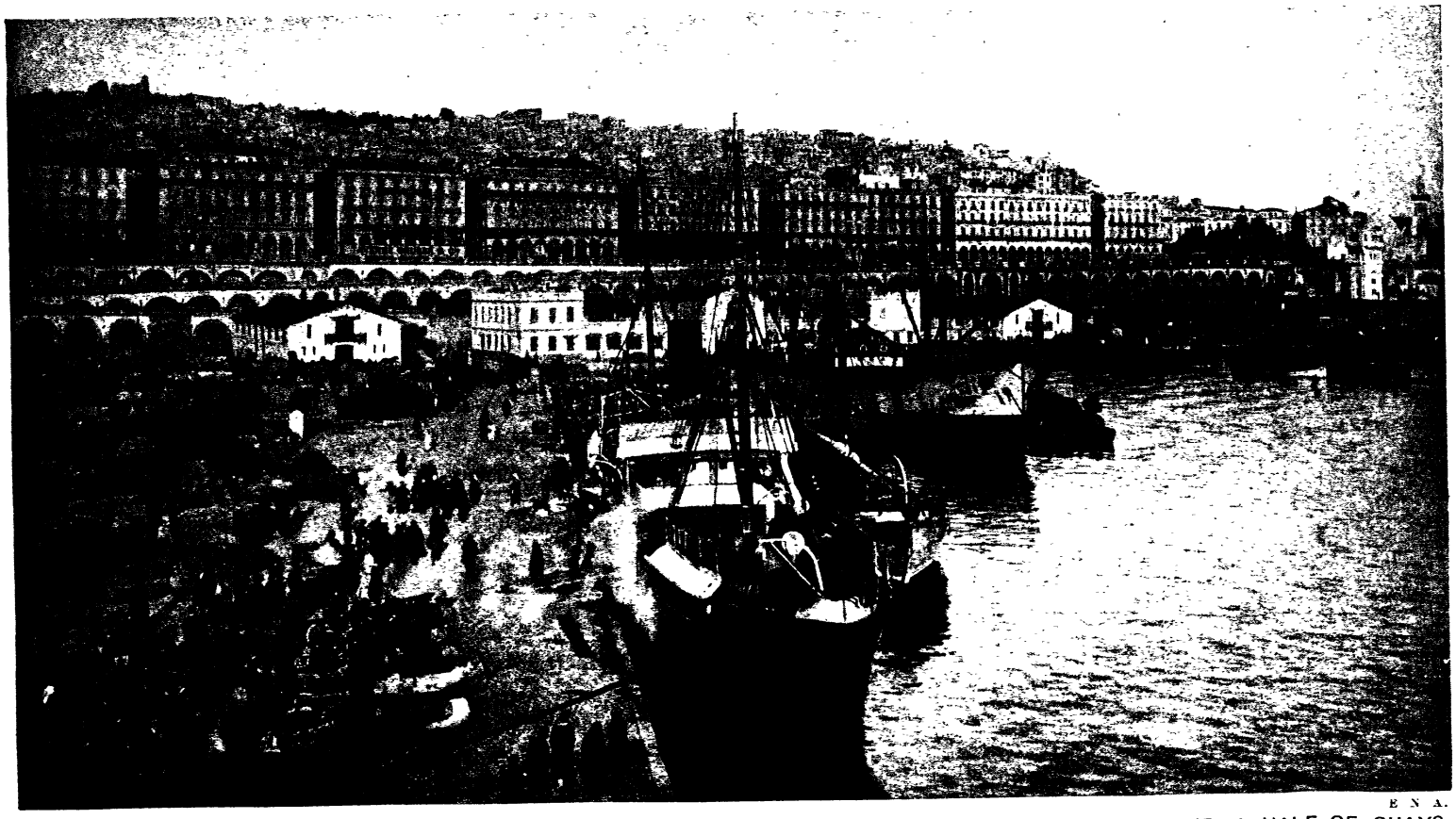
In Morocco, which from the point of view of European development is the youngest of the three Barbary States, we see most vividly to-day the process of transition. The resources are very great and the development under the resident-general, since the country first became a French protectorate, has been remarkable. Harbour works are being carried through on a grand scale. Casa Blanca has had equipment lavished upon it until now this great white modern city of the French with a population of over 100,000, and more than a third of it European, is marvellously fitted for all the conveniences and advantages of business. It looks less and less like Morocco, but the French scheme of architecture in these lands, which has been modified since the first beginnings, is a new European, Arabic, Moorish blend, almost pure Moorish, minus the decorative work and strengthened in the manner of simple efficiency. It is being repeated in other parts of French North Africa. The effect is excellent, and the more so for the manner in which certain parts of the buildings, such as woodwork and the tiles of overhanging eaves, are picked out in a brilliant blue which in dazzling light and heat have a highly refreshing effect. One sees little railway stations in isolated parts done in this manner, and admires them.

The Modern Wonder of North Africa

It is now possible to travel by rail from Ouazzan in the north and almost on the borders of the Spanish zone to Kenitra, Rabat, Casa Blanca and thence away down to Marrakesh. From Casa Blanca there is an offshoot inland and eastward to Oued Zem, but, more important, there starts or ends here the grand main North African line. This permits of a journey from Casa Blanca, through Rabat, Mequinez (Meknes), Fez, Taza, Oujda into Algeria, with connexions for the desert leading on to Colomb Bechar and also for Oran. We can go on to Algiers itself, then to Constantine, with opportunities afforded by connexions to the ports in the north, and to Biskra with Touggourt in the desert in the south; or from Constantine to Tunis, with more connexions there for Bizerta and other places. From Tunis the line runs to the south through Susa and Sfax to Gabes, the oasis in the Gulf, and again on the fringe of the desert.

Romance Flies Before the Railway

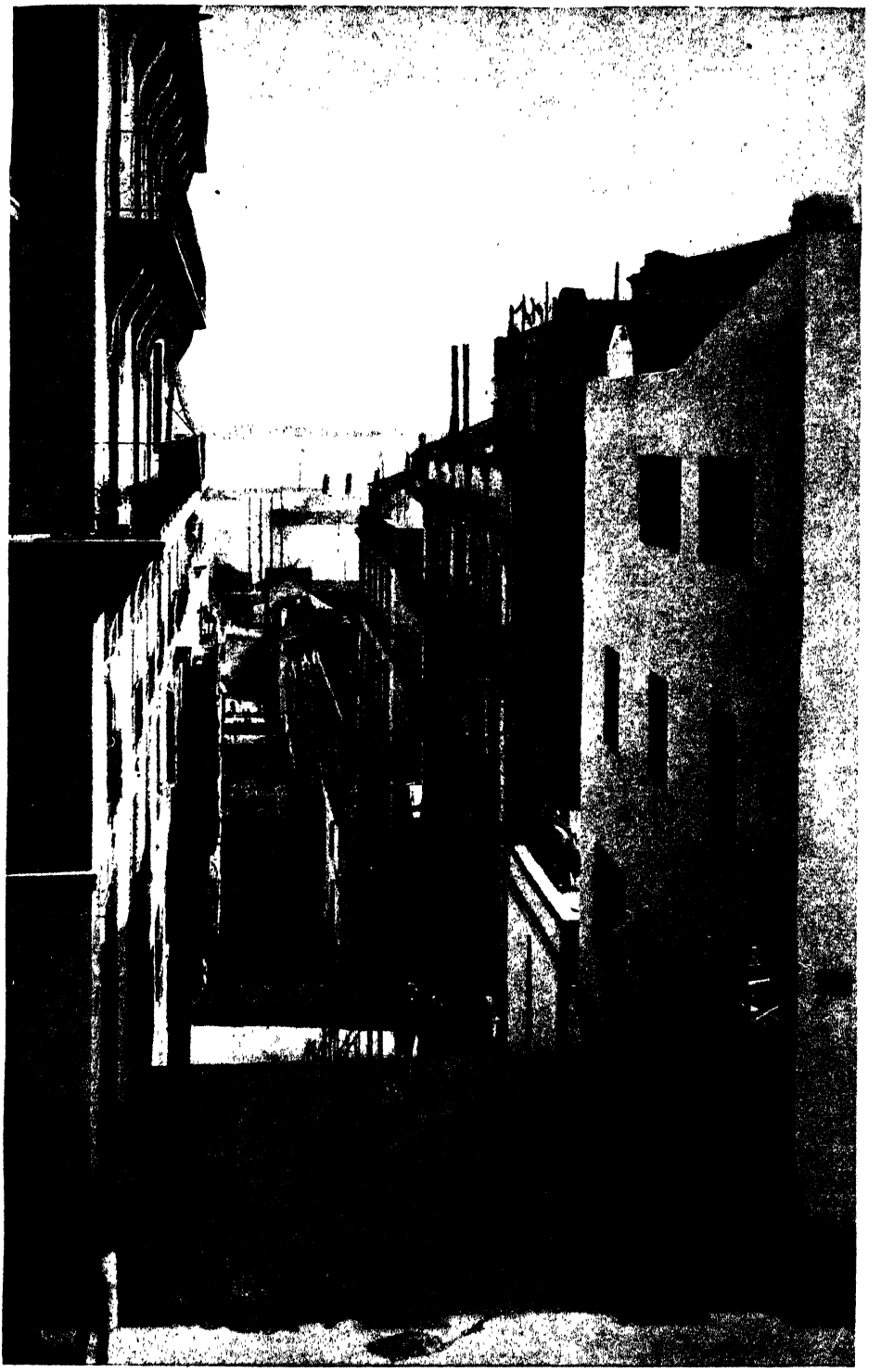
This railway system is the modern wonder of North Africa. To Fez in a railway train! Our minds still hold an impression from the sighs and murmurs, the trials and adventures, the rains, the flowers and scents, the native welcomings, offerings and sacrifices that were accompaniments of the journey in the spring of 1889, with armed escort, that Pierre Loti made, and of which one of the most characteristically temperamental of his books, "Au Maroc," was



E N A.

AT THE PORT DE COMMERCE, ONE OF THE TWO COMMERCIAL HARBOURS IN ALGIERS' MILE AND A HALF OF QUAYS

On to the old Darse de l'Amirauté, or Admiralty Basin, situated at the extreme north-west projection of the town, the French have built three great harbours and a wide-spreading system of quays. Next to and south of the Darse is the Port de Commerce, illustrated above, protected by a long breakwater called the Jetée du Nord. In the centre is the Port Militaire behind the Jetée du Sud, and next comes the newer Arrière Port sheltered by the Jetée de l'Agha. This dockside with its litter of merchandise bears witness to a thriving trade, and the numerous motor-cars are a reminder of Algeria's fine motor roads



E. N. A.

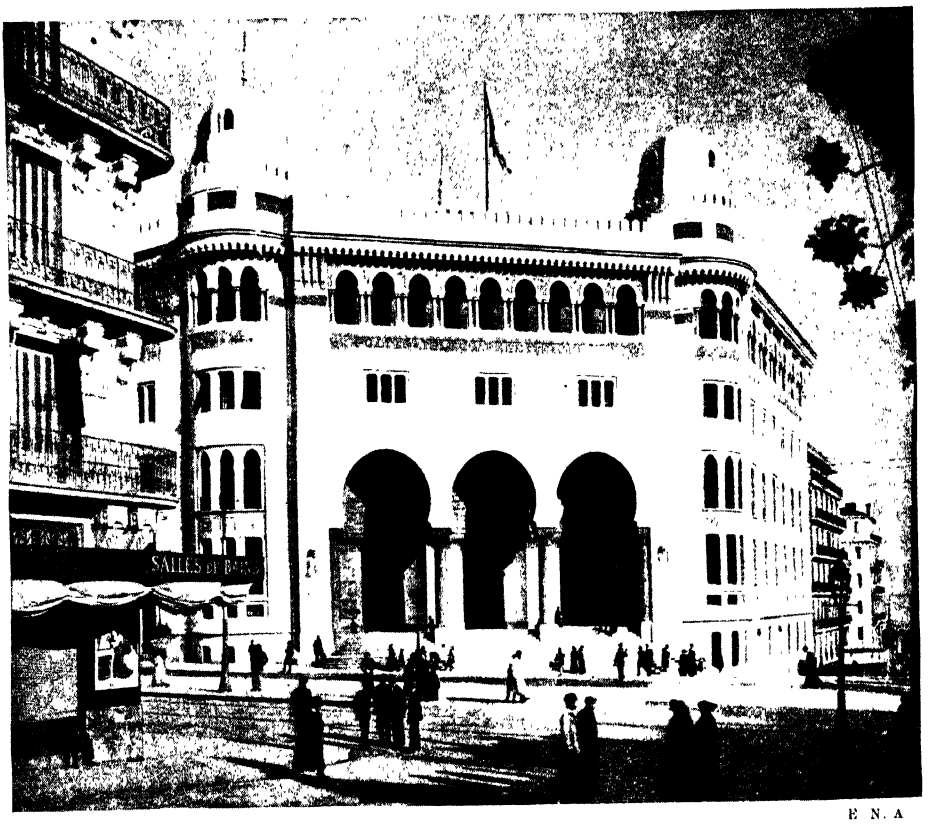
HOW ALGIERS SLOPES STEEPLY FROM THE KASBAH TO THE SEA

In less than a mile the streets from the quays to the Kasbah climb 400 feet. In consequence there is no direct ascent for vehicles and the Rue de la Kasbah, the principal thoroughfare in the old town, has no fewer than 479 steps in its course. The tenement houses in this photograph are of a type that has replaced many of the old buildings of the once pirate city

the result; and this new way of reaching the famous city still seems somehow a little incongruous.

I did not see Morocco until twelve years later, but even then how very different it was from now! Fez was nearly unapproachable; it was an affair of a bodyguard, a Sultanic invitation, risks and splendid adventures, just as Loti wrote of them, and mystery, wonder and that strange sense of the Moslem East on arrival—and now it is just a case of a railway ride and a good hotel at the end of it. Nevertheless, for the present, the trains being considered as mainly useful for merchandise transport, one may travel more quickly and in comfort by the regular automobile services by which one may leave Casa Blanca at 6.30 in the morning and be in Fez at 3 in the afternoon.

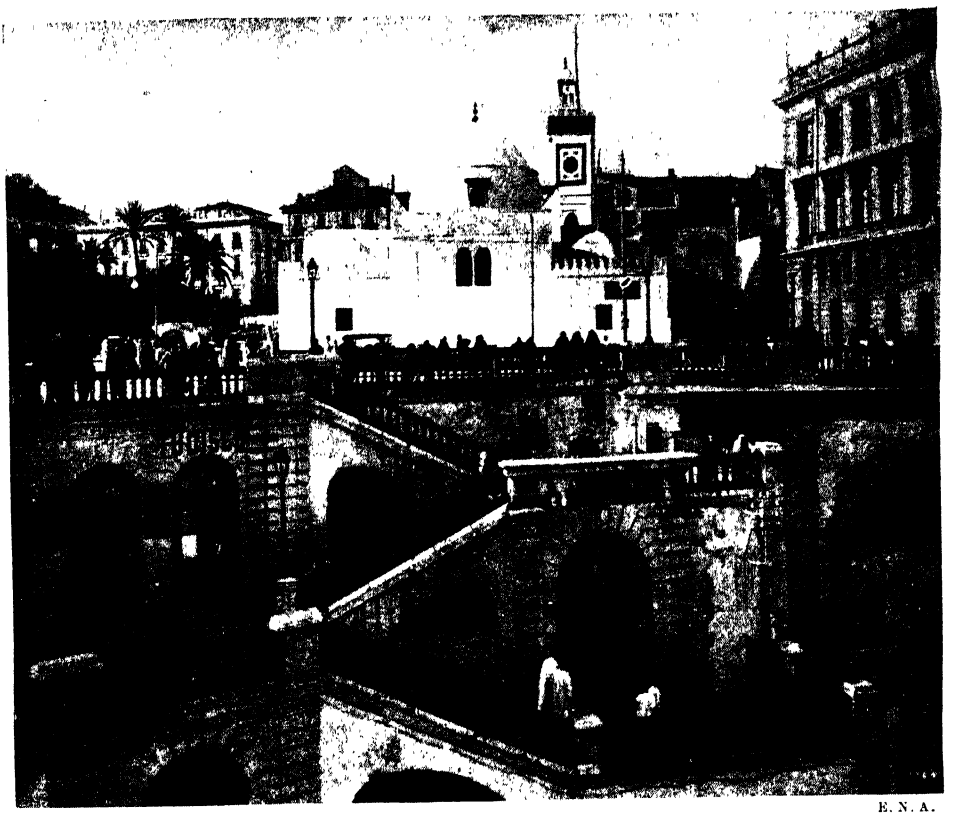
These time-tabled auto services link up practically all important points that are not yet served with railways. Thus, Mogador, Mazagan, Safi and many other places of some importance and much interest are brought into the scheme of things. It follows that the roads are good upon the recognized routes and the private motorist need have no apprehensions. In Algeria and some other parts they are as good as they are in France. There has been a marked omission from the North African railway system, and that is connexion between Tangier and the French system lower down, the difficulty having been that such a line when it is made must pass through the Spanish zone. In the meantime there is an automobile service between Tangier and Rabat. To every visitor to Morocco, Fez and



E. N. A.

CONTRASTING STYLES OF ARCHITECTURE IN THE CITY OF ALGIERS

Built in 1910 the new post-office, in Neo-Mauresque style, is an attempt at architectural harmony with the rest of the native quarter of Algiers, on whose old boundary it stands. In contrast to it is the essentially European block of buildings with its ironwork balconies on the opposite corner. At this spot the Rue d'Isly becomes the Rue Michelet, which carries part of the city's tramway system



E. N. A.

SEAWARD FACE OF THE NEW MOSQUE AND THE STAIRS TO THE QUAYS

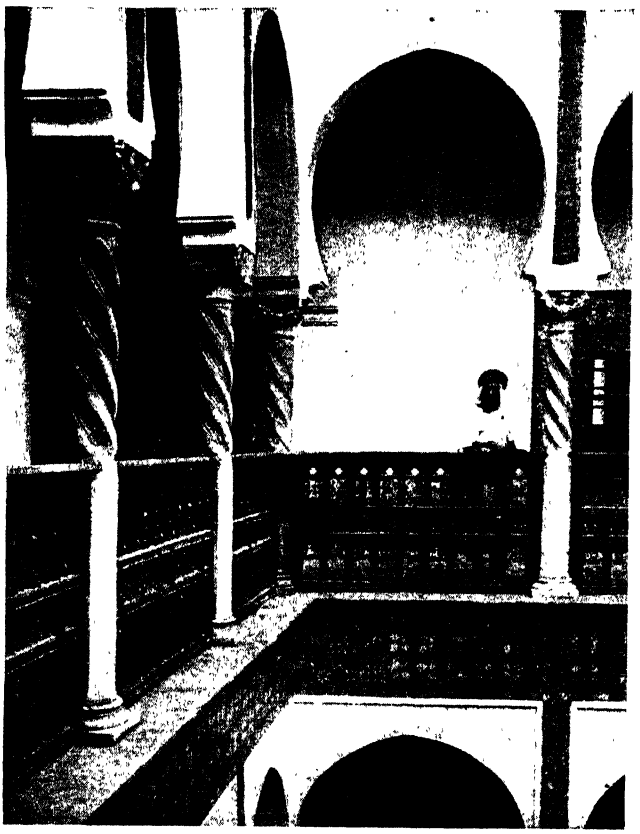
In front of this cupola of the New Mosque at Algiers runs the esplanade called the Boulevard de France. It runs parallel with the docks and about 65 feet above them, and is continued southward by the République and Carnot boulevards. At intervals steps lead down to the quays, passing the offices of steamship companies built, as seen here, in the arches that support the roadway



E. N. A.

SUMMER PALACE OF THE GOVERNOR-GENERAL AT MUSTAPHA SUPERIEUR

Above Mustapha, the great southerly extension of Algiers, is Mustapha Supérieur, which is joined to the metropolis by the Rue Michelet. The governor-general of Algeria has his residence in the palace, here seen guarded by Sudanese sentries. It is called the Palais d'Été du Gouverneur. There are extensive grounds sloping down the hill to the Chemin de Gascogne



Donald McLeish

LOVELY PATIO OF SARACENIC DESIGN

Though the prevailing style of this patio of an Algiers house is Saracenic, a foreign influence has left its mark on the capitals of these fluted pillars. Balusters, beautifully worked, and a frieze and panels of tiles perfect the whole

Marrakesh are no doubt the main objectives, and properly so. They should be seen ere the reader grows old, for they will not much longer bear their present charm. Fez is the religious, political and economic centre of the Moroccan empire, and it is finely situated and intensely interesting. There are only a very few places in North Africa now where one feels the East unadulterated and almost untouched, not considering the lonely desert parts which are not in the Eastern, but another category. Fez is one of them, Marrakesh another, but with a distinct difference, for here we are on the fringe of the south; the black element is beginning to impinge and has marked the people, and the colours and forms are stronger, ruder, perhaps, but not less attractive.

In Algeria there is no such city as these; in Tunisia there is Kairwan (Kairouan), and perhaps these three may be placed alone in their own high class. The character of Casa Blanca has been indicated. Rabat is the French administrative centre and capital where are all the government offices and archives. Mequinez is not only interesting in itself, but from it two places of special attraction are within easy reach, one being the excavated ruin of the old Roman city of Volubilis and the other the holy city of Mulai Idris, built in a wild situation about a ravine and embracing within it the sanctuary and the zaouia, or religious community, of Mulai Idris, the most respected saint of Morocco and founder of the first Arab dynasty that reigned in the land.

It is reckoned that in all Morocco, including Tangier and the Spanish zone, there are about 6,000,000 people, in a very remarkable mixture. The urban population in French Morocco is now reckoned at a little over 500,000 and of these approximately four-fifths are Mussulmans, while 65,000 are Jewish natives and about the same number Europeans, of whom over 40,000 are French, 14,000 Spanish, 9,000 Italians and 1,000 British.

In the matter of climate and geographical and other peculiarities Morocco differs from other parts of North Africa. To a large extent it is boxed in between the Atlantic and the Atlas Mountains, which here attain their utmost heights and then slope down to the coast by Agadir, the most southerly point, while



E N A

LOOKING DOWN THE RUE D'ISLY TOWARDS THE PLACE BUGEAUD

To the south of Algiers, beyond the harbour, is the large suburb of Mustapha, the two being connected by the long road called the Rue d'Isly which, towards Mustapha, becomes the Rue Michelet. Electric trams run all the way, and along the Rue d'Isly are situated most of the large business premises of Algiers. The side street to the right is the Rue Pélissier leading down towards the sea



E N A.

ONE OF ALGIERS' OLD STREETS LEADING UP TO THE KASBAH

For purposes of fortification the old town was built about a hill with the Kasbah or castle commanding all. This stronghold has given its name to what is now the poor quarter, one of whose steep and narrow thoroughfares is seen above. French, Arab and Italian live side by side, and a glance will show the mixture of types. The fine houses that make Algiers so attractive are almost all of French building



Donald McLeish

MINARET OF THE DJAMA EL DJEDID, OR NEW MOSQUE

This tower recurs again and again to the visitor's view as it stands up from the surrounding roofs behind the Port de Commerce. But the best aspect of all is from this shady corner of the Place du Gouvernement where the principal streets meet The tiles on its walls and about the clock face stand out in vivid colours



Donald McLeish

GREAT MOSQUE IN THE RUE DE LA MARINE

Largest and oldest in Algiers the Djama el Kebir, or Great Mosque, has this arcade of marble pillars beneath its white minaret. Inside is a court with a Turkish fountain and the shrine itself with its eleven aisles. Founded in 1018 for followers of the Malekite sect, it has since undergone many alterations



Donald McLeish

MOSQUE OF THE MARABOUT SIDI ABDERRAHMAN, BUILT OVER HIS TOMB

At the end of the Rue Marengo, which runs from the Rue de la Lyre, a continuation of the Rue d'Isly, is the pleasant Jardin Marengo, a public park made on the site of an old Mahomedan cemetery. At the top of the hill, which the garden clothes with bamboos and palms, is this mosque, built in 1676. Beautiful tile-work adorns its walls and within, over the tomb of the saint, a lamp is ever burning

the Rif chain makes a mountain wall in the north. This enclosure between mountain and sea is largely a level, fertile plain drained by a regular series of rivers all the way down, chief of them being the Sebou. The level of the country, which in the shoreward regions is from 150 to 200 feet above the sea, rises to as much as 800 feet in the interior. In this area are four general classes of land and soil: the first is that of the mountain masses which is for the most part bare and useless; the second what is known as the "tirs," or black soil, covering a large middle area between the rivers Regreg and Tensift, which produces cereals in enormous quantities especially in the wet seasons; the third the "hamri" or red lands; the fourth the "rmel" or sandy territory, the last two in moist seasons being of fair productive capacity.

The climate has characteristics inevitable from the large part of the country exposed to the Atlantic. From November until April is the rainy season when, with the winds blowing mostly from the west and south-west, it may rain at any time and often does so in large volume, the maximum attained being in the north and the minimum in the south. Next to Tangier, Fez is the rainiest place in Morocco. But the rains are intermittent and in general the climate is pleasant and agreeable, for though from May to October is considered the hot period it is not so hot as in other parts of North Africa. Near the sea especially it is often very pleasant, the temperature all the year round, in fact, being agreeable, though in winter the nights are often cold. At Fez the average temperature for the year is about 66° F. with a minimum of 33° F. in February



Compagnie Générale Transatlantique

OVER THE ROOFS OF BISKRA: THE PLACE DUFOURG AND THE MUD HOVELS OF THE VILLAGE NEGRE

After a railway journey of 140 miles into the south-west from Constantine the traveller reaches the oasis town of Biskra. It is a health resort that owes its reputation to hot sulphur springs, and it lies in a declivity of the Aures hills, at a height of about 360 feet above sea-level. Of these two photographs, the upper shows the town with its houses of French design, and pleasant boulevards along which are casinos, clubs and hotels. Biskra is a garrison town and has manufactures of carpets and burnouses. The lower photograph gives a view of the unpleasing Village Nègre

and a maximum of 110° F. in August. Marrakesh is sometimes a little colder than this in January, and is warmer in the late months of summer.

By the coast and in other parts that receive large rainfalls evergreen oaks and cork trees grow in forests, and elsewhere are other woods, notably those of the cedar-trees in the Atlas Mountains and south of Mequinez and on the dry steppes of the interior, where alfa or esparto grass are found.

The soil and conditions are favourable to most kinds of agriculture, and it is being vigorously practised with cereals for the basis. Cumin, chick-peas, beans, lentils, fenugreek, henna and a variety of other plants are grown. The rose, orange and jasmine flowers are used by the natives in the preparation of



MAIN ARTERY OF TIMGAD AMID ITS SKELETON OF BROKEN BUILDINGS

With the wheel-worn flagstones still in place the Decumanus Maximus, the main street from east to west, is still complete enough for the mind to gauge the splendour of the Roman city in the desert. At the far end is the great west gate called Trajan's Arch, after the powerful emperor who built it and all Timgad to house his war-worn legionaries

Fez. Also pines and junipers grow and the citrus from which sandarac gum is extracted. By the banks of streams the oleander, the tamarisk, the clematis and the willow thrive; on the higher grounds and among the hills are many specimens of vegetation including lavender, thyme, mint, sage and some pretty chrysanthemums. On the lowlands, where there is little rain and trees do not flourish, are many varieties of wild flowers, asphodels prominent among them. A walk in the country in Morocco at springtime is a delightful experience to nature lovers. There is good pasture

perfumes. Of course the olive is general and vineyards are extensive, the vine having been grown of old in Morocco, while European vineyards were started here in 1921. Oranges, lemons, palms, figs grow in abundance. Cotton growing began in 1911. More agricultural production, however, is needed, as are better methods. For encouragement in this direction land is being sold at low prices to Europeans on condition that they settle thereon and farm it according to European methods.

Enormous quantities of eggs are exported. Almonds, barley, beans,



STREAM, ROAD AND RAILWAY THROUGH THE GORGE OF EL KANTARA

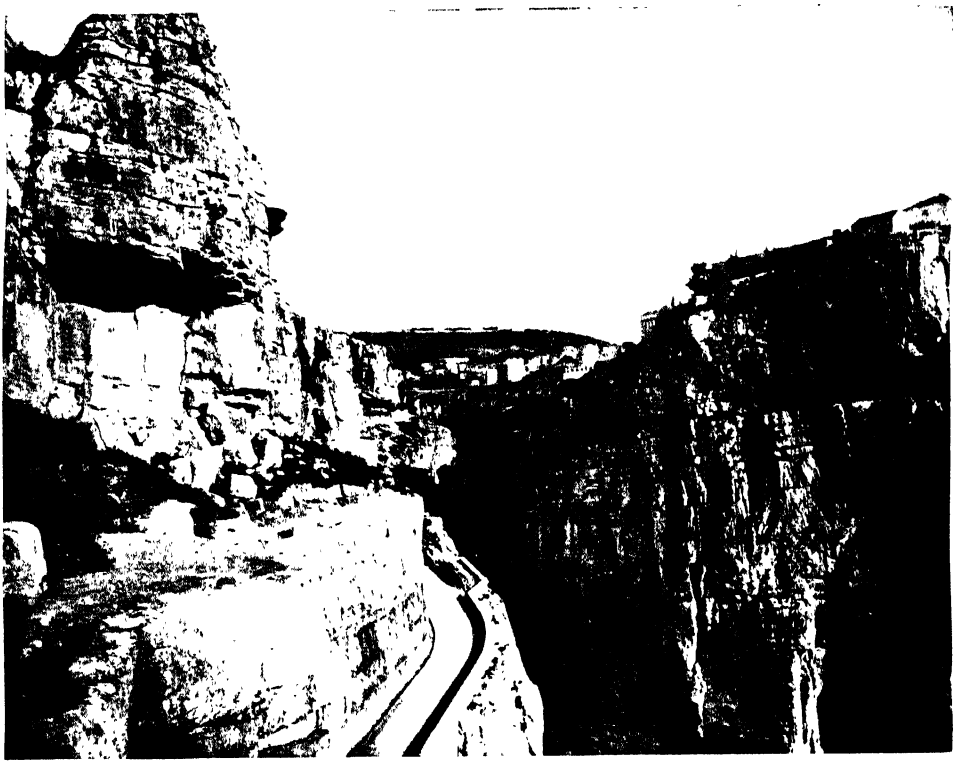
This cleft in the rock wall of the Atlas Mountains has since Roman times carried the road from Constantine and the coast to Biskra, some 20 miles due south. The name El Kantara, meaning "the bridge," refers to the Roman structure built across the El Hai river in the days when the Third Legion garrisoned Mauritania. In 1862 the French restored it with the result seen above. The railway is carried through the gorge by the tunnel seen on the left



APE-INFESTED GORGE OF THE CHIFFA NEAR BLIDA

Blida is 32 miles south-west of Algiers by railway, and is built in a beautiful oasis and embowered among orchards and gardens under the shadow of the Little Atlas Mountains. A few miles away is this beauty spot, the gorge of the river Chiffa with its Hotel Du Rousseau des Singes (or Monkey River Inn), so called from the number of Barbary apes which infest the neighbourhood

linseed and wool are the other chief exports. The country is believed to be extremely rich in minerals and one has heard much of the discovery of phosphates. Copper, iron, lead, gold, silver, antimony, sulphur, manganese and petroleum are said to be indicated. The petroleum has been found in the R'arb district on the banks of the Sebou and the Vergha. It is believed there is coal in the south-east. But little so far has been done in mining beyond the business of prospecting. In the Spanish zone are iron mines that have been extensively worked by an international company, and in a recent year over 80,000 tons of iron ore were sent thence to Great Britain



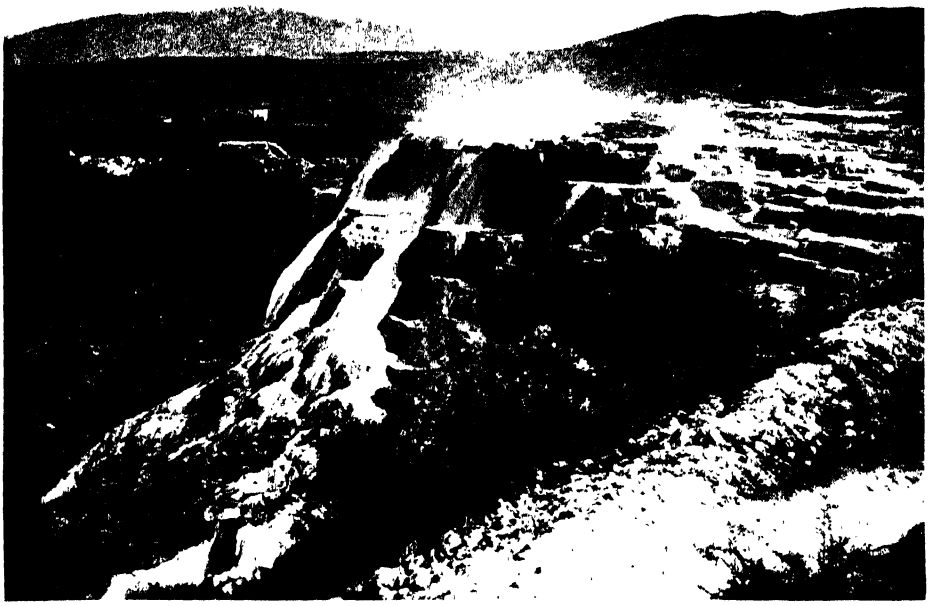
CONSTANTINE'S CRAGS OF WEATHER-SCARRED LIMESTONE ABOVE THE RIVER

Defended, except on the west, by the great limestone ravine of the river Rummel, other views of which appear in pages 579-581, Constantine stands on a plateau about 40 miles south-west from the Algerian port of Philippeville The road carved in the precipice is known as the Route de la Corniche, and is one of a system connecting the coast with the interior to which Constantine is the key



IN THE PLACE DE NEMOURS AT CONSTANTINE, THIRD CITY OF ALGERIA

North-east and south-east of Constantine runs the gorge of the river Rummel, and the precipitous limestone cliffs seen in the top photograph provide scenery both grand and desolate But on the south-west the approach is less steep, and the Place de Nemours, where the old hotels are to be found, opens on to two gardens, whose spaces are doubly pleasing after the narrow, dusty ways of the town



STEAMING CASCADE THAT POURS DOWN FROM BOILING SPRINGS

Known to the Romans these hot springs at Hammam-Meskoutine are much visited for their medicinal qualities. The waters contain sulphate of lime and salt, and of the neighbouring scenery a notable feature is this cliff of rock terraces, 40 feet high. The terraces are white with deposits of lime, and near by are some limestone cones said to be a wedding party petrified by Allah for their misdeeds



PALM GARDENS THAT BLOW BY THE STILL WATERS OF M'CHOUNECH

One of the most delightful excursions to be made from Biskra is the journey of 19 miles to the north-east along the road past the cedar slopes and torrent gorges of the Aures Mountains to M'chounech. Lovely palm oases are found beneath the 6,000 feet pile of the Ahmar-Khaddou. Over the stream where these Berber boys are bathing is the wall of some village garden, fragrant amid the desert



WHILE THE CARAVAN HALTS: AN OASIS IDYLL

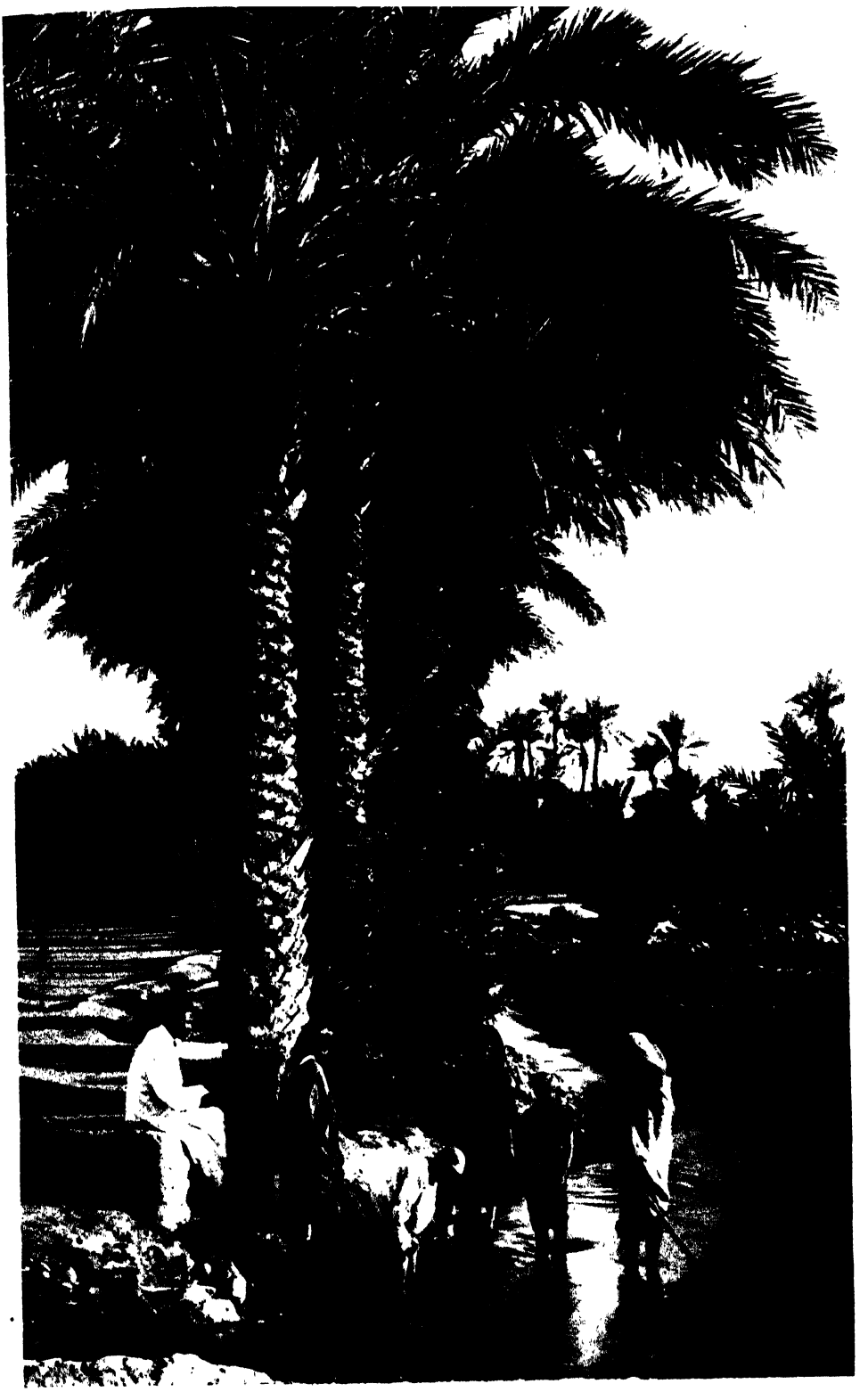
Where, in the Algerian deserts, the water under the earth percolates to the surface, there an oasis springs up. Through these shady fronds of palms the traveller can see the walls of Douceu, an oasis town, 40 miles south of Biskra

alone. Morocco is hardly yet a place for industries; production from the earth, and other forms of exploitation are the thing. It is estimated that there are some 300 industrial establishments with over 5,000 men engaged in them.

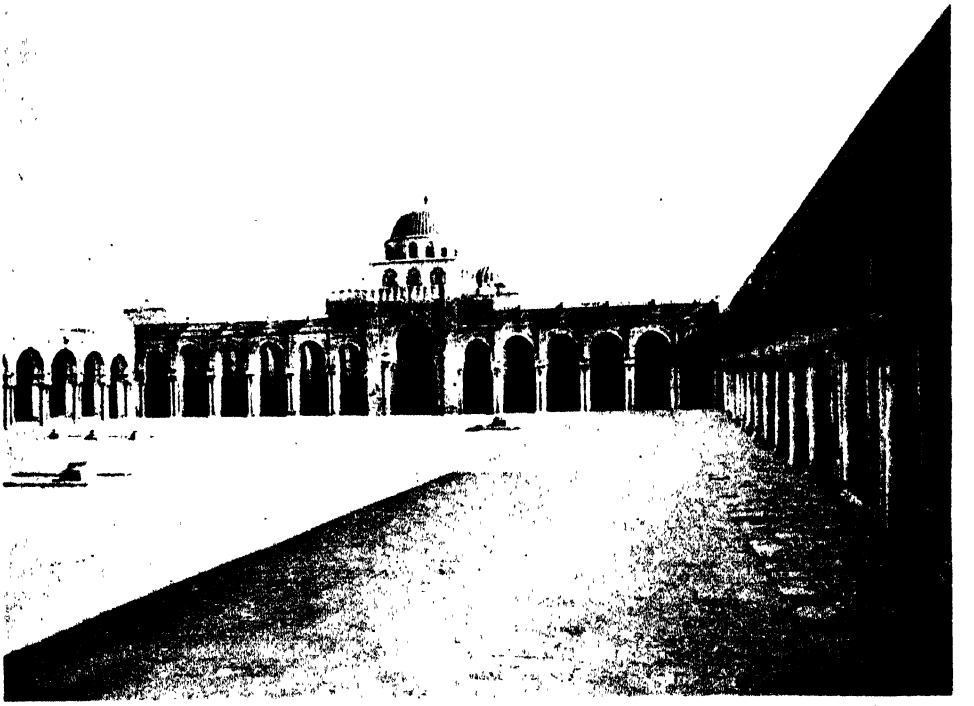
Of the Spanish zone of Morocco little notice is taken by the outside world save when Spain falls into serious difficulties there. The result of a little knowledge, with intermittent excitements, is that Spain is given no credit for good work she has really done. Her Morocco zone is a thin slice of the western end of North Africa, and after making a front to the Atlantic, on which her chief town is Larache with more than 12,000 inhabitants and about a third of them Spanish, it curls round the corner where Tangier is and runs along the Mediterranean coast for a little more than 200 miles, after which comes Algeria. The depth of the zone from the coast varies, but on an average it is only about 40 or 50 miles. Thus the French surround it completely by land. The Spanish have struggled to make a fair display agriculturally and otherwise, but in comparison with the French they have not done well, which may not be wholly their fault.

The railway from Ceuta to Tetuan, a little over 20 miles, is in some respects better made and appointed than any railway in Spain. The stations at Ceuta and Tetuan are built in Moorish style, white with coloured facings, and the trains are corridors of the international kind. Another strip of railway from Tetuan connects with the coast at the mouth of the Rio Martin, and a scheme for a railway down to Sheshuan (now being called Xauen by the Spaniards after the Moorish manner) is now under consideration.

Tetuan, the Spanish Morocco capital, is enormously interesting and romantically situated between high and wild-looking mountains. The Spanish town, with its large Plaza de España, is built in the usual way outside the Moorish town, which is completely self contained and such a hive of Arab industry as I have seen nowhere else in North Africa. The streets are a medley but each has its special native workers and traders and one may follow within a few yards the history of a piece of goat skin from the time of its parting from the animal until it is sold to the customer in the



BARBARY STATES. *Paths strewn with shadows from over-arching palms lead into Biskra, queen of the oases of southern Algeria*

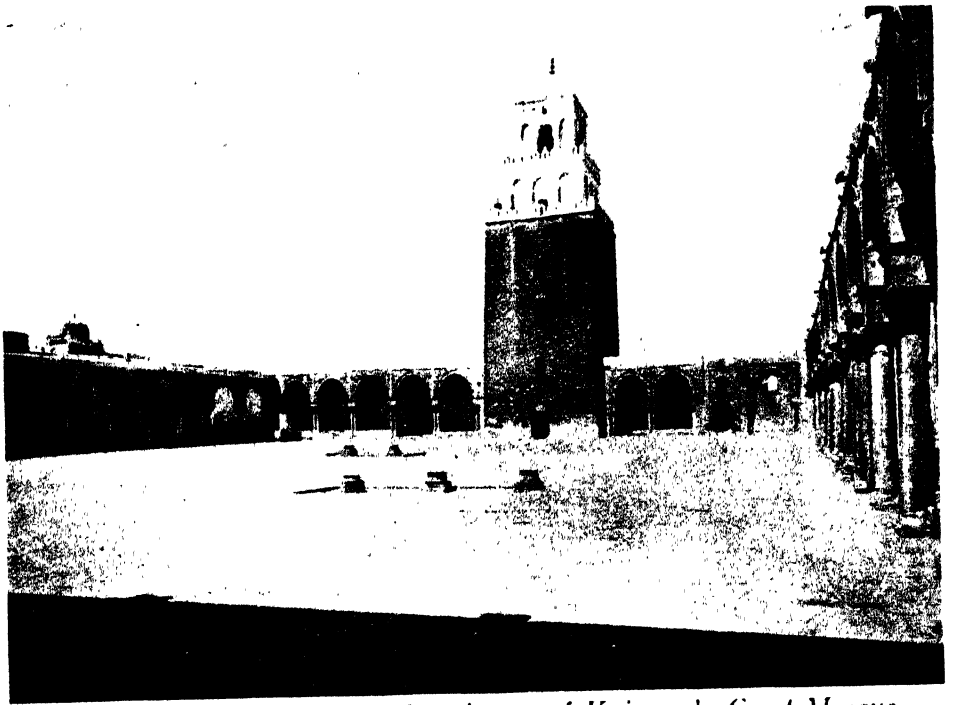


Chief glory of Kairwan is the Great Mosque of Okba. The rectangular, domed maksura is a marvel of porphyry and marble



E. N. A.

BARBARY STATES. *Rising amid the bazaars, the Mosque of the Olive Tree is the chief mosque of Tunis and headquarters of its university*



Stately in its massiveness the minaret of Kairwan's Great Mosque rises from a cloistered court covering 38,000 square feet



BARBARY STATES. *In the hope of baksheesh, children of the desert write on the sands words of welcome to tourists from Tunis*



E. N. A.

BARBARY STATES. *El Kantara opens through the Algerian Atlas immediately on to the Sahara, and when the camel caravans come in from far and lonely places they seem to be laden with the very essence of romance*



E. N. A.

BARBARY STATES. *Ingeniously irrigated from a single stream, the oasis of Biskra stretches for several miles before it gradually merges into the northern Sahara whose exhilarating air has made it a health resort*



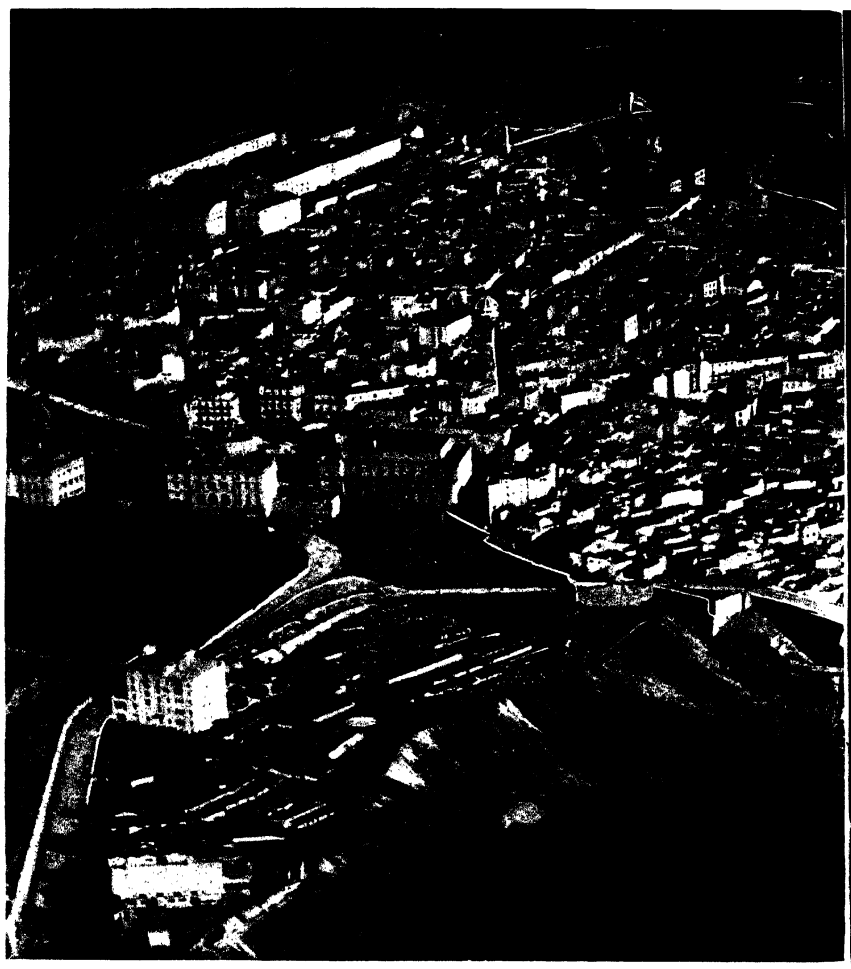
Donald McLeish

BARBARY STATES. *Viewed from the sea Algiers is very beautiful. Upon the arches lining the docks runs the Boulevard de France, and behind it the town rises in steps to the height topped by the old Kasbah*

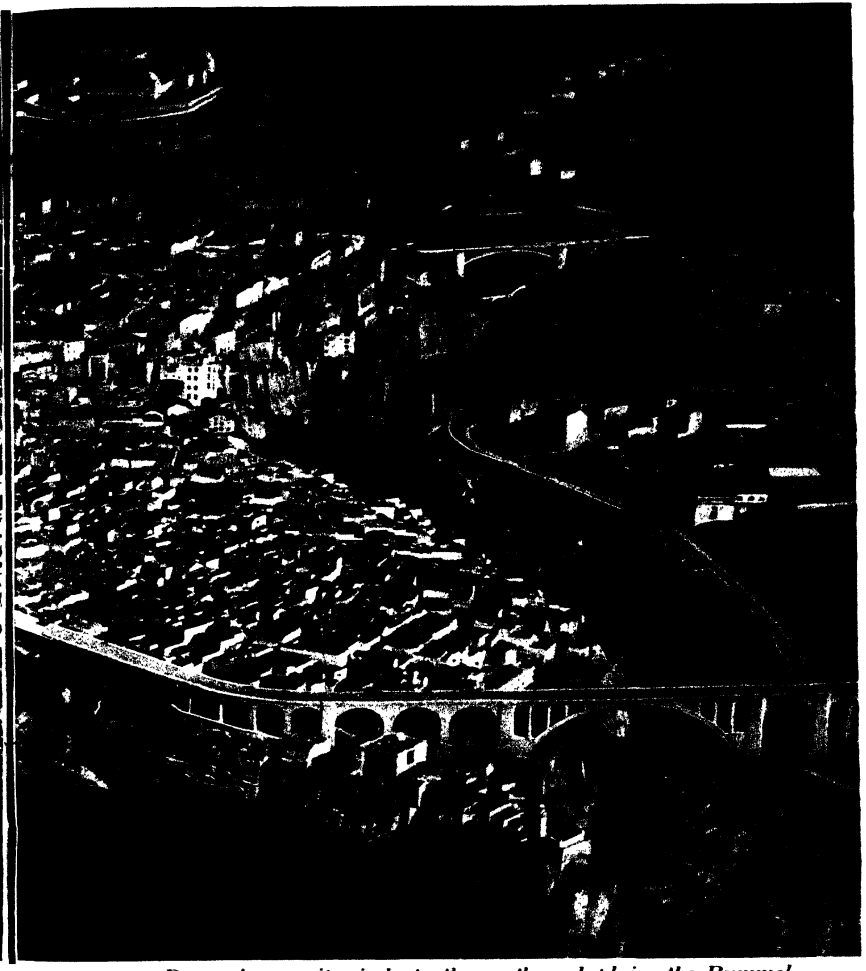


Donald McLeish

BARBARY STATES. *Here at its lower end, crossed by the Suspension Bridge, the wondrous Rummel Gorge of Constantine is 590 feet deep*



BARBARY STATES. *Viewed as here from an aeroplane, Constantine appears as an almost impregnable natural fortress.*



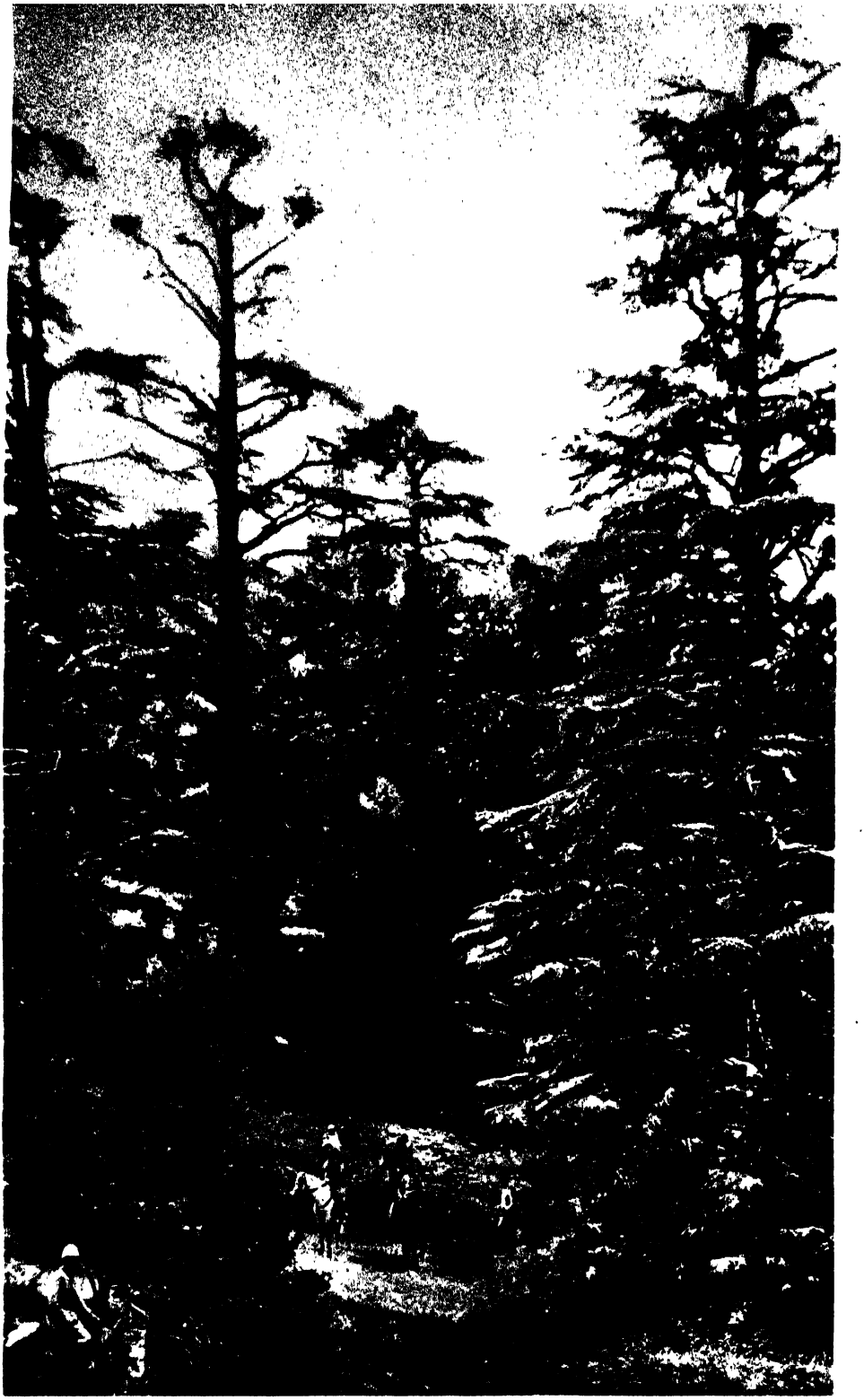
Deepening as it winds to the northward plain, the Rummel forms a defensive fosse spanned at three points by lofty bridges



BARBARY STATES. *Built compactly on steps upon an isolated peak in the Aures highlands of Algeria, Menaa is a chief town of the Shawias. These are an agricultural and pastoral people of Berber stock*



BARBARY STATES. *Human interest is given to the wild mountain scenery of the Algerian Atlas by villages of the hill-dwelling Kabyles. The hill slopes are well cultivated and often enriched with fine orchards*

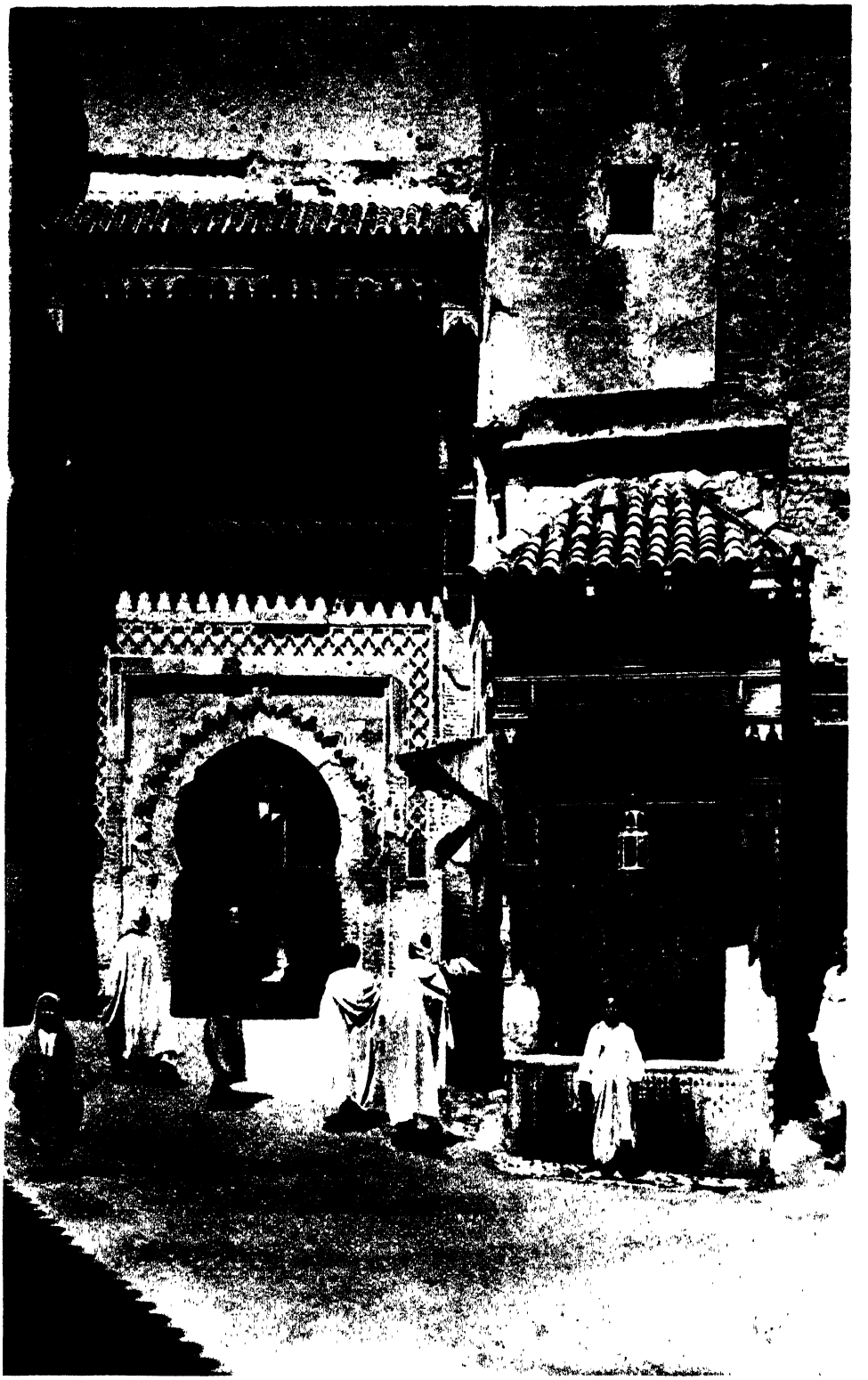


BARBARY STATES. *Forests cover both slopes of the Middle Atlas. Especially fine are the Atlas cedars, hardwood trees with silvery leaves*



Félix

BARBARY STATES. *Sadly dinted and riven are the stout old red walls, thirty feet high and reinforced by towers, that encompass Marrakesh*



E. N. A

BARBARY STATES. *The water supply of Fez is abundant. This, the Carpenters' Fountain, is one of many in the town*



BARBARY STATES. *Storks, held sacred throughout Morocco, are conspicuous figures on the roofs and towers in and about Rabat*



John Bushby

BARBARY STATES. *Backed by the Rif mountains, roughly alined to the coast, northern Morocco is a little-known land. Some agriculture is carried on by antiquated methods, but the Berbers are an untamed people*

form of a large writing-case or wallet, finely embossed by hand, for something less than thirty pesetas. This Arab city seems to be wonderfully complete in itself and, like so much else in North Africa, it plunges the wayfarer with philosophical susceptibilities into another reverie. They work desperately hard in Tetuan and never have strikes. And they seem happy.

Melilla is a very bright and well-planned town, Spanish made, with good streets, public parks, institutions, theatres, hotels and all the rest, and a population of about 40,000. It is a business place, the headquarters of the Spanish command at this end of the zone, and it is overlooked by a mountain, the Gurugu, with a sinister history, having been generally honeycombed with rebels when trouble was about. All the foreigner's non-commercial interest is at the other end, chiefly at Tetuan, which can be reached either from Tangier by a daily automobile carrying the mails—about a six hours' journey, but I have done it in fourteen in bad weather when floods had broken the bridges over this very rough track—or by rail from Ceuta, which can be reached by regular boat from Algeciras near Gibraltar in three or four hours.

Ceuta, which is spoken of as a political alternative to Gibraltar, and again as a possible rival to Tangier, has extensive harbour works. The place has been much modernised and one walks up into the town from the harbour along a road with flower beds at the side faintly suggesting a popular seaside resort on the English pattern.

The case of Tangier, which should be the busiest and most important place in North Africa, is pathetic, and a sad commentary on the combined wisdom of European "powers" in a constant state of jealousy towards each other. For this place, tossed and turned about since it was given as a

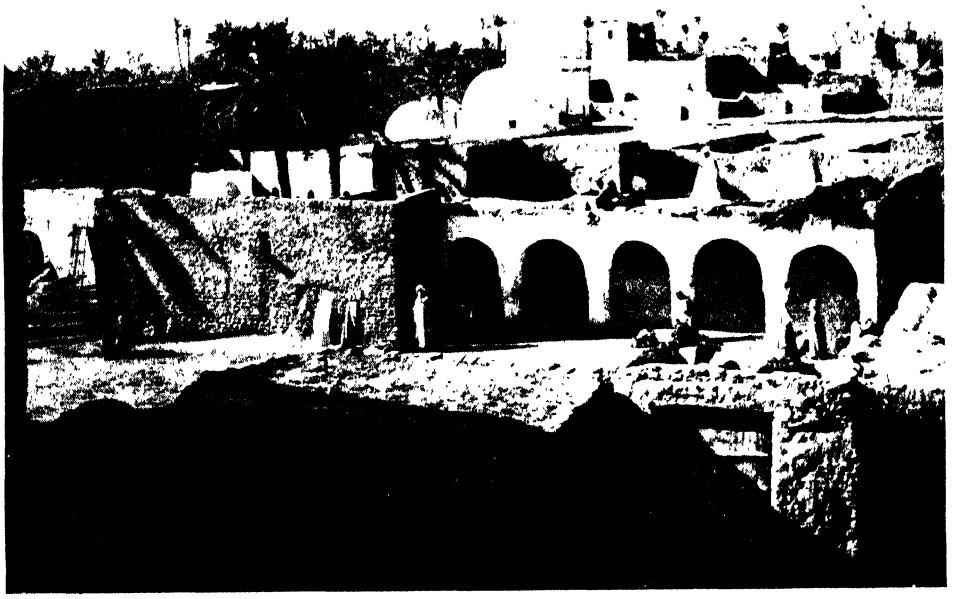


GOODS READY FOR SHIPMENT AT THE DOCKSIDE OF ORAN

Oran, with its fine harbour and docks and its well-built streets, is reckoned to-day as the second city of Algeria, although far less frequently visited than Algiers; grain, wine, minerals and a certain quantity of live-stock are exported. Railway communication exists with Algiers 260 miles to the east, with Tlemcen to the south-west and southward with the desert and the Oasis of Figig

wedding present from Portugal to England in 1662, is now in a pitiably broken down and neglected condition, without any proper harbour, and the only place of consequence in North Africa without a railway. Its only communications are by sea and road, and the roads are bad enough.

governments has been pressing its controlling claims, upon which a compromise of an international kind has been made. These considerations, however, do not alter the fact that from the traveller's point of view the situation of Tangier is superb and its climate delightful, while its native interest is



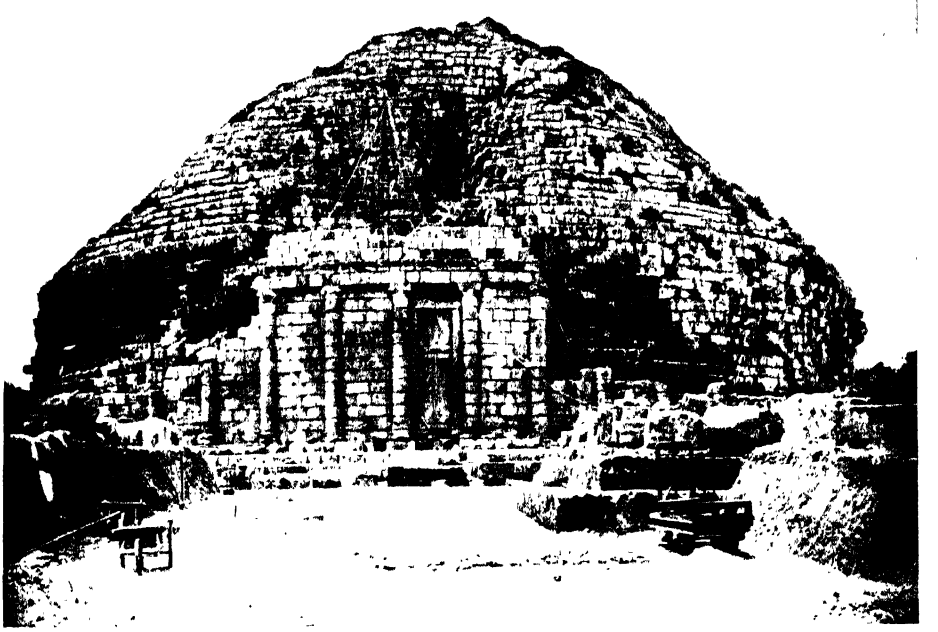
RELIGIOUS CENTRE OF THE ZAB OR ALGERIAN OASES

Sidi Okba is a little village of sun-dried bricks in an oasis hard by Biskra, but a place of great sanctity nevertheless. For in the north west corner of the mosque shown above, a square, flat roofed structure on clay columns with an unimposing minaret, is the inscribed tomb of Sidi Okba, the Arab general who conquered North Africa for Islam in the seventh century

Nevertheless those in search of knowledge about native Morocco, and perhaps a thin taste of adventure, are recommended to the inland daily journey by car to Tetuan. It lies through fascinating country, wild in places, then flat and flower-laden, with sleepy pools and storks by them. Native huts and villages are passed on the way ; the Arab may be seen at his rawest. About the middle of the journey is the famous Fondak of Ain Yedida, where Raisuli for long held out against the Spaniards.

Tangier now has large French and Spanish populations, and each of the enormous. Its great zoco (souk), or market place, with snake-charmers, story-tellers, native acrobats and everything appropriate to Arab entertainment, is wonderful, and I should class it with the Bab Souika in old Tunis as being one of the two most attractive native public places in North Africa where one may move about within the space of a few yards all the day and be fascinated for every minute of it.

Algeria, having been entirely in French hands for more than half a century, is now thoroughly French in character. It has a small area of highly



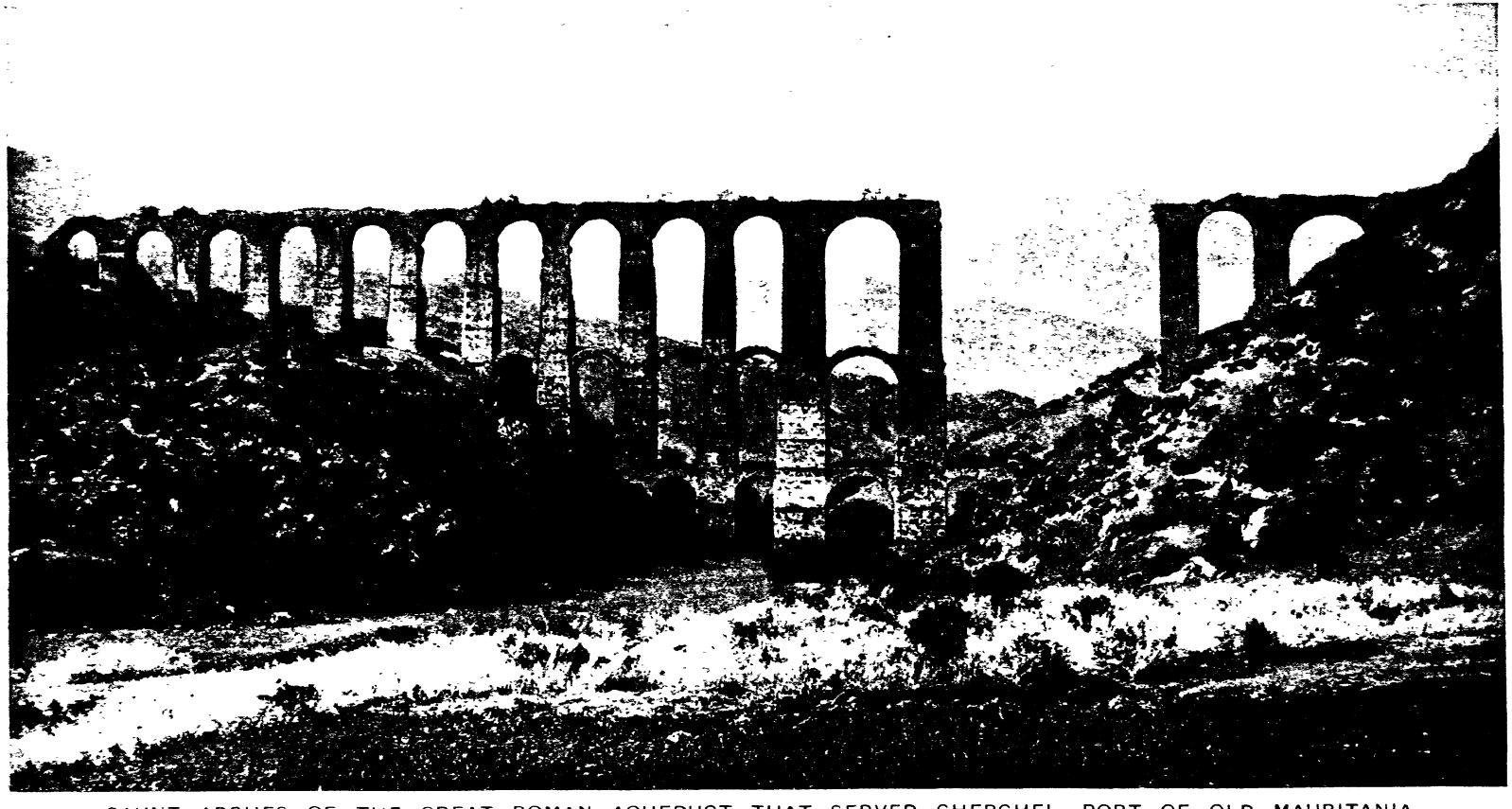
WHERE CLEOPATRA'S DAUGHTER SLEEPS BY THE COAST OF BARBARY

Upon a hill near Cherchel stands this great cone of stone blocks, 110 feet high, looking out over the Mediterranean. "Kubr-er-Rumia," the Arabs call it, the "tomb of the Roman woman," Christians being still "Romans" to them. The tomb was built to house the bodies of Silene Cleopatra and her husband, Juba, King of Numidia



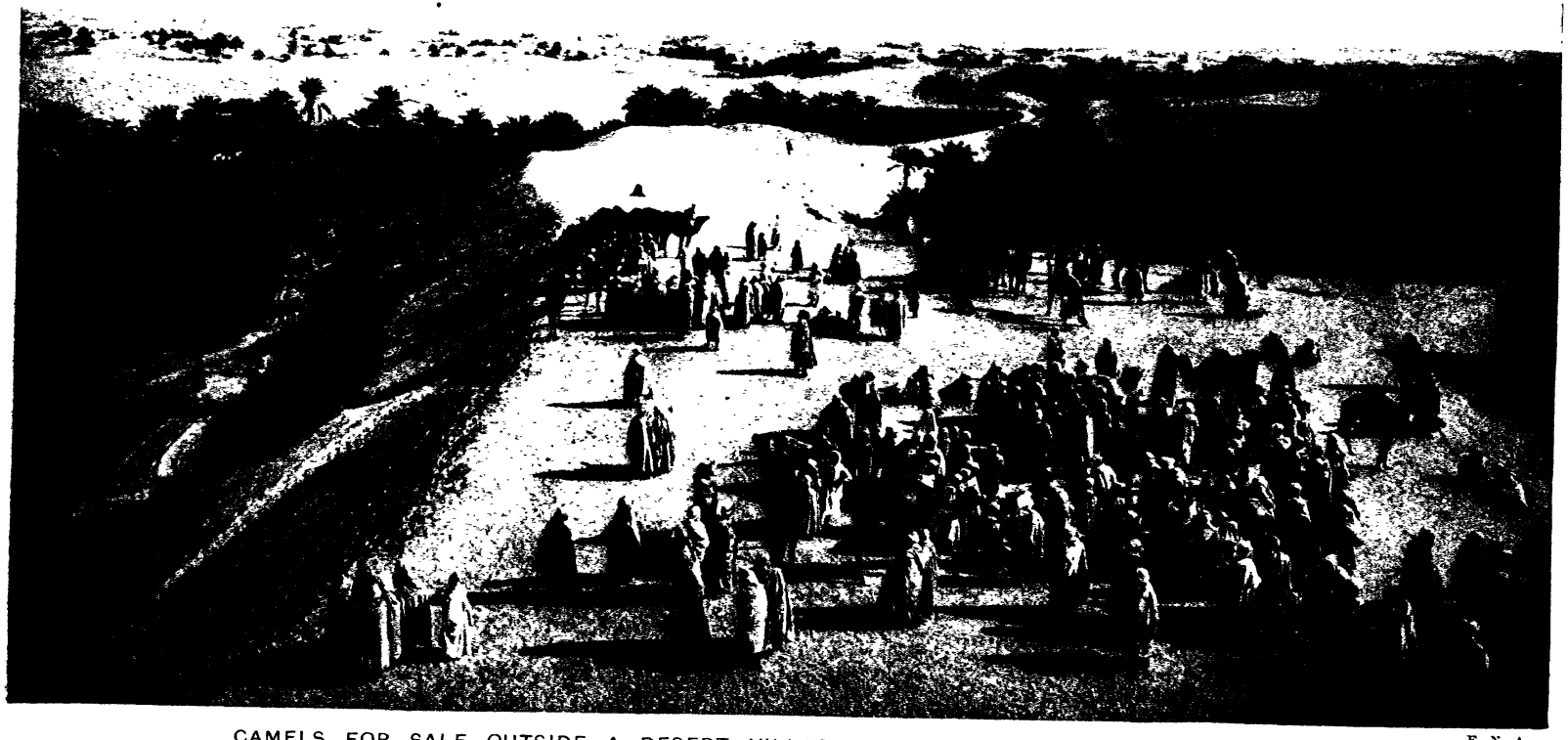
MASSINISSA'S TOMB OF TUFA BLOCKS RAVAGED BY THIEVES AND TIME

When Rome was fighting Carthage Massinissa, king of the eastern part of Numidia, allied himself with the winning side. Under the friendship of Rome he retained his kingdom and erected this great tomb, 35 miles south-west of Constantine The smashed edge is a reminder of the French bombardment for the purpose of opening up the sepulchre. It was found to have been already rifled by thieves



GAUNT ARCHES OF THE GREAT ROMAN AQUEDUCT THAT SERVED CHERCHEL, PORT OF OLD MAURITANIA

About 50 miles westward of Algiers along the Mediterranean coast is the little port of Cherchel, once capital of the province of Mauritania. In Roman days there were inner and outer harbours, but these have decayed and are only entered with difficulty. There have been several cities on the site and both Carthaginian and Byzantine have left traces. But the Romans, above all others, set their mark upon the district for all time, and one of the main monuments of their dead empire is this great aqueduct that soars over a valley on its triple system of archways. By it was brought the main water supply of the city, then called Caesarea



CAMELS FOR SALE OUTSIDE A DESERT VILLAGE: A GLIMPSE OF THE REAL SAHARA

E N. A.

In so far as it lies within the confines of Algeria, the Sahara may be divided roughly into the region of the Hammadas, an entirely waterless expanse where the soil is either rocky or else of sun-hardened clay, and the Areg, or district of sandhills. In the last are many watercourses flowing down from the limestone heights of the Sahara Atlas range. Most of these streams are subterranean. Thus, by means of wells, the Berbers have been able to make plots of land sufficiently fertile to support palm-trees. Such a district is illustrated above, where the whole landscape is chequered with plantations

productive plains and valleys near the coast, but it is not really as strong as it should be on the agricultural side. Cotton is being extensively grown, while the cultivation of tobacco, of which there are some 20,000 planters producing nearly 500,000 hundredweight a year, is found to be very profitable. All the semi-tropical fruits are grown in abundance. There

Algiers, in all but the hottest months, is in the main most pleasant and agreeable, the temperature from November to April being about 57° F. It may be 54° in January and may rise to 65° or thereabouts in April, after which the heat increases rapidly. The winter range farther south at Biskra is from 40° to 60°. The nights are often chilly in winter and spring.



John Bushby

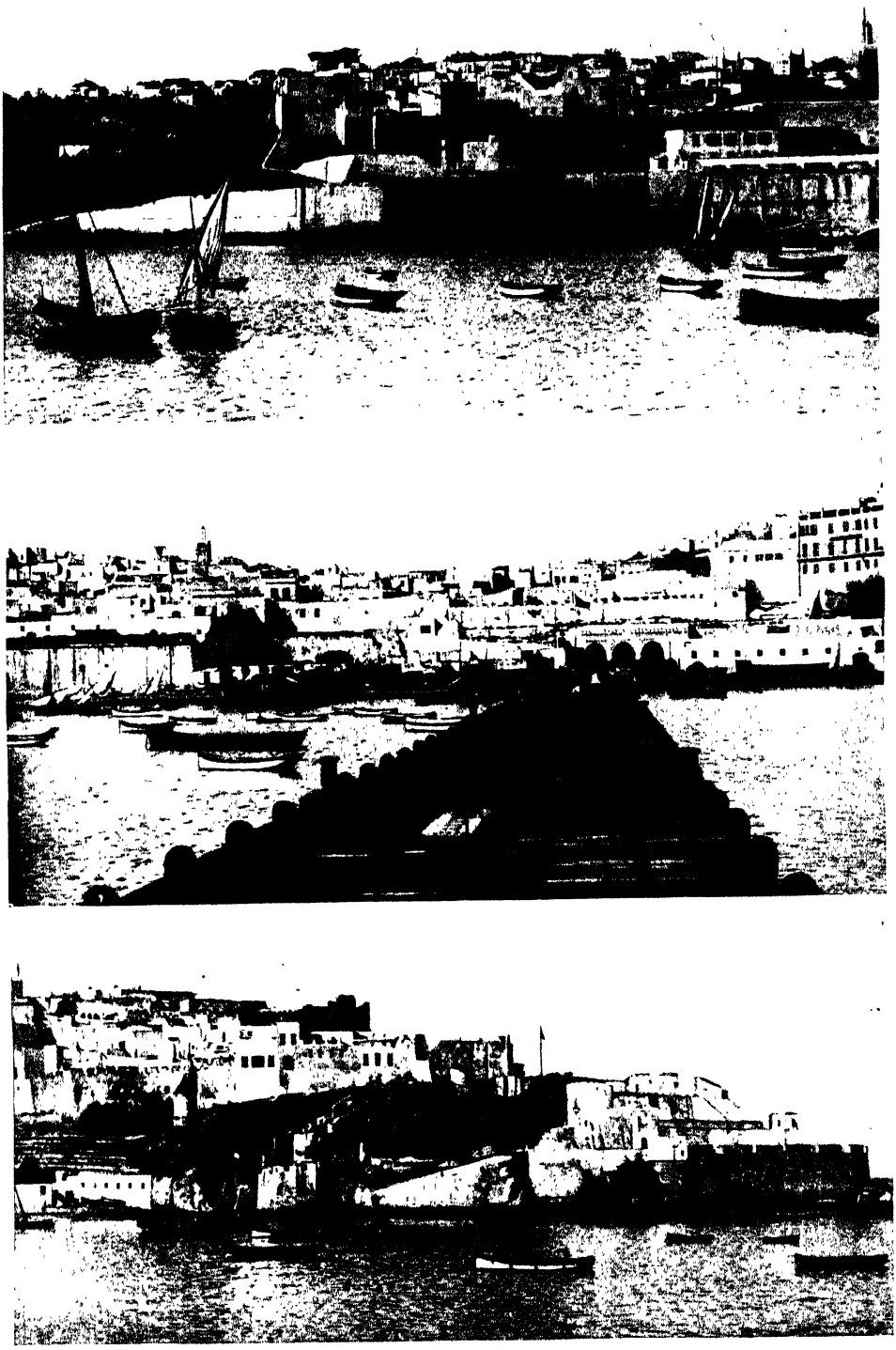
TANGIER ENTHRONED ABOVE THE CRAGS OF THE ATLANTIC COAST

Some 38 miles by sea south-west of Gibraltar, Tangier stands, poorly built but picturesque, on a small bay in the Atlantic coast of Morocco. Together with about 140 square miles of surrounding territory, the city has been administered by representatives of the Sultan and the Great Powers. The commanding plateau of El Marxan is seen here with the fortifications of the Naam battery

are extensive forests and mining is being conducted on a fairly large scale, iron, lead, mercury, copper, antimony and petroleum being found.

In general, as elsewhere in North Africa, there are two seasons, the rainy and the dry. But the mention of a "rainy" season in this way, when for days nothing but sunshine and blue skies may be experienced, is often misleading and one might be inclined to discard the term were there not now and then a very wet winter, when even at Algiers it seems to rain unceasingly and there may be falls of snow. However, the climate of the city of

Algeria is easy to reach from Marseilles and Algiers, a fine city with its central parts thoroughly modern, has all the conveniences looked for by traveller and holiday-maker, many good hotels and a capital climate. Its bay is magnificent—a glorious sweep—and in the corner of it is the old port where the pirates had their lairs. Such things, and the Kasbah, the old town to which one climbs on the side of the hill, the tomb and shrine of Sidi Abd er Rahman and the sublime view over all from the heights of Bouzarea at the back, within the compass of an afternoon's walk, make up attractions enough for Algiers. But



PANORAMA OF A COASTAL PORTION OF PICTURESQUE TANGIER

On the hilly west bank of a shallow bay of the Atlantic lies Tangier, the well-known seaport and health resort of north-west Africa, an important commercial town in Morocco and the seat of accredited representatives of the foreign Powers. These three photographs, if placed end to end, would form one continuous view and present an attractive panorama of a picturesque Oriental town

DISTANT VIEW OF TANGIER, AN INTERNATIONALISED PORT AND AN IMPORTANT EMPORIUM OF NORTH-WEST AFRICA

Tangier's geographical position has always procured for it a prominent place in the history of Morocco, while its coastal situation and setting of hill country, dotted with white summer residences, lend it undeniable charm. The houses of Gibraltar against their rocky background are distinctly visible from Tangier and the sudden change from West to East, for the city teems with the inexplicable magic of the Orient, is very bewildering to the European. In the vicinity is the ancient site of Old Tangier, the Tingis of the Romans

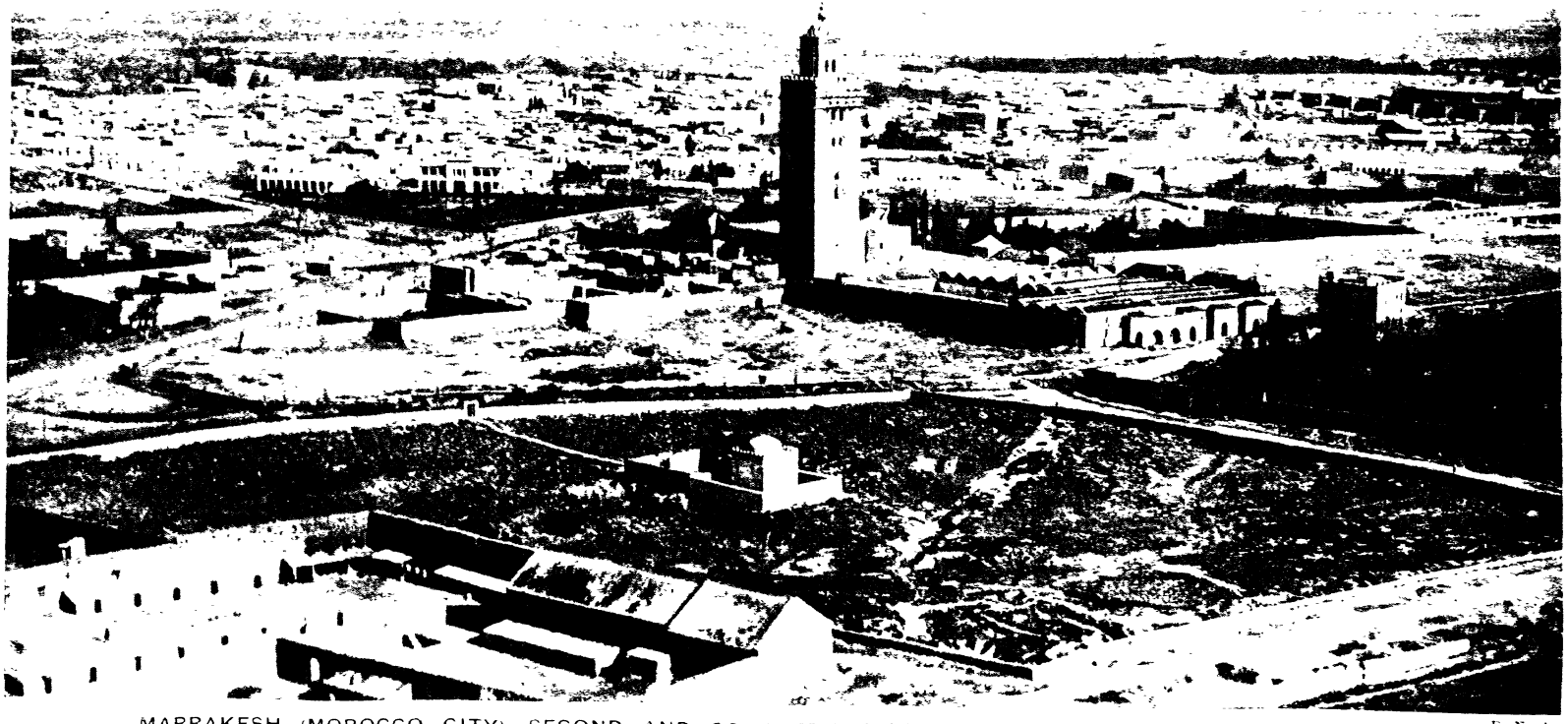
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John Bushby

VIVID ARAB MARKET SCENE IN THE INTERNATIONAL SEAPORT OF TANGIER

Owing to its misfortunes in the past, the result of international jealousies that have buffeted it from Power to Power, Tangier might be called a backward town, in spite of its large French and Spanish elements; it is served by no railway and its harbour is neglected and inadequate. For one in search of local colour, however, it has an abiding appeal and many delightful hours may be spent among the Arab crowds in the open souk close to the Bab el Souk, or Gate of the Market. There is the attraction not only of bright and varied merchandise, but of jugglers and entertainers who might have stepped from the pages of the "Arabian Nights"

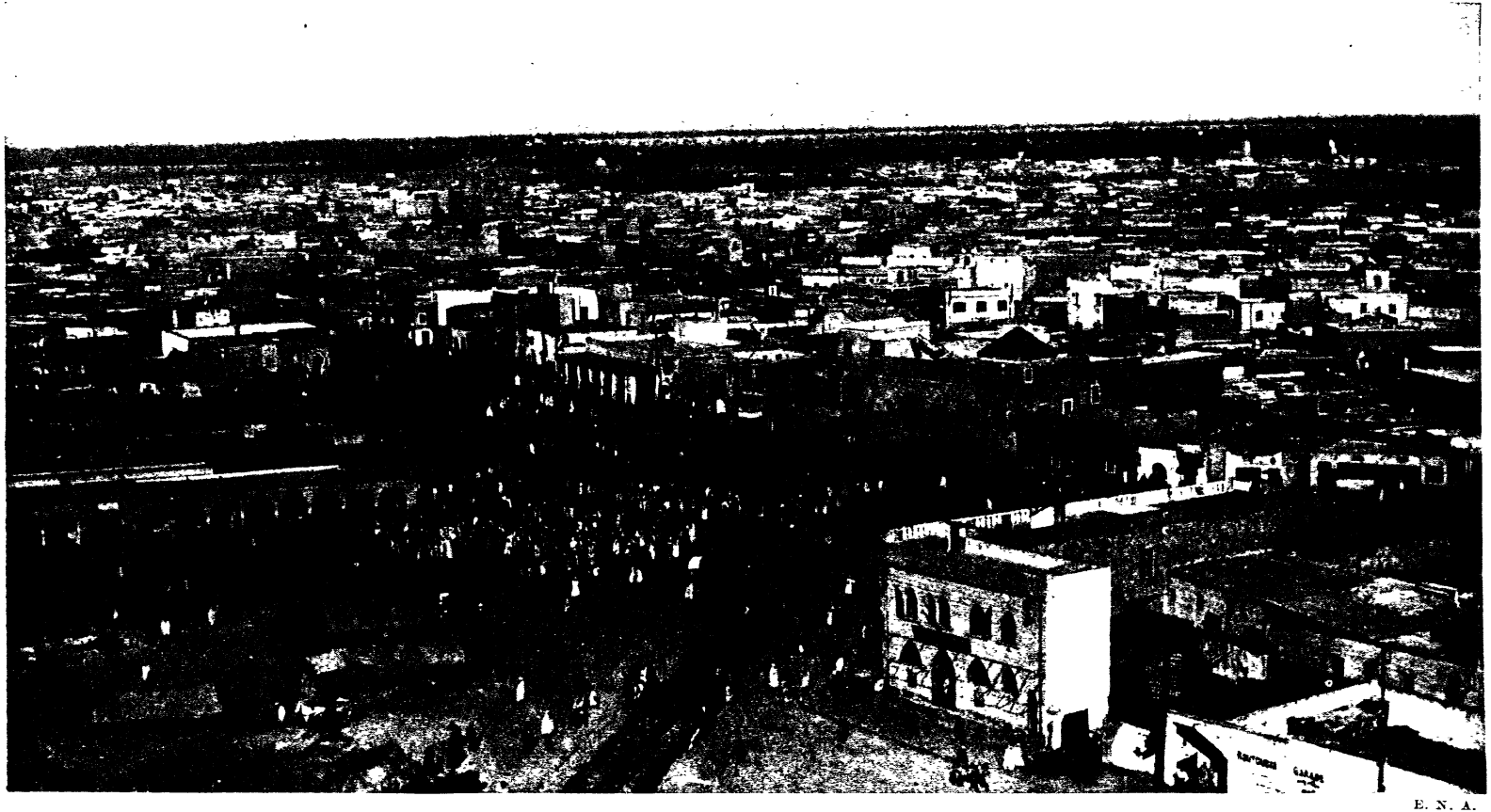


MARRAKESH (MOROCCO CITY), SECOND AND SOUTHERN CAPITAL OF THE SULTANATE OF MOROCCO E N A.

At the north end of an immense fertile plain in central Morocco, north of the principal Atlas group, and surrounded by a girdle of palm trees, lies the city of Marrakesh, or Morocco. It is encompassed by a wall and contains many ancient but dilapidated buildings and several notable mosques, including the Kutubia, the high tower of which, rising to 250 feet forms a conspicuous landmark for miles around. Marrakesh is a town of considerable importance, being situated within easy reach of the Atlas Mountains and commanding the trade routes to the south. The chief industries are connected with leather-working, tile-making, pottery and iron-working

IN THE DJEMA ET FNA, CELEBRATED SQUARE OF THE INDUSTRIAL INLAND TOWN OF MARRAKESH E. N. A.

Numerous markets are held in Marrakesh, for this city is the centre of an extensive commercial life. Apart from the throng of bargaining and jostling buyers and sellers, the market places are frequented by a vast variety of Oriental street types; the snake-charmer and story-teller attract much attention; the barber shaves the heads of the faithful; the water-carrier gives drink to the thirsty; the beggar whines for alms; the astrologer sells mystic charms to the credulous; the white-turbaned lawyer prepares legal documents—each imparting a touch of that "local colour" which stamps Marrakesh as a true city of the East



E. N. A.

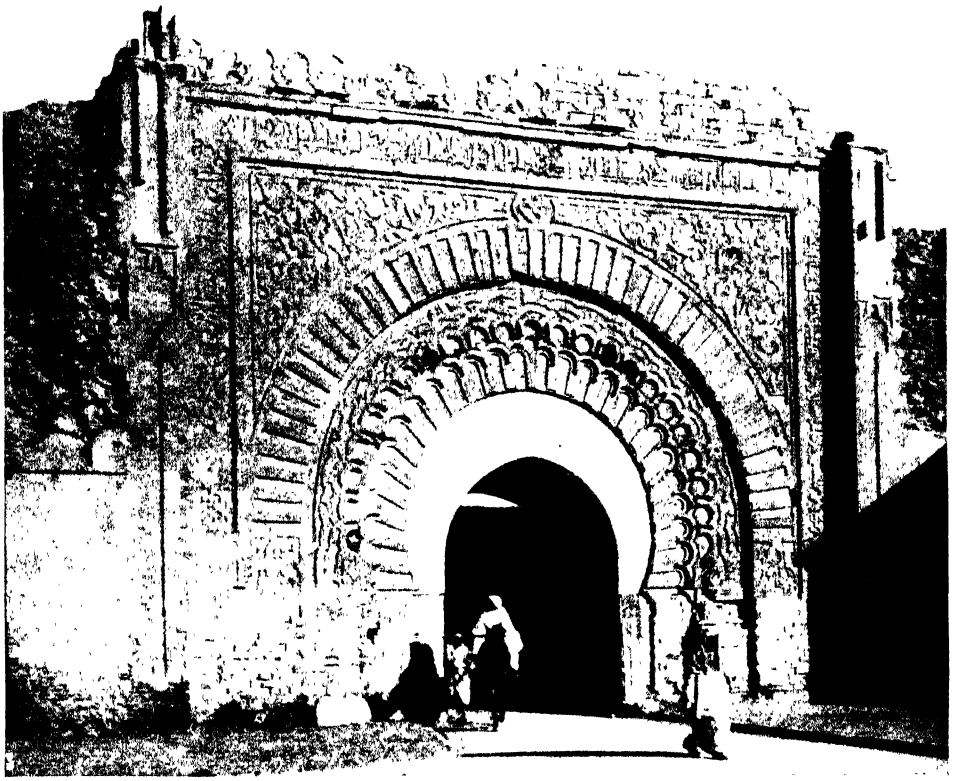
OVERLOOKING MARRAKESH, SHOWING THE GREAT ATLAS CHAIN OF MOUNTAINS IN THE BACKGROUND

As in most Moorish towns, the houses of Marrakesh are without numbers and the streets without names. With the exception of the market squares the streets are narrow and confusing to the stranger by reason of their many windings and curves. Most of the houses are in a tumble-down condition, the bulk of them with flat roofs and with the grime and ruin of the centuries peering through the whitewash coating of the walls; on the whole the city presents a decidedly woebegone and decayed appearance. Marrakesh is one of the three imperial cities of Morocco; the sultan's palace stands outside the walls and covers an area of about 200 acres

it must be remembered that this is like a bit of France—highly developed—and the native colour and circumstance to be enjoyed in Morocco and Tunisia are less evident here. You may do anything in Algiers, and especially you may enjoy the air and sunshine, either in the fashionable hotel quarter over at Mustapha just outside the city or on the grand boulevard overlooking the bay in the middle of it. Still Algiers is not Algeria. It is one of the few places in North Africa at which travellers may stay for weeks or months, if so disposed, instead of sightseeing, but there are other places in the country that stir more the curiosity and intelligence.

Oran is seldom visited by travellers; but in some respects it is an even more impressive study than Algiers of French colonial city development. He who lands at the harbour and then mounts the steep hill by tram or otherwise to the city at the top has a surprise.

There are Arabs indeed, and native boys run about selling the latest editions of the evening newspapers such as "La Petite Oranèse" (there is a "petit" or "petite" journal in most big towns of North Africa), but there are fine streets that might have come straight from Paris, squares, the municipal theatre and everything, with, on the occasion of my last visit, an announcement of a second-class kind of bull-fight just to indicate that the Spaniards have had keen interest in the place in the past, and still have some. Oran, with its huge warehouses by the harbour and the keen business appearance of its main streets, sufficiently indicates what is its mission. Constantine, a day's journey on the



Félix

ONE OF THE WEATHER-WORN PORTALS IN THE WALLS OF MARRAKESH

Numberless gates of peculiar beauty grace the grim walls of Marrakesh and are reckoned among the most prominent and handsome features of the city. Like the magnificent specimen seen above, with the bold curves and intricate relief design so characteristic of Arab architecture, most of the gates are in urgent need of repair, but the indolent Eastern nature ever puts it off until to-morrow



E. N. A.

SHEEP THRIVE DESPITE THE SUN-DRIED HERBAGE OF MOROCCO

On the great pasture lands of North Africa a distinctive breed has been produced, well known as "Barbary sheep." These are distinguished by their small spiral horns of which they sometimes have four; and their wool is of good quality although in Morocco, at least, little is done to improve the stock. This Moorish shepherd and his small flock are in a palm-grove near Marrakesh

other side of Algiers and on the way to Tunis or Biskra as the case may be, is different and so attractive that it deserves more than the odd day that the traveller in a hurry usually awards it. Here again we see France, busy with shops and banks and a fine court of justice. Constantine has not the commercial elegance and modernity of Oran, the Arab influence is perhaps a little stronger, but the old Rue Perregaux, though far from clean, is one of the most interesting native streets in North Africa, while the deep gorge below this eagle's nest of a city is wonderful.

From Constantine a railway tracks due south to Biskra, the "Garden of Allah." On the way are Batna whence it is a motor ride to the famous ruins of Timgad, already referred to, and to picturesque El Kantara, known as the "Gate of the Desert," a little farther on. Biskra has all the attributes of an edge-of-the-desert town and is a pleasant winter resort; and from here one may go by railway through the desert, with palm oases at intervals, to Touggourt, which is a jumping-off oasis for long desert expeditions. It is a whole day's journey from Biskra to Touggourt and after the first wonder at being really in the desert it is somewhat monotonous, though the travelling is comfortable.

Touggourt is by way of being a metropolis or centre for the northern desert, and as yet it is very raw and from the traveller's point of view unspoiled, but one is impressed by the large French administrative quarters. Rather tired of travelling, I have at Touggourt escaped from the bunch of rough buildings of many sorts that make the city and walked away, past Beduin tents, into the full, plain desert at the setting of the big crimson sun, and felt there the great peace, the exquisite loneliness of the Sahara, which is an emotion that grows upon one. Then, at



E. N. A.

ONE OF THE SACRED CITIES OF ISLAM, CHARMINGLY SITUATED IN THE UPPER VALLEY OF THE SEBOU RIVER

Morocco possesses three capitals or royal residences—Fez, Mequinez and Marrakesh. Of these Fez is the most northerly and lies at a distance of 160 miles south of Tangier, and about 100 miles east of the port of Rabat, with which it is connected by a light railway opened in 1915. It is an old town, much venerated by the Moslem world, and has been called the Mecca of the West. With its myriad flat-roofed houses and graceful minarets, interspersed with palms and other trees, the white city lying compactly in its beautiful setting presents an exceedingly attractive appearance



E. N. A.

OLD ART TO BRIGHTEN A MODERN HOUSE

Modern representatives of the same race whose craft reached its apex in the Alhambra are seen here at work in Fez on ornamental arabesques in the familiar Moorish style; their art is still on a high level of merit

night, Touggourt is all blackness and one must positively grope one's way to the bare native café where the Ouled Nails perform their dancing rites by the light of dim lamps or candles and to the music of the pipes and tom-toms.

From Touggourt caravan expeditions have been made across the desert track to Tozeur in southern Tunisia, and thence one may go up country to Tunis itself by railway, but the journey between the two oases is now being made by caterpillar motor-cars. Other long reaches down into the Sahara from the coast are made to Laghouat from Algiers and to Colomb Bechar from Oran.

The climate of Tunisia is appreciably warmer than that of parts of North Africa farther west, but again it is patchy, and the nights are sometimes distinctly cold until the spring is well advanced. But, though there is occasionally a bad and wet winter, the temperature during the dark months is rarely uncomfortably low and generally the rainy season is disposed of in a couple of months in mid-winter. The spring is delicious, but after the middle of May it becomes too warm for pleasure. Geographically and productively the country is considered as consisting mainly of the Tell by the north-east and the fertile region of the Sahel along the eastern coast that turns sharply round at Cape Bon and runs direct south to the Gulf of Gabes. This Sahel is well watered by rains from the eastern Mediterranean and has a good climate. The interior is rough and hilly with rocky ranges, while beyond Gabes in the south the country lapses into simple desert.

The olive "forests" in the neighbourhood of Sfax, where one looks down long straight avenues of the trees to far distant horizons—and there are hundreds of these avenues—is an impressive sight. Tunisia is rich in minerals, with a speciality in phosphates, and its sponge fisheries are important. As to its

people, in the city of Tunis the Turkish note is struck and one admires the tall strong forms of many of these Tunisians, while again the Italians are a force here, greatly outnumbering the French, to whom they cause anxiety.

A short visit to Tunisia will show to any person of intelligence how strangely mistaken are those who make flying excursions through North Africa, and because they find mosques and Arabs everywhere reach a rapid conclusion that "when you have seen one you have seen the lot." Whatever may happen in time, the French hold of Tunisia, secure enough as it may be reckoned, is less secure than it is elsewhere; but in many respects it is the pearl of the Mediterranean, and for me, as wanderer and student, it is the ever delightful treasure of this trinity with the largest and most varied interest.

It is being less thoroughly worked by the tourist class than the others, and there is often a disposition to omit it, after an excursion through Morocco and Algeria. It is, though comfortable in parts, happily not yet a place for society in its fine moods, and young persons who seek North Africa for fox-trotting and kindred purposes may avoid it; but my earnest advice to others who would, with only a little exertion and expense, come to know something more of a fascinating variety of Oriental life and again of semi-barbaric ways of existence, is to spend what time they can in Tunisia and go right down south as far as Gabes in the gulf of that name, an oasis on the edge of the desert which has a comfortable, small hotel and surrounds life of intensest interest.

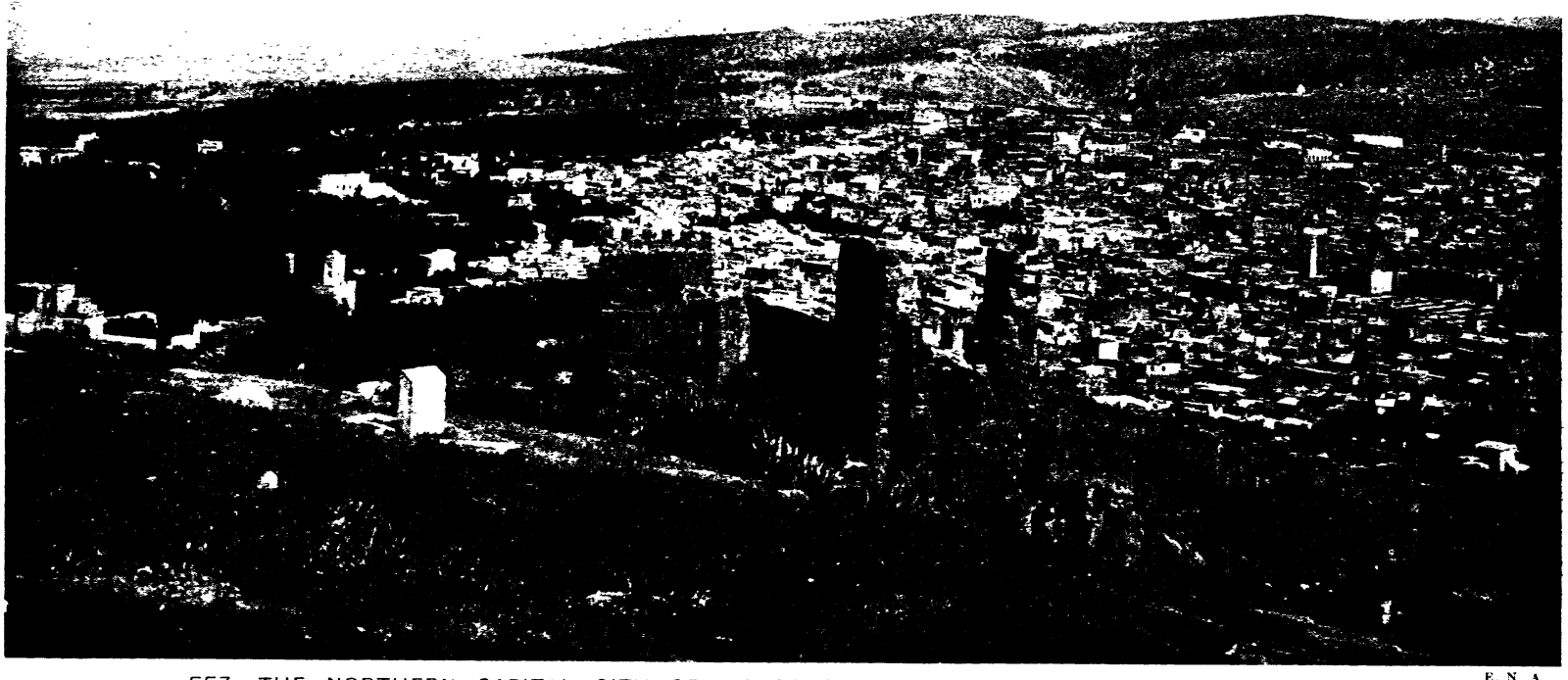
In this big oasis are several villages where the native life is pure and untouched by Europeanism in any form, the Grand Djara, Menzel, Chenini and others. Nothing could be more



E. N. A.

HOW THE MERCHANTS OF FEZ ARE PROTECTED FROM THE SUN

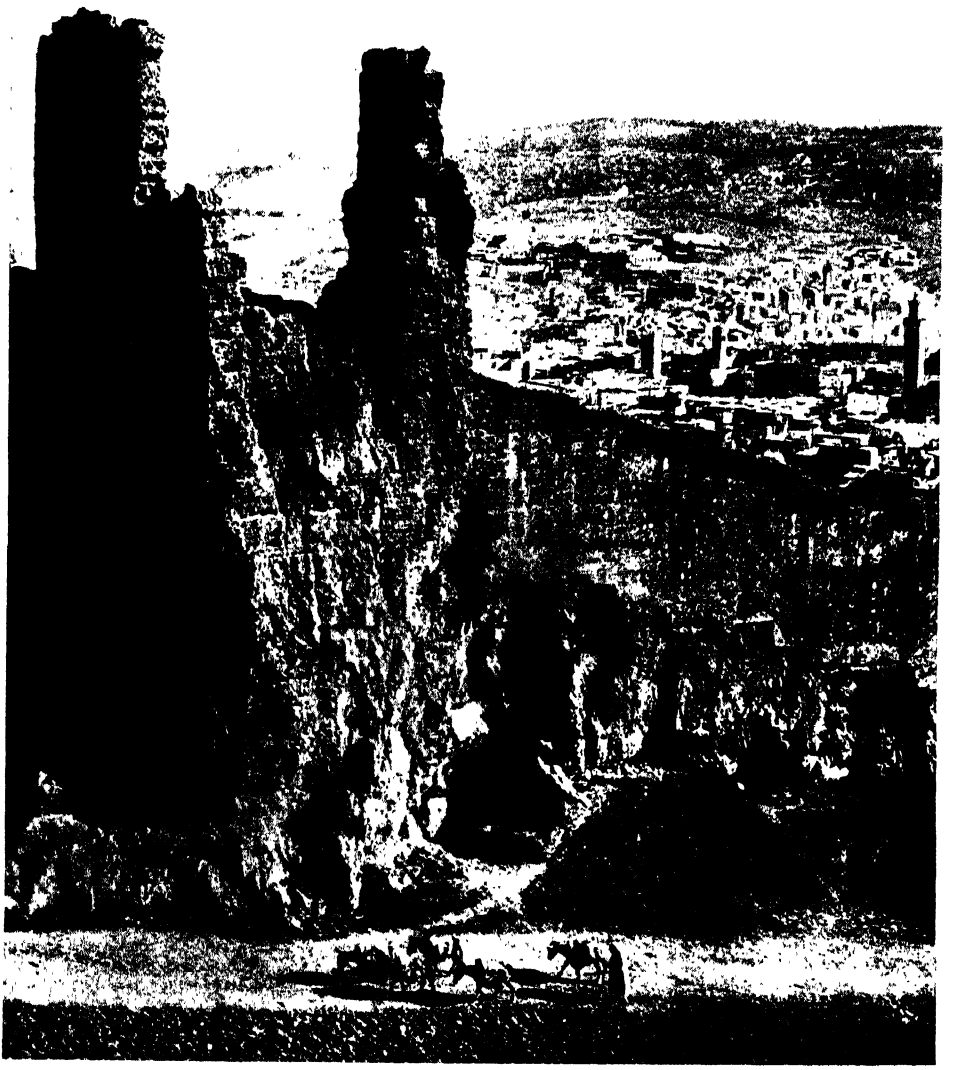
In Fez, as in many of the sun-drenched towns of Islam, the markets are roofed over in varying degrees of completeness, a few trusses of grass being often considered sufficient to mitigate the heat. These "souks," as they are called, are really less markets, in the European sense, than streets devoted to merchandise and all the complicated ritual of Oriental bargaining



FEZ, THE NORTHERN CAPITAL CITY OF MOROCCO, SEEN FROM ITS NEIGHBOURING HEIGHTS

E. N. A

Fez is situated among groves and gardens in a picturesque valley in the interior of Morocco. On the west stretches an extensive plain, while forested hills rise on two sides and beyond them runs a lofty mountain range. The city is cut into two parts by the river Pearl; the old town and the new being on the right and left banks respectively, the whole girt by an ancient wall which, though for the most part in a sorry state of decay, still supports several massive towers. In the vicinity are fragments of many medieval structures, including arches of aqueducts and various old tombs and forts

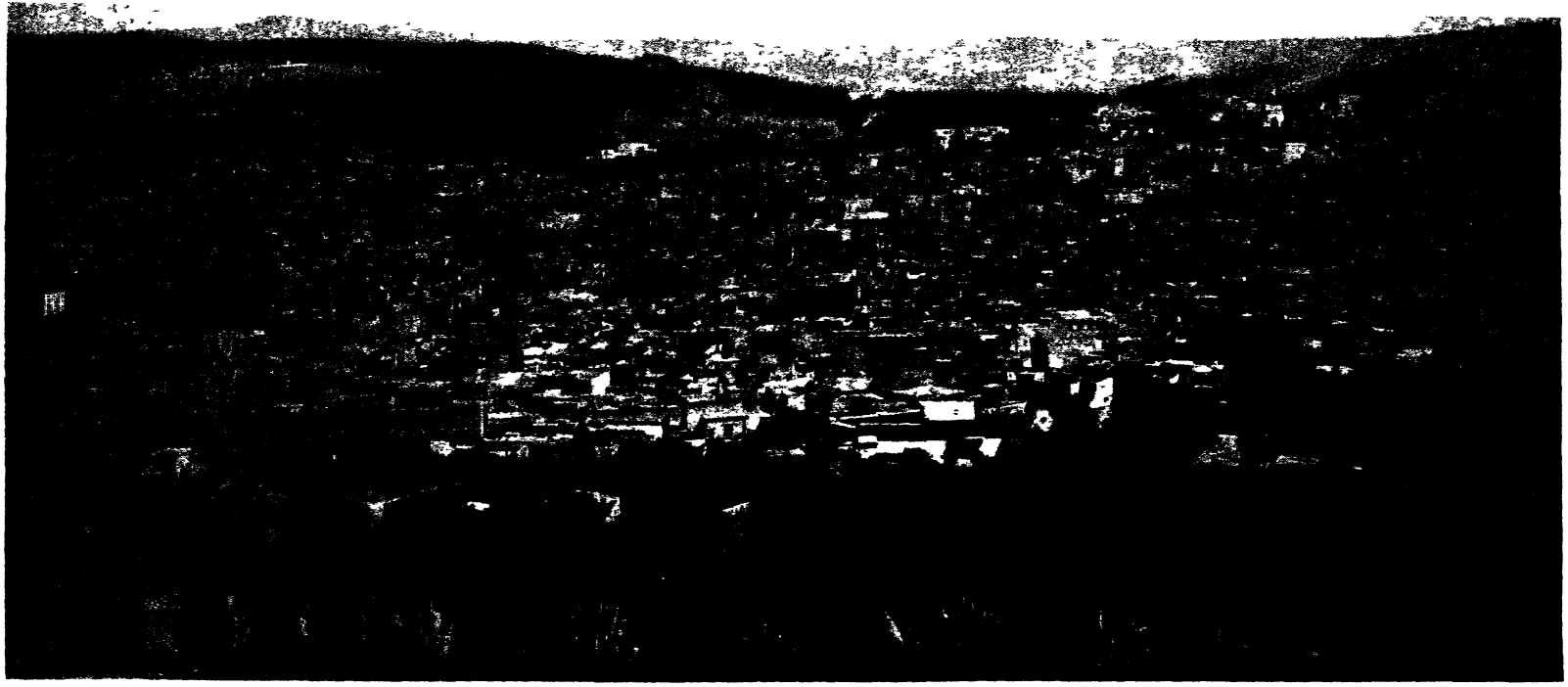


OUTSIDE THE ONCE FORMIDABLE WALLS OF ANCIENT FEZ

From without the walls on the north side of Fez, close to the tombs of the Beni Marin sultans, a magnificent view is to be had right over the old city (Fez el Bali) out to the Bab el Fatouh and the olive groves on the other side of the valley—a view of white roofs varied here and there by mosque-towers and the fresh green foliage of a well watered town

delightful than mere sauntering through the palm-shaded lanes in the cool of the afternoon when life just begins to stir again, the dogs to bark and the asses, tended by the Arabs, to trip along with their burdens, the scene being one of immense pictorial beauty, with splashes in the hedges of the brilliant scarlet flowers of the pomegranate trees. Where the streams come to open spaces near the villages the women—some very fine black ones among them—are busy in parties washing clothes, and a remarkable scene they make of it at the morning time.

In the early mornings the camel caravans come in from the far and lonely places with their burdens of alfa,



E N A.

PANORAMIC VIEW OF THE CITY OF FEZ: ERSTWHILE FAMOUS CENTRE OF ARAB CULTURE

Since its foundation about A.D. 808, Fez has been the chief centre of the religious, commercial and industrial life in Morocco. From the ninth to the thirteenth century, the city, known as the "Athens of Africa," was famous for its schools, libraries and general prosperity. Most of its former greatness has passed away, but it nevertheless contains attractive bazaars and not a few buildings of architectural beauty, while in the "University"—once a great seat of Mahomedan learning—attached to the Mosque of the Cherubim, or of Mulay Idris, a famous library has been [illegible]



MULAI IDRIS FROM AN AEROPLANE, THE ONLY WAY A EUROPEAN MAY SEE THE FORBIDDEN CITY E. N. A.

About nine miles north of Mequinez is the most jealously guarded shrine in Morocco. It is sheltered within the confines of this city of Mulai Idris, which lies upon the vineyard-covered slopes of Mount Zarhon, a peak in one of the ramifications of the Middle Atlas system. The shrine is built over the tomb of Mulai Idris I., who founded the Moorish Empire and was buried here A.D. 791. The town is a recognized sanctuary and free from payment of taxes. No Jew or Christian may enter the gates, and though several attempts to do so have been made by white men there is no certified record of success



E. N. A

IN THE COUNTRY OF THE MIDDLE ATLAS: A NOMAD CAMP AMONG THE WOODS

Roughly speaking, the Middle Atlas range forms the base of a triangle whose other sides are the Mediterranean and Atlantic coasts of Morocco. This region has not been extensively explored and it is in these wooded hills that some of the fiercest and most war-like tribes have their homes. In the south-west the Middle Atlas are joined by a chain of lower hills to the Higher Atlas system. This has some fine forests of oak, cork and cedar, with little suggestion of the adjacent Sahara



E. N. A.

ASRU AND ITS FLAT-TOPPED HOUSES AMONG THE FOOTHILLS OF THE MIDDLE ATLAS

Asru is a small town about 150 miles due east of Casa Blanca and stands on the banks of the rather uncertain stream of the Wadi Beht, which, after a lengthy course, unites with the stream of the Sebou and flows into the Atlantic at Metedia. In this cup among the hills, which, as can be seen, are thickly covered with vegetation, there is sufficient water for cultivation, and outside the town walls, dwarfed here by the height from which the photograph was taken, are gardens and plantations of fruit trees



Henry Leach

SPAIN REPRODUCED IN AFRICA: THE PLAZA DE ESPANA IN TETUAN

With its numerous minarets and lofty citadel overshadowed by the sandstone rocks of Jebel Dersa, the old part of Tetuan seems to be purely a town of the Orient unmarred by any European alterations. The town has 30,000 inhabitants and is the capital of the Spanish zone and the seat of the Moroccan Khalifa, who reigns under the High Commissioner of Spain. In the background is the Customs House just outside the Moorish city and in the centre of the square an attempt has been made to produce the effect of a Spanish plaza. The Residency of the High Commissioner is to the right



John Bushby

MUEZZIN'S CALL TO PRAYER FROM A TETUAN MOSQUE

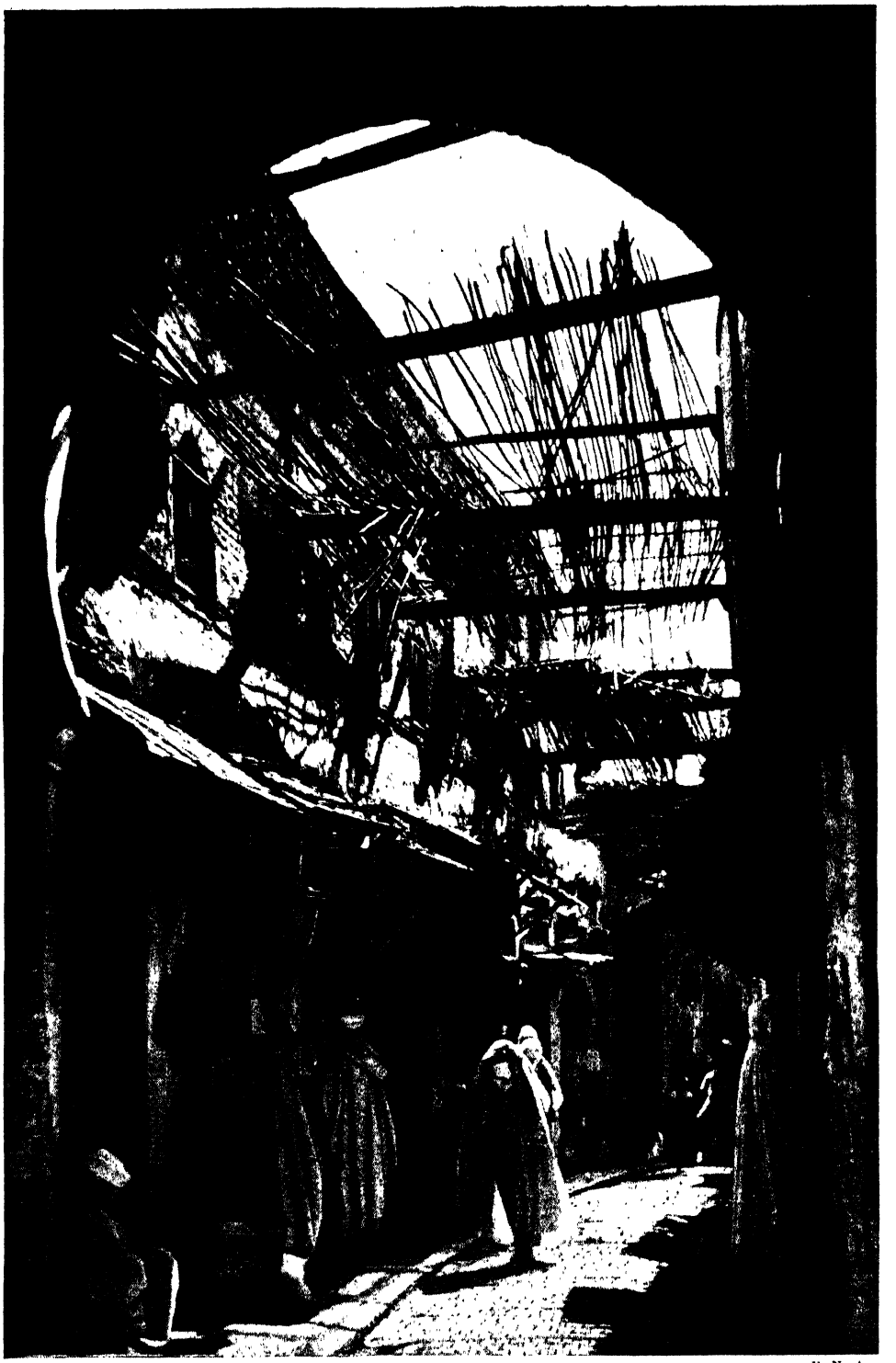
Tetuan is celebrated for its mosques, numbering between forty and fifty, several of which rival in architectural merit the Mahomedan sanctuaries of Tangier. The interiors can be glanced at in passing, but no unbeliever is allowed to set foot within these sacred precincts. At regular intervals the cry of the muezzin is heard calling the faithful followers of the Great Prophet to prayer



John Bushby

NEWS FROM THE COUNTRY IN A CORNER OF OLD TETUAN

The crumbling walls which encompass the old town of Tetuan are garnished with several towers, and some fine gateways give access to the narrow, winding streets, which are essentially Oriental in their appearance, having been little changed by European influence. Tetuan is about six miles from the Bay of Tetuan, on the north-east coast of Morocco



E. N. A.

BARGAINING IN THE SCANT SHADE OF THE SOUKS AT MEQUINEZ

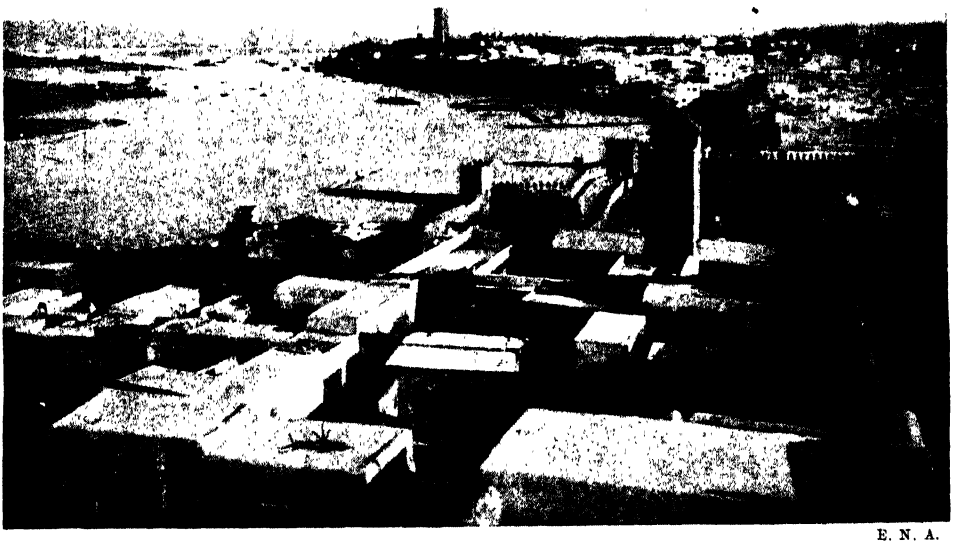
Even scantier than at Fez is the roofing of the souks at Mequinez. Lying in the French zone some 34 miles to the westward of the former city, Mequinez is a place of great interest, being still almost unspoilt, although not untouched by the French progressive policy. Within easy reach of it are the ruins of Rome's old Mauritanian outpost of Volubilis with its 4,000 yards of city wall



E. N. A

STREET SHOPS IN MEQUINEZ, ONE OF THE THREE IMPERIAL CITIES

Mequinez, or Meknes, lies 34 miles west-south-west of Fez in a fruitful valley with the wooded slopes of the Middle Atlas to the south-west. The city has no mean place in modern Moorish history, but still carries a reputation for bigotry and fanaticism. The markets are of little importance, and only the occasional visits of the court rouse the town from its customary lethargy



E. N. A.

FORTIFIED SEAPORT AND COMMERCIAL TOWN ON THE MOROCCAN COAST

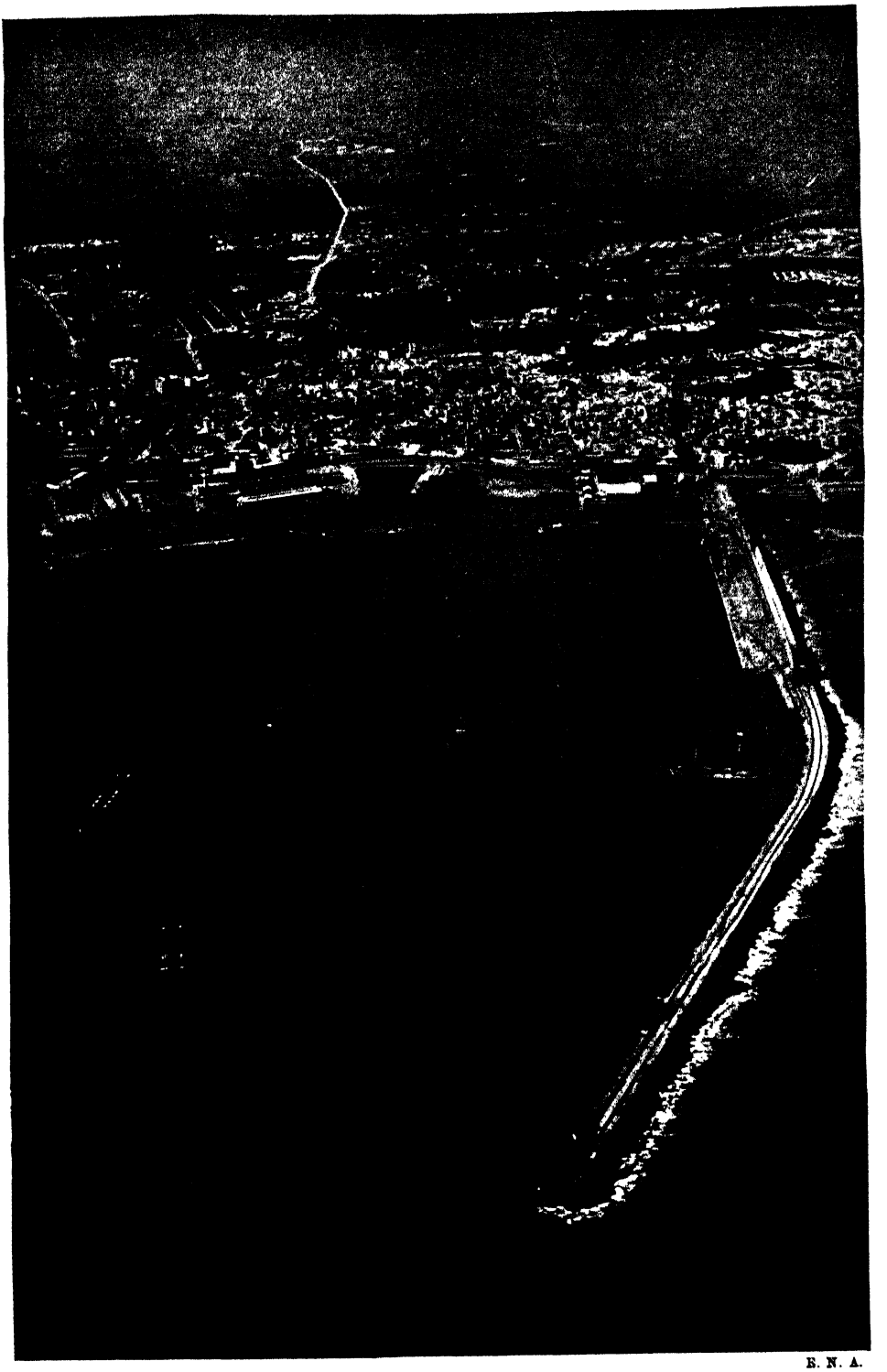
Rabat, once the chief port of Morocco for European commerce, stands, strongly fortified, on the Atlantic coast at the mouth of the river Regreg opposite Sale. Of local manufactures the most important is that of carpets, for which the town was famous in remote times, and excellent Morocco leather is likewise produced, while olive-oil, wool, skins and wheat are among the principal exports



E. N. A.

BUSTLING NOMAD MART, A CONTRAST TO THE CROWDED SOUKS OF THE TOWNS

Buyers and sellers, horses, pack-mules, camels, tents white and black, and merchandise displayed on the ground in the bright sun—all this and more go to make up the animated scene presented by a nomad market in Morocco. A touch of humour is added by the man on the extreme right pursuing with outstretched arms an escaped animal, startled no doubt by the noise of the aeroplane from Casa Blanca from which the photograph was taken



E. N. A.

TOWN AND HARBOUR OF CASA BLANCA SEEN FROM THE AIR

How much trouble has been spent on the perfection of Casa Blanca harbour by piers and this great breakwater can only be adequately envisaged from the air. The town has extensive industries of its own and is the outlet for all the exportable produce of the district, to which there is communication by railway—to Rabat and Fez on one side and Seltat and Maadwa on the other

or esparto grass and sell it in the open space that serves for market, whence, after selection and bundling, it goes off to Europe. Ere summer comes it is often very warm at Gabes and then one may bathe in a brilliant sea and lounge to dry on splendid sands. And so on to many other phases of delight. The tranquillity is perfect. Here is a place for resting, and not for violent touring.

When I think of all I have seen in North Africa, and make a mental list of places that "whatever happens" I must linger in at least once more, up comes Gabes at the beginning with its most subtle appeal to my senses, and its name is written. Besides, for the strenuous days there is Medenin, only a half day's journey distant over the desert waste, and here is a strange village where in what they call the "ksar" the houses or caves are like holes, fastened to each other as if they were a mass of big tubes, with entrance only at one end, and the inhabitants must needs climb like monkeys up the walls to gain admission to many of the holes above.

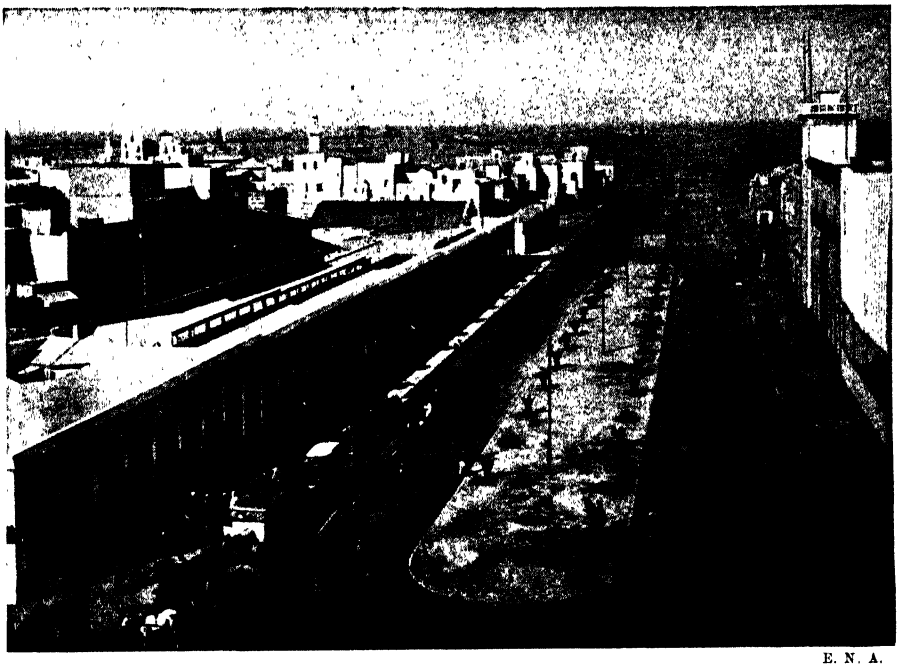
We are moving far from civilization here, and again when on another adventurous day we track the desert plain to the country of the Matmatas, who are troglodytes living in holes deep in the earth. Looking over a patchy, broken waste of sand one sees nothing but a lonely palm or two, and then, a little strangely, perhaps a small mosque, and elsewhere a building of smaller pretensions which is found to be a synagogue; but below the surface is a large community, amounting to the population of a fair-sized town, and in this manner they have lived for centuries, for their better protection from both man and beast, and incidentally because their cave habitations are warm in winter and cool in summer.



E N A.

CASA BLANCA, AN IMPORTANT OUTLET FOR MOROCCAN COMMODITIES

Situated on the Atlantic coast between Rabat and Mazagan, Casa Blanca has a large maritime trade. Cattle are brought from the neighbouring district to this centre, while the fertile regions supply it with grain and wool. Built by the Portuguese in the fifteenth century, the town was definitely occupied in 1907 by the French, under whose secure rule trade has gradually increased



E. N. A.

CASA BLANCA, THE GREAT COMMERCIAL CITY OF FRENCH MOROCCO

Over the ancient Arab town of Dar el Beida has risen modern Casa Blanca, the port of French Morocco. As a result of skilful engineering applied to its naturally suitable position, Casa Blanca has a large harbour in which ships can anchor in from five to seven fathoms. The annual trade of the city is valued at over £3,000,000. Above is the wide main street leading down to the wharves

A small hole in the surface admits to a gallery leading down steeply to a place like a rough courtyard which opens to the sky, and round here at the bottom are the entrances to the caves for living and the caves for sleeping. The latter are remarkable in their arrangements, with their rough bedding laid on narrow trestle-like affairs, painted white with a pretence to a design, the sleeper lying upon them like an effigy upon a tomb while the back wall of his chamber is invariably decorated with common plates, empty pickle bottles and the like, which have been honoured and preserved for long past as treasures from the land of civilization.

The surprising thing is that these people, the males at all events, are wonderfully clean and well kempt. I have found some of them, primitive though they be, with the manners of urbane gentlemen, even though, of course, entirely illiterate and with minds thousands of years behind in all matters that do not pertain to the growing of olives, which they sell, and the gathering from their local resources of the few necessities of their existence.

From Gabes it is possible to cross over to Tozeur, via Gafsa, another oasis full of special character; but it is a hard and wearying journey this way and I scarcely recommend it. However, the automobiles and the caterpillar autos are now making many differences. Southern Tunisia is in all respects splendid for travellers and sportsmen—good shooting—and both British and Italians have found that there is business there as well.

Returning north, Sfax is a flourishing seaport with a large French town built outside the untouched Arab "medina" which has good souks with a character of their own. Farther north is Susa, somewhat more careless in appearance and perhaps even in appointments, both native and French. Between Sfax and Susa is El Djem where, in immense solitude, only a tiny Arab village clinging to it now, is the Roman amphitheatre, once the

pride of the city of Thysdrus, which has disappeared. It is the finest Roman monument in North Africa and though the Colosseum at Rome could hold a few more people, this is better preserved. It would contain 60,000 spectators, hence more reflections and ruminations upon the past and present.

North of Susa is Kairwan, the African Mecca, a holy city with the Grand and other mosques on the largest scale, which Christians may enter, a privilege denied to them at Tunis, and mosques in general to the number of 390. The French have properly and considerately held off their hands from this place and, with many remarkable interests, it is unspoiled.

My last words in this sketch of North Africa shall be given to Tunis—"Tunis la Blanche"—the city of many delights. Its "medina" is perfect and unspoiled. The real East can show nothing better in souks or bazaars. Outside, the French city has all the conveniences of modern life. It has a French theatre, an Italian opera, cinemas, a casino, good newspapers and a band to play in the shaded avenue near the Residency in the warm afternoons.

Half an hour away on the tram or light railway is Carthage in full ruin, offering problems in archaeology which anyone may ponder when he has ceased to marvel at the beauty of the situation looking across the sapphire and turquoise waters of the bay to the mountain of Bou Cornin, of evil guise and reputation. Only walking distance beyond is perched upon a cliff, all shining white, Sidi Bou Said, the dreamiest little Arab village that one could love to live in, and farther on is the summer bathing resort, La Marsa, where the Bey has his chief palace. Then there is refreshing Hammam Lif, another summer place, at the foot of Bou Cornin, and elsewhere is the public park of the Belvedere, arranged to give fascinating glimpses of white Tunis through masses of trees. From the koubba, a beautiful Arab temple of fine mosaic and other work, one gazes over the trees to the white city, about which at the setting of the sun curious iridescent lights begin to float, until a strange soft violet mist, most delicate, enwraps it. The moment of the sunset call of the muezzin comes, and the Arab on guard in the koubba falls to his knees in prayer.

BARBARY STATES: GEOGRAPHICAL SUMMARY

Natural Divisions. As a whole, the European part of Africa between the Sahara desert and the Mediterranean Sea. A gridiron of mountain ridges and valleys, the whole forming part of the great Old World system of tertiary folded mountains. Cf. Andalusia. One considerable lowland between the Rif and the Great Atlas.

Climate. A winter rain region. Atlantic westerlies in winter clothe the mountain-tops with cloud and bring rain in decreasing quantities eastwards. Temperatures, always warm in winter, are less extreme between day and night and between winter and summer near the coast.

Products. Wines, olives and olive-oil, figs, wheat and barley are essentially Mediterranean. Dates and esparto betoken the influence of the Sahara. Phosphatic minerals are a sign of the dry climate. Cf. Chilean nitrate. Copper, lead and similar metallic ore bodies are due to the mountain folding. Cf. Andalusia.

Communications. The main east-west railway from Gabes to Morocco City, with numerous branches. Automobile passenger traffic is developed on the roads. Caterpillar automobiles are in increasing use for desert and semi-desert transport. Casa Blanca, Algiers and Tunis are important Mediterranean seaports. Algeria provides a starting point for caravan, automobile and air transport across the Sahara to French West Africa.

Outlook. A French domain; an outlet for French emigrants from South France; a complementary extension, for products of the soil, of Southern France. A comparatively densely-peopled land, with abundant natural resources, the Barbary States will increasingly provide food and raw materials to the manufacturing populations which will relatively predominate in Northern France as in Western Europe generally. If, as has been stated, Europe ends at the Saharan edge, European France includes the Barbary States.

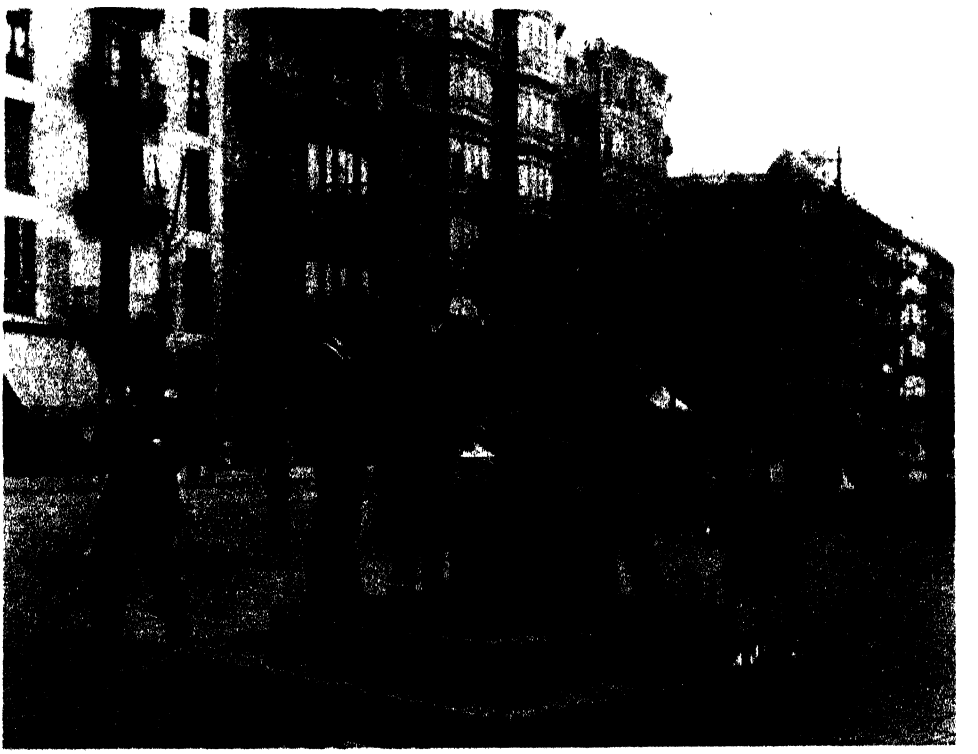


BARCELONA. *At the north end of the broad Salón de San Juan this fine brick-built Arco de Triunfo commemorates the Exhibition of* 1888

Photos on pages 622 3 and 626-8, Ernest Peterffy



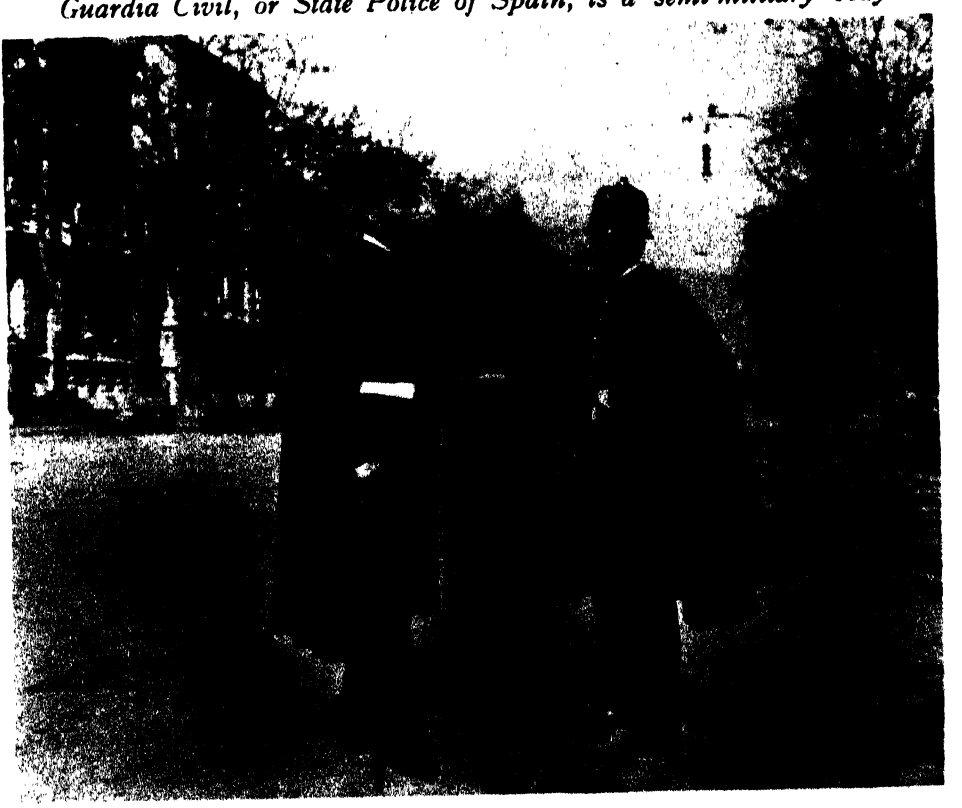
Goats share the streets of Barcelona with the human throng. Twice a day they are driven through the city and milked before the houses



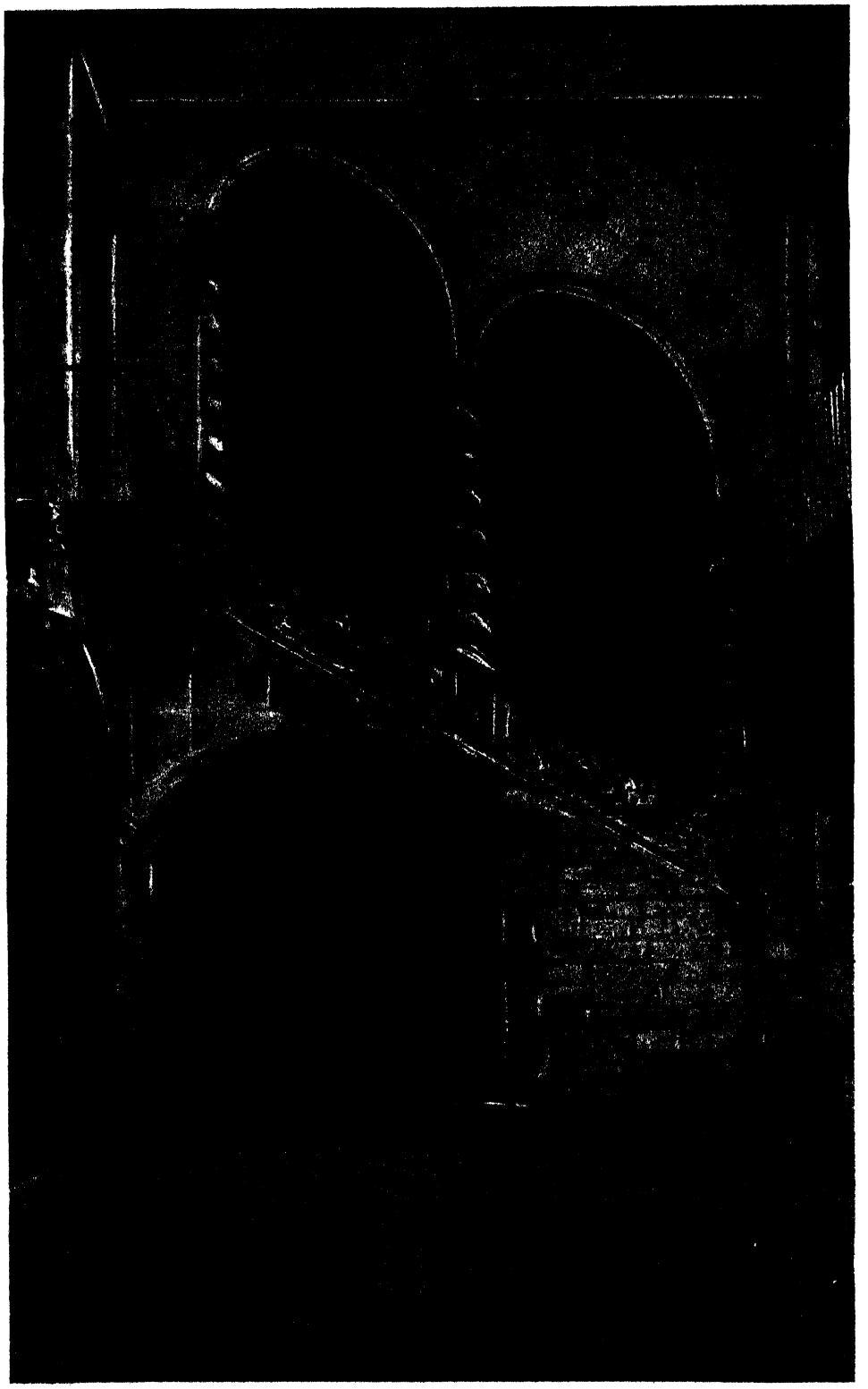
BARCELONA. *This fountain surmounted by the figure of a boy stands near the Plaza de la Universidad in the north-west of the city*



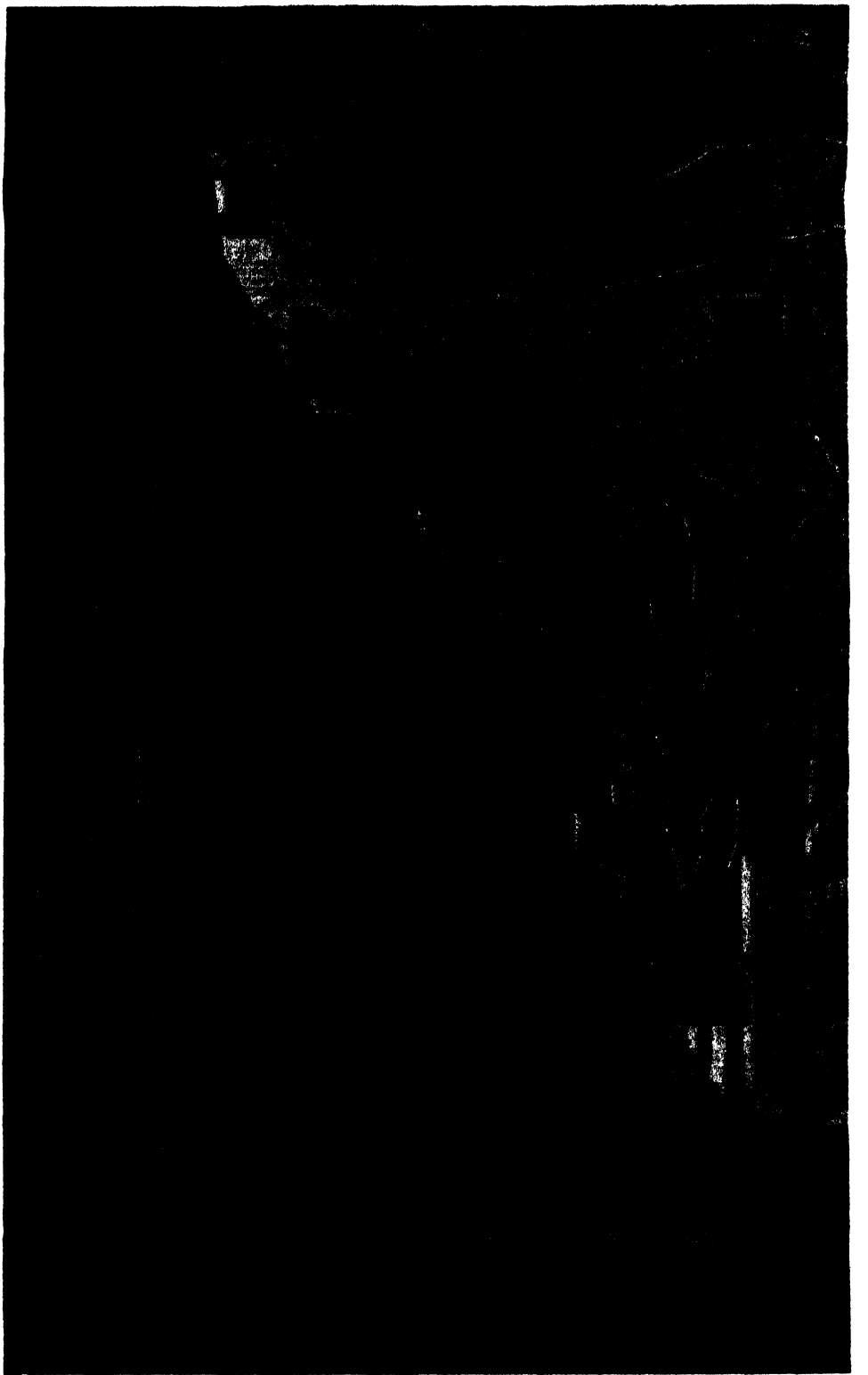
Modelled upon the gendarmerie formed in France in 1791 the Guardia Civil, or State Police of Spain, is a semi-military body



BARCELONA. *An integral part of the Spanish police system, the Urbanos or city police are charged only with the control of the traffic*



BARCELONA. *Twisted columns and panels in high relief glorify the staircase in the patio of the Casa Dalmases in the Calle Moncada*



J. Laurent

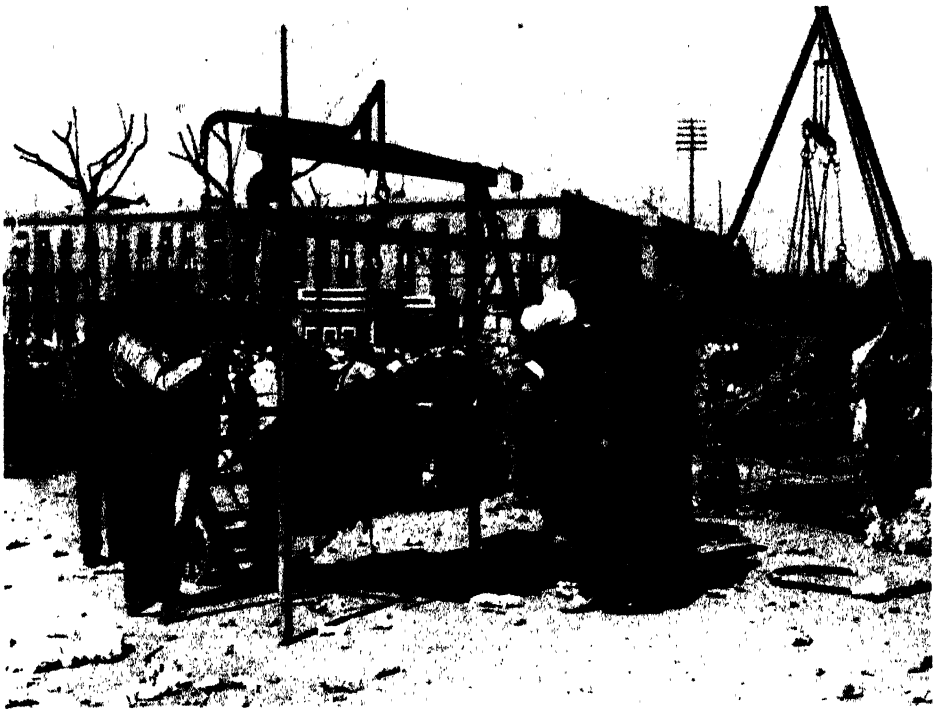
BARCELONA. *Entered by a short stairway, the convent of Santa Clara in the Plaza del Rey was once a palace of the Kings of Aragon*



Beside the fine International Hotel in the plaza named after him the statue of Antonio Lopez faces the broad palm-lined Paseo de Colón



BARCELONA. *Caged birds are exposed for sale in the Rambla, the cages being frequently cooled by watering in the heat of the day*



The "Manchester of the Mediterranean," Barcelona is Spain's industrial capital. In the cotton market bales are weighed in the open



BARCELONA. *Massed displays of fresh flowers make the Rambla de las Flores a lovely way of colour and scent in the early morning*



BARCELONA. *All the main tramway routes of the city converge upon the central Plaza de Cataluña. This is a magnificent open space planted throughout with palm trees and always full of animation*

BARCELONA

The Manchester of the Mediterranean

by Henry Leach

Author of "Spanish Sketches," etc.

BARCELONA is a maritime, commercial and industrial city of first-class European rank, with a population of about three-quarters of a million. Occupying a sheltered position high up on the north-east coast of Spain, it is the capital of a province to which it lends its name, and it is the chief city of the larger region of Catalonia, spreading towards Aragon in the west and Valencia in the south. It received its name and foundation from Hamilcar Barca, the Carthaginian, and is one of the brilliant few that claim construction by the gods.

Most folks visit Barcelona with only one clear notion or piece of information about it, which is that this is the part desiring separation from Spain, and also that it is the citadel of the anarchists, a city where men might wear masks and keep both knife and revolver at their hips, one where the new visitor feels he should "walk in fear and dread, turning not his head, knowing that a frightful fiend doth close behind him tread."

Industry Served by Pleasure

Instead, on the first morning, sauntering down the leafy, flower-laden Rambla, we perceive that this is one of the loveliest streets in all the world, that the people are pleasant, intelligent, keen and busy, that order, method and elegance predominate, that comfort and convenience are well served, that there is a little music in the soft, soothing air and that an atmosphere of peace and beauty envelops all. Barcelona achieves its effects quite naturally and with no preparations whatsoever, for it is above all a place of business and of the pursuits and pleasures that are concomitant to the business life in a successful and well-found community.

It would be wrong, however, to assume that Barcelona is without distinction other than that of successful modern industry and commerce. On the historical side it has done all that a good and great city is expected to have done in the ancient times, and more. Here in the thirteenth century was promulgated the famous code of sea-commerce law known as the Consulado del Mar, which served as the maritime standard everywhere.

City of Poetry and Progress

Ages in front of all others Barcelona claims to have invented and worked a steam paddle-ship, with a paddle-wheel at each side and a boiler in the middle. That was in 1543, and Garay was the man, the chief of state being the famous Emperor Charles V., who, being busy with politics, turned it down. While through the ages Barcelona has been busy, keen in its commercial pursuits and prosperous with its riches, it has enjoyed life in its own way. It did a little, but not more than enough, decoration of public buildings; also the Provençal troubadours with their songs of love and war swarmed this way south and found many generous patrons.

Modern Barcelona is not less proud than before, not less ambitious and not less discontented. Beautiful as ever, it glistens on the slope leading gently upwards from the shore towards the hills of Tibidabo, with Montjuich bearing a public park and exhibition grounds on one side, and the Montañas Malas on the other. Around are well cultivated areas, villages dotted freely on the landscape, with orchards and gardens in profusion, and, between them and the city, the humming

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PLAN OF THE MARITIME CITY OF BARCELONA

suburbs where are established the great cotton mills which are the feature of Catalan industry, with machine factories and other items of advanced production. Here Barcelona turns out textiles, well made and tastefully patterned, in a vast abundance.

Barcelona is the Manchester of the Mediterranean, and in one respect at least it is vastly superior to any other great manufacturing city, for, as though planned by an idealist, it keeps all its mills and workshops away at its outskirts, showing within no chimney or anything that is greasy or unpleasant.

Here we have one of the best all-round climates in the whole of Europe. There are only some seventy rainy days in a year. Rarely does the thermometer rise above 90° F. in the summer, and two or three degrees of frost at the utmost pressure of winter is the worst known in the way of cold. Snow is very rare. For the most part the climate is mild and suave, sometimes with a noticeable touch of moisture in it coming from the sea, but agreeable nearly always.

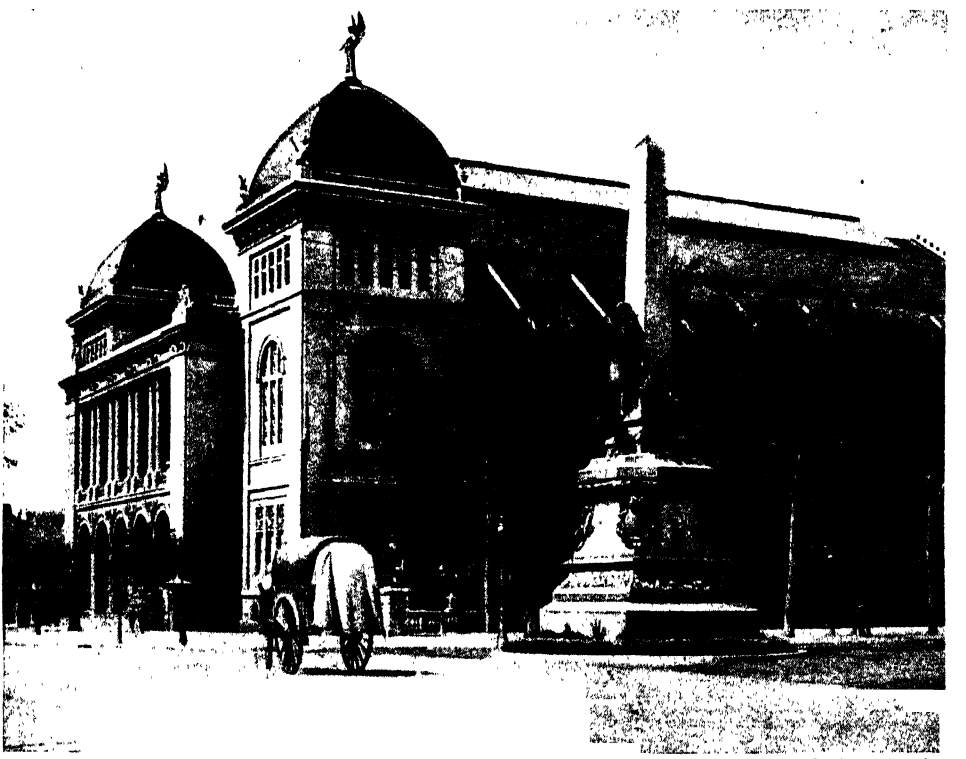
At the end of the main street, the Rambla, is the harbour, which, with its 300 acres, is bigger than all the three harbours of Marseilles, and here a quarter of all the maritime business of Spain is done. It is one of the largest and best equipped ports in the Mediterranean, with something like 1,750,000 square yards of enclosed water space and 10,000 yards of quays, well equipped with the best machinery and implements for loading and unloading

and good warehouses. Coal and raw cotton enter in enormous quantities; wine, oil and cork are shipped away, and from here depart the big ships of a great transatlantic line that maintains a regular service with South America.

Having nearly always been well-to-do or rich, Barcelona has for the most part dedicated its gains to the possession of means of plain comfort or luxury, and taste has not conduced to any pride in exterior display. In the newer Barcelona that has risen northwards and is increasing there is a fine elegance: good roads, shops in the avenue like the best anywhere, pleasant cafés where teas are nicely served with music and young Catalans are in the habit of meeting in the afternoon.

Barcelona also has its cathedral, a fine Gothic creation, standing where once stood a Roman temple and then a Moorish mosque; and it is a good, well-shaped cathedral with, as the experts assure us, many very bad patches in it. The most is made of its lighting and its proportions are so arranged that it shall convey the impression of being greater than it really is, as to which there is a hint for us before entering, for the cathedral stands high and we rise to the doors by a flight of some eight steps.

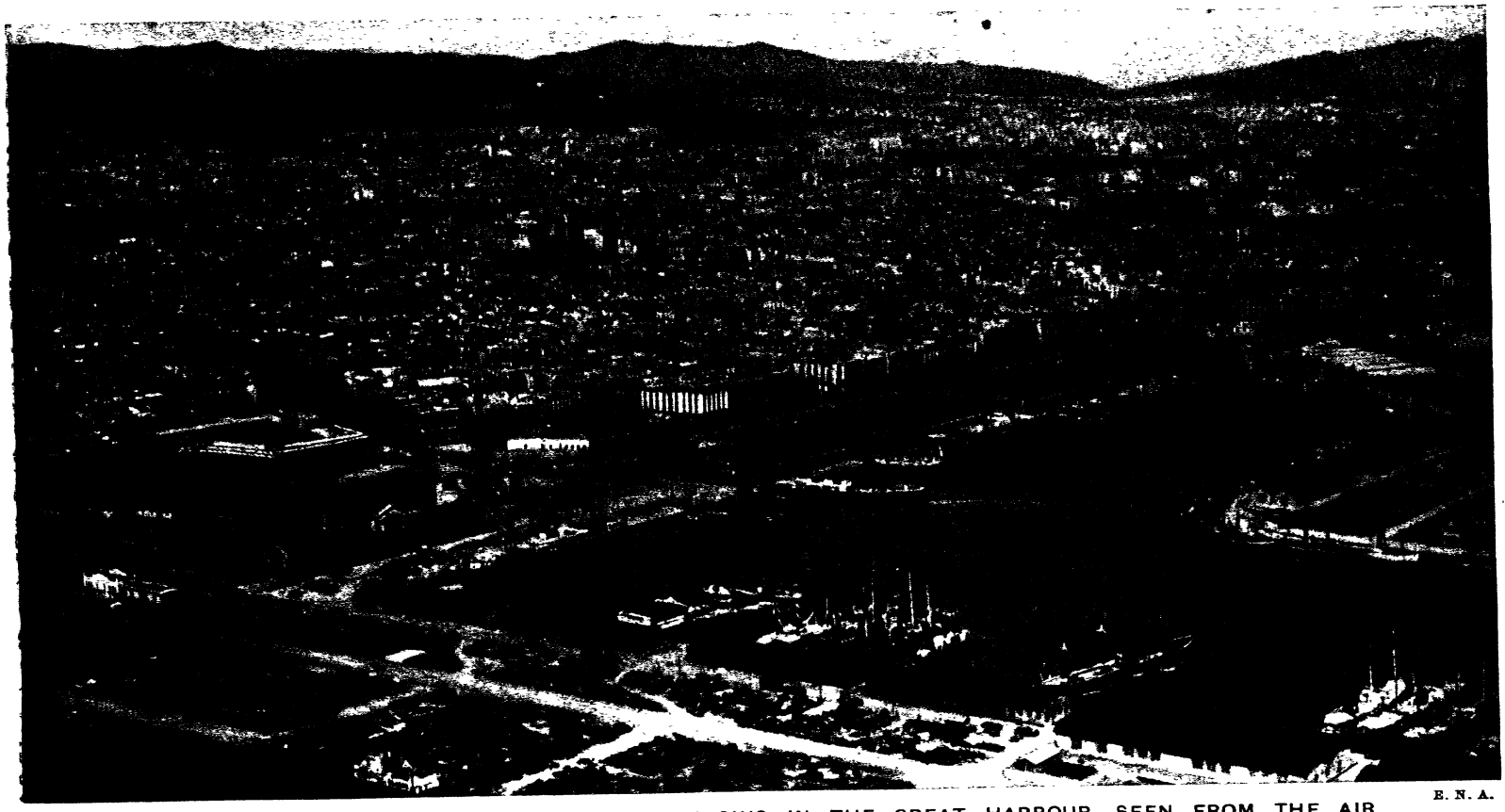
One cannot help feeling that, for all its merits, well extolled as they are, the cathedral here is without distinction, and the unvulgar mind is assisted to this negative impression by discovering some time later that a best-remembered feature is the geese that roam and quack in the handsome cloisters where they have a water-basin of their own. This cathedral has to be searched for along side streets, and it does not and could not dominate the view, the air, the life, the spirit of the city, motheringly yet sternly, as do the



Realistic Travels

PALACE OF THE FINE ARTS SEEN FROM THE PARQUE

Though primarily a city of commerce and industry, Barcelona has by no means neglected the cultural side of its development and can boast many fine buildings devoted to the arts and sciences. The Palace of the Fine Arts graces the Paseo de Pujadas which runs along the west side of the Park; in the foreground is the Taulet statue, a memorial of a former mayor



E. N. A.

DARSENA NACIONAL, ONE OF THE THREE BASINS IN THE GREAT HARBOUR, SEEN FROM THE AIR

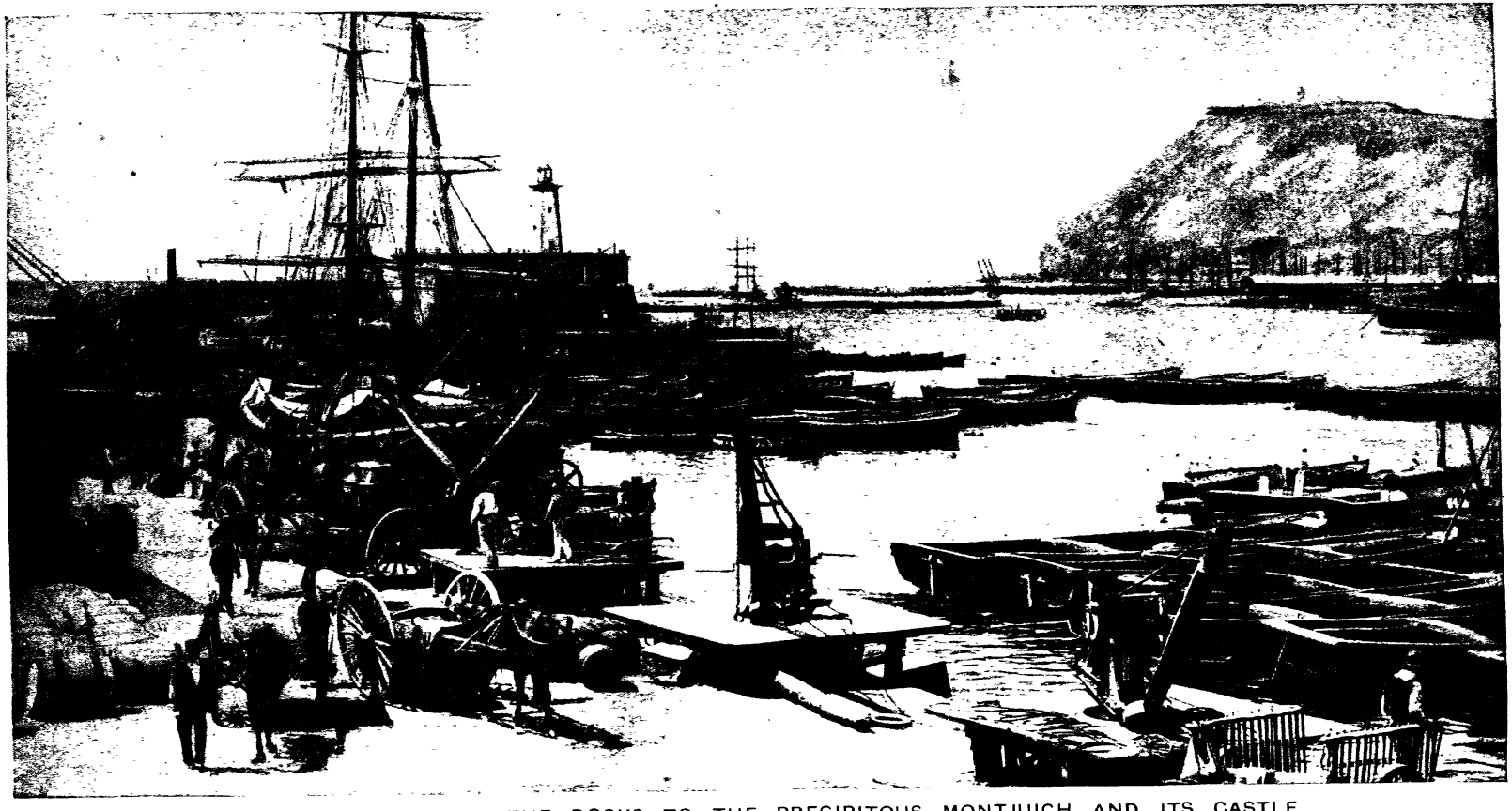
Barcelona has one of the largest ports of the Mediterranean with an area of 300 acres. About a quarter of Spain's foreign trade passes through here, the depth of water varying from four to eight fathoms and giving accommodation for the largest vessels. This aerial view shows in the foreground the broad quay called the Muelle de Barcelona, and beyond, the long esplanade of the Paseo de Colón, planted with palms. The Plaza de la Paz, with its huge 200-foot column bearing a statue of Columbus, can be seen by the near corner of the dock and behind it the dark line of the Rambla, the main street



E. N. A.

STRAIGHT STREETS AND SYMMETRICAL SQUARES OF THE MODERN PART OF BARCELONA

Seen from the air the newer part of Barcelona has more the appearance of a modern town of the New World than of a city of Spain, the country so often thought to be unprogressive. Standing at the end of the boulevard-like Salón de San Juan is the Triumphal Arch with the Palace of Justice immediately below it in the photograph. Emerging on the left of the square are the Ronda de San Pedro and the Calle de Trafalgar. When it passes the Triumphal Arch on its way into the newer, more mathematically planned part of the city, the Salón de San Juan becomes known as the Paseo de San Juan

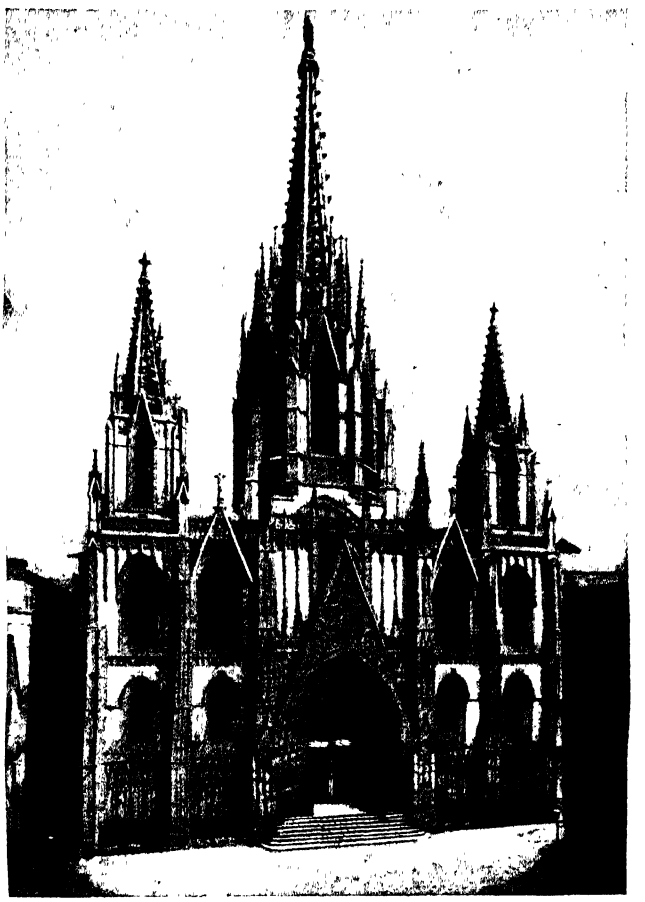


LOOKING OVER FROM THE DOCKS TO THE PRECIPITOUS MONTJUICH AND ITS CASTLE

Until comparatively modern times all the harbour seen in this photograph was shut off from the open sea by a great bar. This stretch of sand excluded all but light draught ships, and it was not until 1873 that sufficient progress had been made with mole building to form adequate harbourage for vessels of heavy tonnage. Since then a great area has been embraced by moles projecting far beyond the sandbank so as to include deep water within their protecting walls. Beyond is the great mass of the Montjuich, 755 feet above the sea, called Mons Jovis by the Romans and subsequently named after the Jews who dwelt there

cathedrals of Seville, Santiago, Toledo, Burgos and other cities in Spain. Yet the Catalans are, in the common phrase, thoroughly "good Catholics."

Probing into the nature of Barcelona's expression of her economic power and capacity, we find here more and better opera than in any other part of Spain, even than in Madrid itself. The Teatro del Liceo, on the Rambla, is one of the finest opera houses in the world, well appointed, better in nearly every way than the Real of Madrid, yielding a long, full season during which the classics and occasional good new works are presented by the best singers that Milan and Naples can send to a sympathetic city.



FACADE AND SPIRE OF THE CATHEDRAL

A fine but not quite successful example of the Spanish Gothic style, the cathedral is dedicated to the Santa Cruz, and was built between 1298 and 1448. The octagonal spire is a modern restoration, but the two transeptal towers are medieval

Arriving in Barcelona in the early evening from somewhere down the east coast, one proceeds to a performance of "Manon," and notes again not only the quality of the house and of the production, but the bold, impressive and yet not too ostentatious display of Catalan wealth in the boxes, in the corridors at entering and leaving, and when waiting for motor-cars afterwards.

The male head of the family has the unmistakable air of the highly successful man of commerce—solemn, plain, very substantial; the wife is matronly and elegant to match, and there are daughters and perhaps the son who is in the business also. The social gallant is not absent, but there is a conspicuous lowering of his place and importance as compared with Madrid. The financial status of Barcelona is displayed here at nights most effectively; as at Milan, and again in a different degree and with a changed complexion at Manchester, one feels the consoling atmosphere of successful commerce—that business is business and that money talks.

When Barcelona is brought suddenly to remembrance a picture of the Rambla is flashed the first, and rightly, for this famous avenue is unique in character. It is big and beautiful, and running north from the harbour and the great Columbus statue for more than a thousand yards upon what in ancient times was the bed of a stream (the Arabic word for sand is "raml"), it is now the course of life, the spine, the popular promenade of this industrious and well appointed city. There is a broad central



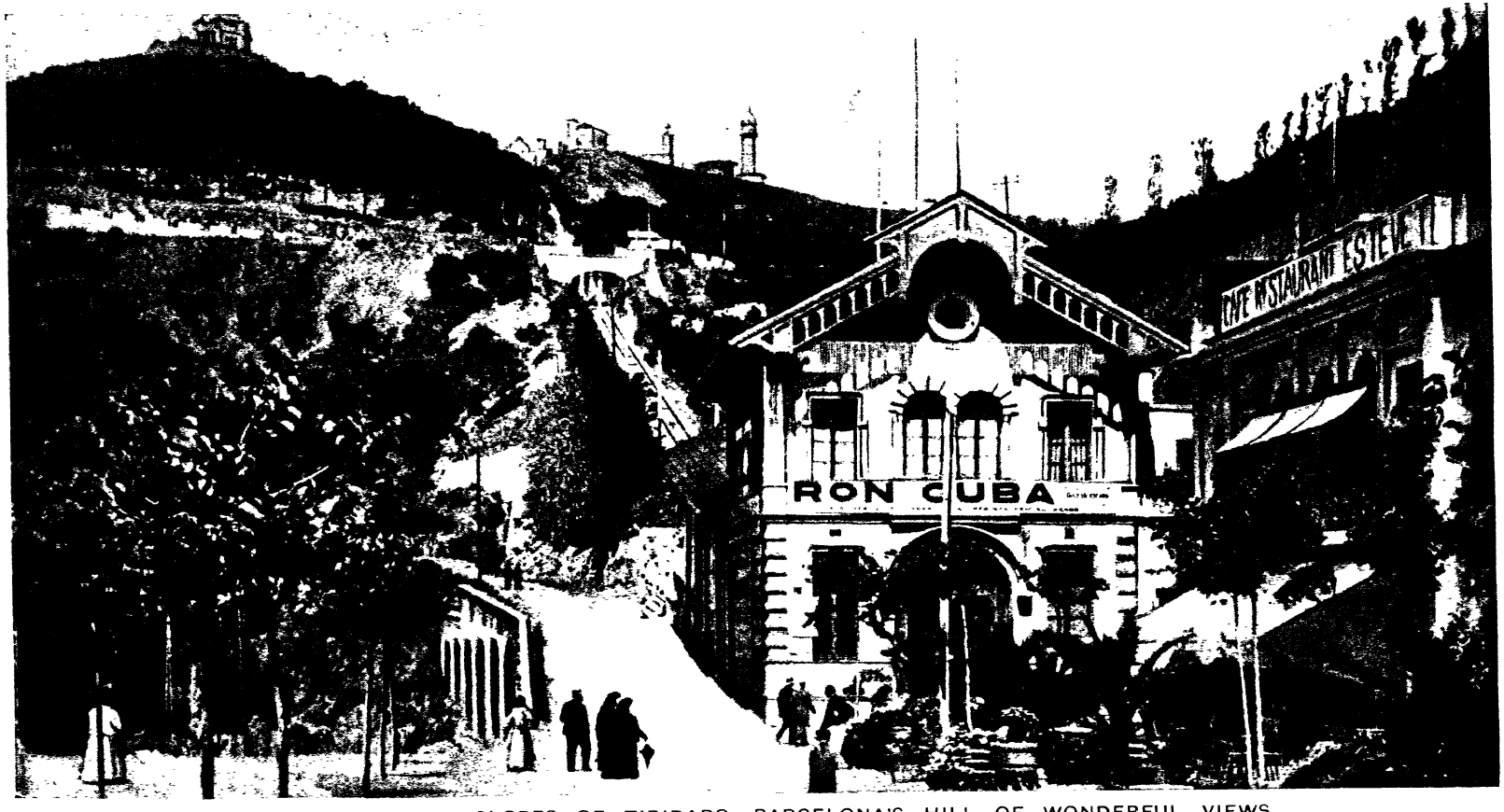
LOOKING UP THE CALLE DEL HOSPITAL FROM THE LLANO DE LA BOQUERIA

Calle del Hospital or Hospital Lane branches off to the left from the Rambla at the Llano de la Boqueria and finally leads up to the Calle del Carmen and the western parts of the city. The Hospital de Santa Cruz lies on the right-hand side, and this street also contains the fine pile of San Agustin's Church. The whole thoroughfare, narrow and crowded, is one of the original streets of the old city, and is a reminder of the cramped quarters in which the inhabitants were forced to live when the Bourbons enclosed Barcelona with walls in the eighteenth century, to the indignation and inconvenience of the townsfolk



STREAM OF BUSY LIFE THAT POURS AT ALL HOURS ALONG THE RAMBLA DE ESTUDIOS

What is known in general as the Rambla cuts through the heart of old Barcelona from the Plaza de la Paz by the sea to the Plaza de Cataluña, and is the most popular promenade of the busy city. But its name varies throughout its length : here we are looking northward along the section bordered on the west by the Academy of Arts and Sciences and the Church of Belén, and known as the Rambla de Estudios. It will be seen that the thoroughfare consists of a shady tree-lined promenade in the centre with tramlines and pavements on either side. Beyond the limits of the old town it is continued as the Rambla de Cataluña



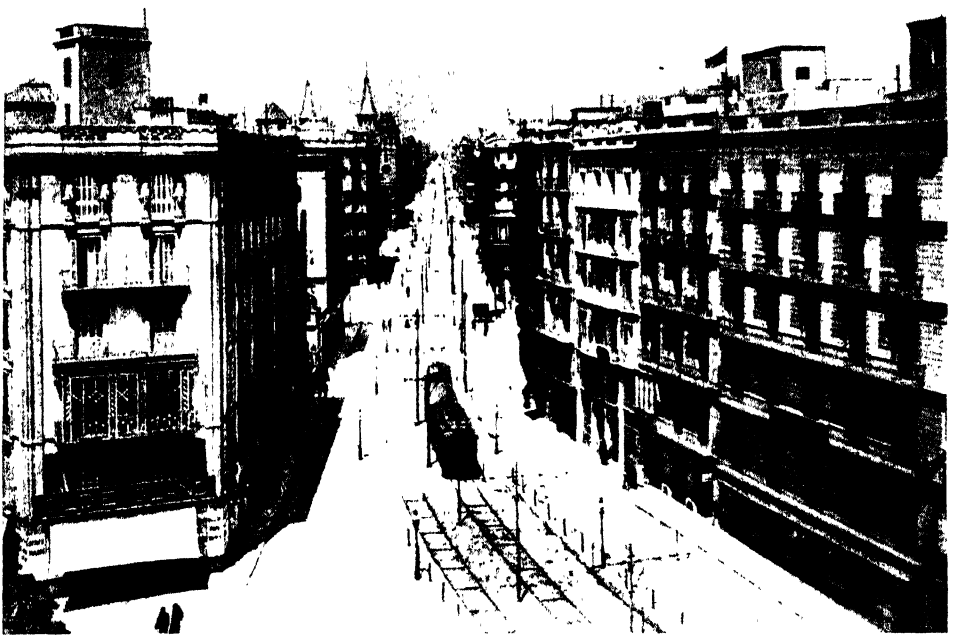
THICKLY WOODED SLOPES OF TIBIDABO, BARCELONA'S HILL OF WONDERFUL VIEWS

About twenty minutes' distance by tramway from the centre of the city is the Tibidabo hill, the highest peak in the range to the north-west of Barcelona. The ascent is made by a cable railway about three-quarters of a mile in length and the view from the top is particularly fine—in clear weather the peaks of the Balearic Islands may be seen, while inland Montserrat and Montseny may be distinguished with the Pyrenees hazy in the distance to the north. Among the buildings on the hill are an observatory, the water tower of the city's reservoir and a restaurant

asphalted walk down which half a dozen careless youths might swing along abreast at eventide—and often do—and at each side there is a track for trams, then the sidewalk and the shops. The middle avenue is bordered with trees, and has kiosks—where the display of London and Paris newspapers is greater even than those of Madrid—and elegant booths for refreshments and iron stands for the displays of the flower-sellers.

emotions for the sweet pathos of it all, and I know of no display to equal just this section of a hundred yards or more in which the flower stands are ranged in order on each side, with the order, like good art, concealed.

Here with the sun of a morning arrive comely, nicely mannered Catalan women and girls with their baskets of roses, of carnations, of pure lilies, of the flowers of seasons, flowers of golden



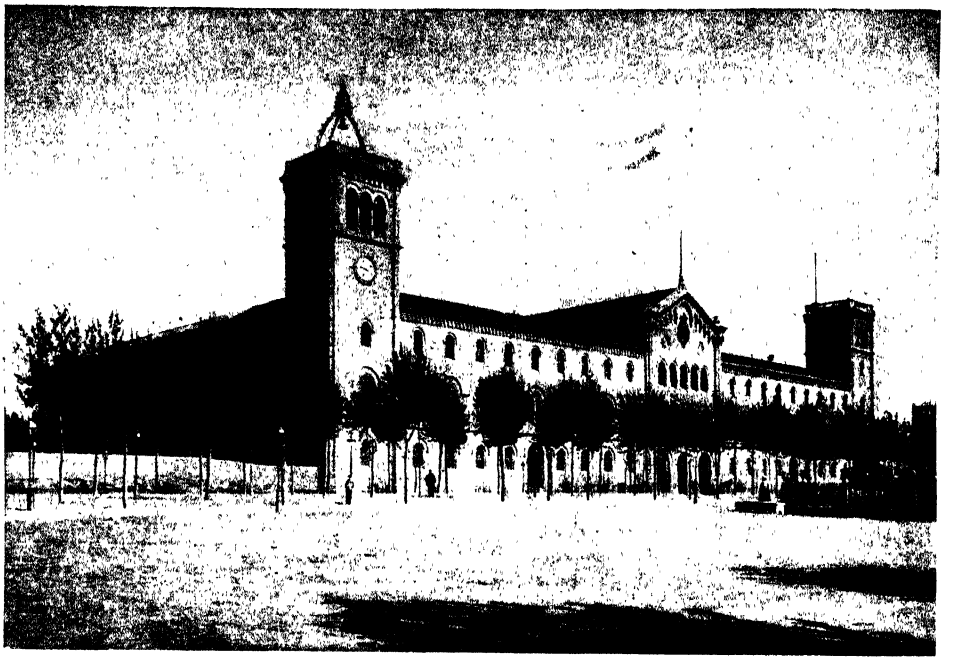
ONE OF BARCELONA'S FINE STREETS THAT RISE GENTLY TO THE HILLS

Barcelona is built upon a somewhat uneven plain which is tilted slightly towards the sea. Thus one may often get a glimpse, such as this, of the distant heights of the Tibidabo hills or of the Montañas Malas along one of the many fine roads that run north-westward from the Ronda de San Pedro. Here is seen one of the newer quarters; in the central parts the ways are more crowded

The avenue varies its name at different stages. In its beginning it is the Rambla de Santa Monica, then it becomes the Rambla del Centro, and next the Rambla de San José, which is official, while the popular and better title for this section is the Rambla de las Flores. San José is very well, and the splendid covered market just back from the Rambla on the left also takes the name; but what of the flowers in the morning here in the Rambla de las Flores? Such mass displays of lovely blooms, fresh from the gardens, brought alive to the stony cores of cities, touch our

yellow to purple, greenery for natural harmony, ravishments of colour and beauty, and the women deck these stands with witful skill fostered by long experience. The schemes of colour blending and contrast, the arrangements, and the neatness and politeness of the women and girls make our morning walk along the Rambla a thing we would not willingly miss.

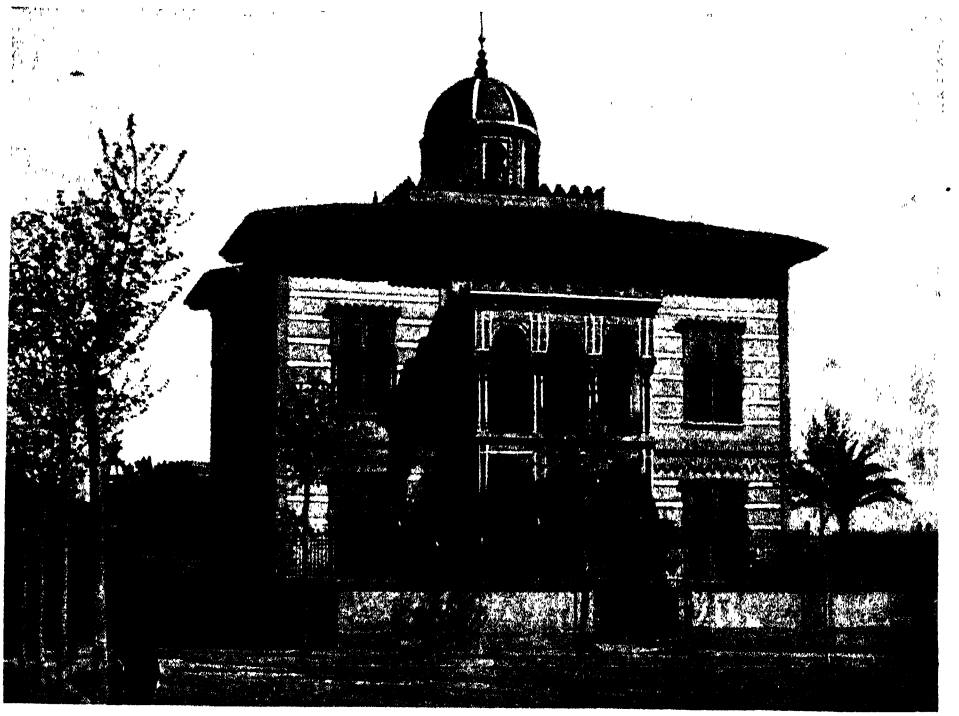
Higher there is the Rambla de Estudios, and then of Canaletas, and so out into the big Plaza de Cataluña, with the broad avenue of the Paseo de Gracia leading from it on the other side, the



J. Laurent

PRESENT HOME OF BARCELONA'S ANCIENT SEAT OF LEARNING

Barcelona has been a university town since 1430, with the exception of a period (1717-1842) during the Catalan oppression, when the seat of learning was transferred to Cervera by Philip V. The building seen above, however, is fairly modern, having been completed in 1873; it lies on the western side of the Rambla, and is reached from the Plaza de Cataluña by way of the Calle Pelayo



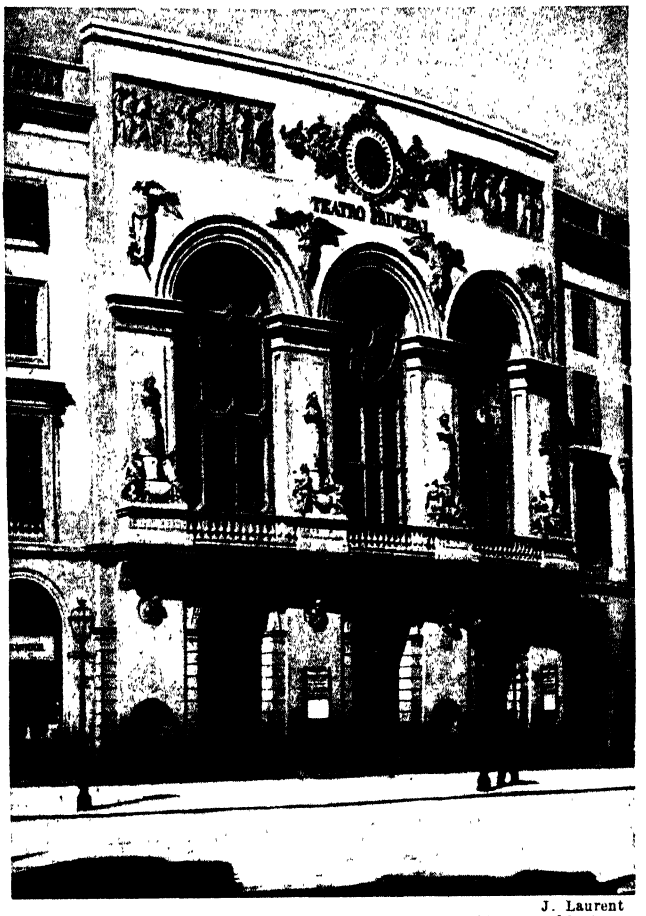
J. Laurent

RESIDENCE OF ONE OF BARCELONA'S COMMERCIAL MAGNATES

Inside the circuit of the walls (now vanished but marked by broad thoroughfares) is the old Barcelona of irregular streets, haunts of business and fashion; without, the town is regularly planned in square blocks. The Ensanche, as these districts are called, are mainly residential with fine avenues and modern villas, of which this one, situate in the Calle de Claris, is an example in the Moorish style

long Calle de las Cortes intersecting that Paseo and running eventually into the Plaza de las Glorias, while from the Rambla along the left of the Plaza de Cataluña goes the Calle de Pelayo, where are the newest shops, quite as smart and elegant as those of any other great city that we know.

When I have cited the Paseo de Colón running along the bottom of the city from the big monument, and mentioned that streets of importance branch off from either side of the Rambla, notably the Calle Fernando VII. which leads on to the quarter where the town-hall (Casa Consistorial) and the cathedral may be found, we may be done with special streets and can return to praise the Rambla, which by day is beautiful and by night is lively, with the best cafés and amusement halls alongside.



J. Laurent

BARCELONA'S CHIEF THEATRE, IN THE RAMBLA

In that part of the Rambla called the Rambla del Centro is the Teatro Principal. It is the headquarters of the drama in the city as is the Teatro del Liceo for opera. Opposite is the Calle de Escudillers, the main business street

One other feature of Barcelona that leaves a strong impression upon the mind after parting from the city is the lofty Tibidabo hill to the north-west of the city and reached by street car to the foot thereof, and the funicular afterwards. There are various items to be noticed at the summit. There are a chapel, a restaurant, a revolving wheel arrangement with cars attached to it by which he who is yet unsatisfied may rise a little higher, and there is a man with a telescope through which you may see the time on a big clock at Barcelona, and specially notice from here, as from nowhere else, the well-ordered manner of straight lines and squares in which the newer city has been planned and made.

But one should finish soon with these, that the traveller's soul in easy, contemplative tranquillity may enjoy one of the richest panoramic views in Europe. There are compact villages dotted everywhere upon the land, eighty of them, blue sea beyond the city, with the Balearics in sight on a clear day, the Pyrenees on the northern horizon (from whose waterfalls shrewd Barcelona gathers electric power for its purposes, as also it does from the rivers), and away in the west the wild craggy peaks of Montserrat, where is the famous monastery, which is but one or two days from Barcelona. But though it be awesome at the monastery, it is not better than seeing from Tibidabo a sunset burning round Montserrat.



E N A

TRIBUTE TO COLUMBUS IN A SEAFARING TOWN

Erected in 1888, the monument to Columbus in the Plaza de la Paz, opposite the Rambla, is liberally encrusted with reliefs and symbolic statuary, and a lift ascends within it to the gilt ball on which stands the effigy of Columbus himself

Characteristics of the Catalans need not be stressed; one sometimes finds that national peculiarities are more easily described than discovered in the flesh. Generalisations are apt to be misleading, but I would say of the Catalan that, as a man of sense, work and business, he has more pride and self-respect than the dallying Castilian, did I not remember my own thoughts upon the Castilians having more pride and self-respect than any others. Business is the keynote always to everything in Catalonia, especially Barcelona. The people are active and their cupidity is strong—they are "on the make." Like others who work and earn, they enjoy comforts. They are not decorative; their costumes are not picturesque; they look more like the English than the Italians, weekdays and Sundays too.

Intellectualism is less noticeable than in Castile, though education is better, and the city is well equipped with institutions. Catalonia is producing a few fine artists who take high honours in the Spanish exhibitions. In portraiture and figure studies, Julio Moíses made a reputation that will pass far from Spain, and the landscapes of Joaquin Mir and Santiago Rusiñol would catch attention in the best of salons. I found at a recent national exhibition at Madrid that out of 364 artists represented, 99 were born in Madrid or near it, 52 in the region of Barcelona and 43 in Valencia. Young Catalan poets are busy with their pens, but neither they nor the novelists are a power in the land as yet.

On the other hand, two of the most popular and justly celebrated stage players of all Spain, Margarita Xirgu and Enrique Borras, are Catalans. Most playing in Barcelona is done in the Catalan dialect, and Margarita Xirgu once explained to me the difficulties she had in learning Castilian—or "Spanish," as we would say—after being brought up on Catalan, which she had to do ere she could practise her profession outside Barcelona.

In some of these points the difference between the Catalan and the Castilian may be discerned, business being business, and ease after hours a demand. It must be remembered always that



Ernest Peterfly

CATALAN INDIVIDUALISM ASSERTS ITSELF IN ARCHITECTURE

Barcelona lies within the ancient province of Catalonia, which has ever been one of the more individualistic of the Spanish states. It still retains a distinctive dialect. Even a special form of building has been introduced as seen in this block of flats, said to be unique in Spain. It is built of stone, the architect being Antonio Gaudi, designer of the Sagrada Familia Cathedral



Ernest Peterffy

IN COMMEMORATION OF A GREAT CATALAN

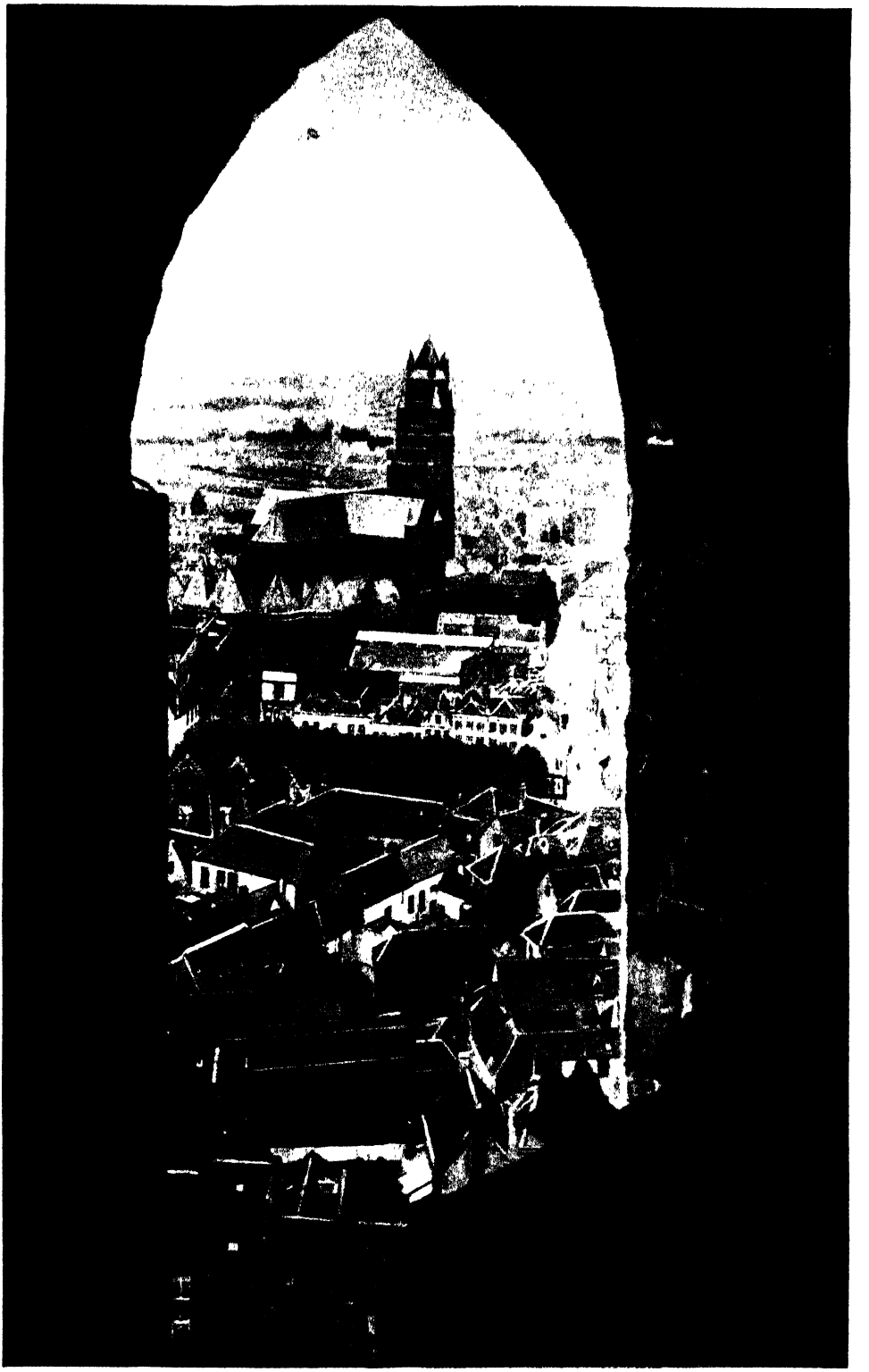
The strange Catalan architecture, also seen in page 643, is exemplified in this pedestal. The monument, in the Plaza de la Universidad, is to Bartomeu Robert, the great leader of the Catalan party who died in 1902

a large proportion of the better class of Catalans are self-made men or come from self-made fathers, and the class below teems with those who hope to make themselves. The average mill-owner began as an operative, or his father was one. A start in individual effort was made with a hand-loom or two, then more and more were added, power was applied, the mill appeared, it grew, and that is the story.

As to the great political question, separation in some form from the rest of Spain, I do not think it fills the mind of the average Catalan to the extent it is supposed to do. It is a matter of politics, and consequently of exaggerations. The great Catalan industrialists and capitalists, finding themselves so much out of sympathy with and irritated by the rest of Spain that does not understand so well that business is business, might like a new and more self-controlling arrangement, but when one listens to speeches two days long in the Cortes in Madrid by such an exponent of Catalanism as Francisco Cambo, new thoughts arise. During effervescences of separatist feeling young Catalans have formed the ingenious idea of addressing letters to the capital as to "Madrid, Spain," or saying to one another that "the post from Spain has come in," and, as the law forbids the use of Catalan for official purposes, these ardent separatists have been known to send telegrams to Madrid in French rather than write them in Castilian.

But when I have wandered in other parts of Spain, enjoying the sense of being something near a hundred years behind the times, taking discomforts for delights, ruminating among austerities, making studies of crimson, sienna and old gold, I am glad to look in on fair Barcelona when going home, and no visit to Spain is nearly complete without a call upon this city. One parts from Valencia with its long streets of little shops, its quasi-Italian courtyards and its Levantine flavour, and later one leaves Tarragona, solid, stiff and sombre, as if the Romans were still in occupation there, and then passing on the railway into Catalonia, suddenly there is a difference.

Progress appears! The first sign of it is in the cultivation, and the second in the railway stations, which are so much better than in other parts of Spain. Then in the hotels of Barcelona there is quality and fair charging. Living is cheaper than in any other city of Spain, because in Barcelona business is always business.



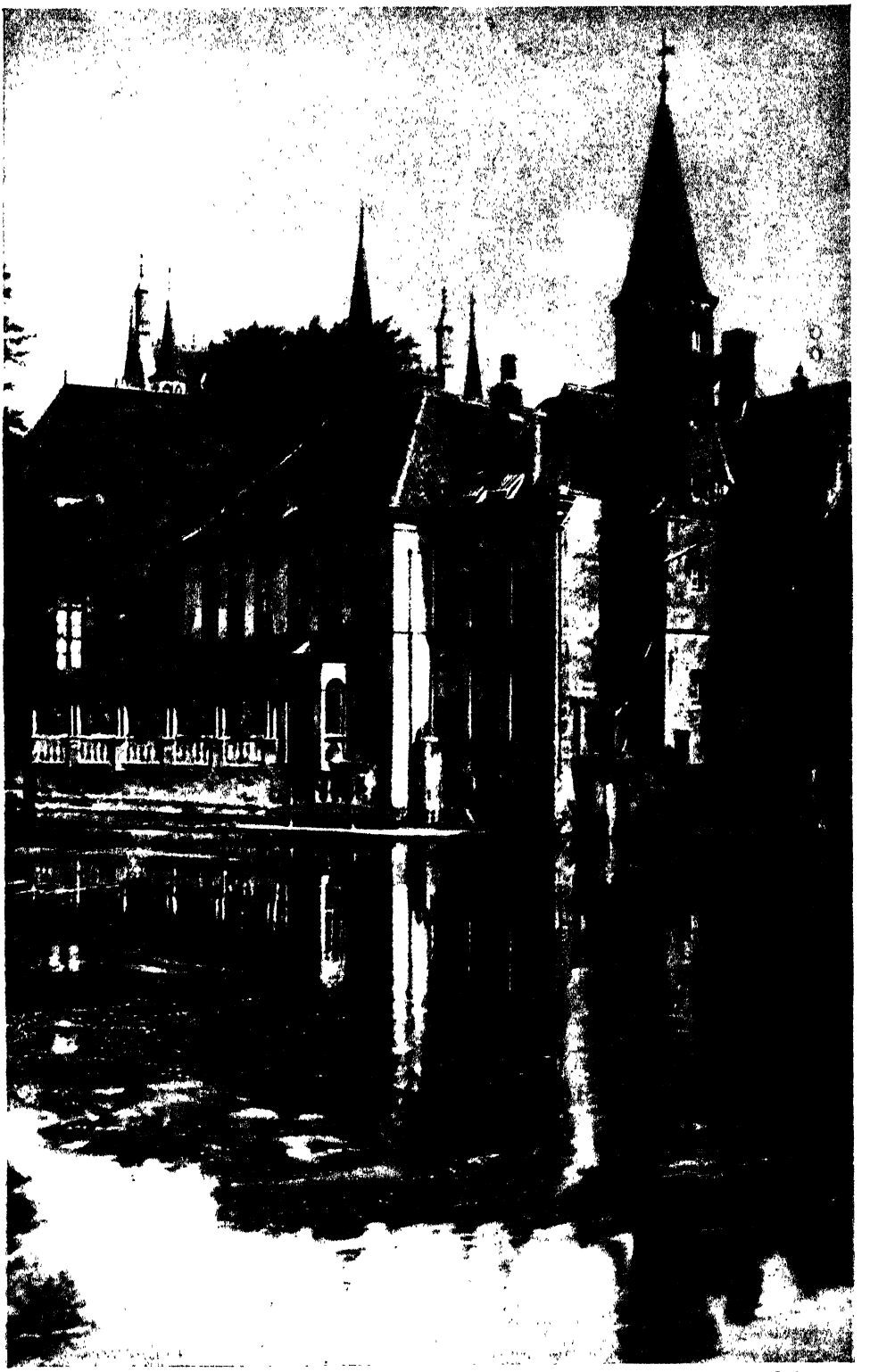
L N A

BELGIUM. *From the Belfry of Bruges wide vistas of Flanders are visible. This westward window frames the cathedral of S. Saviour*



Horace W. Nicholls

BELGIUM. *Quietude has its home beside the Pont Cheval on the Quai Vert of Bruges, where swans float on the Reye's sleepy stream*



Humphrey Joel

BELGIUM. *From any angle the Quai du Rosaire is the best place to study the old domestic architecture of the inner town of Bruges*



BELGIUM. *All over the great flat plain of Flanders a very network of waterways is stretched, dotted with windmills and bordered with poplars.*



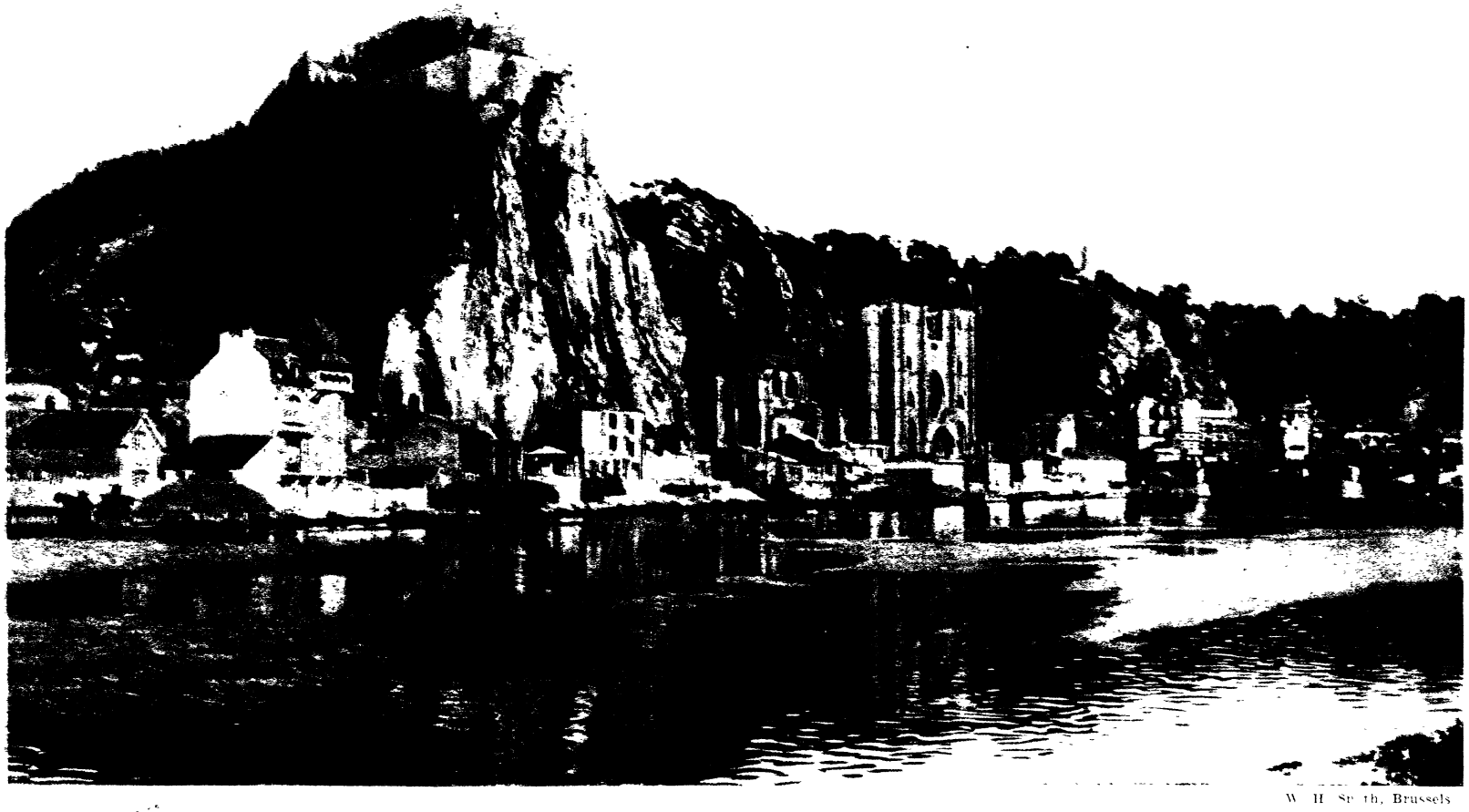
© Ushter Knox

This quiet reach is on the canal that runs between Bruges and Damme, a mere village now but once the fortified port of the capital of West Flanders



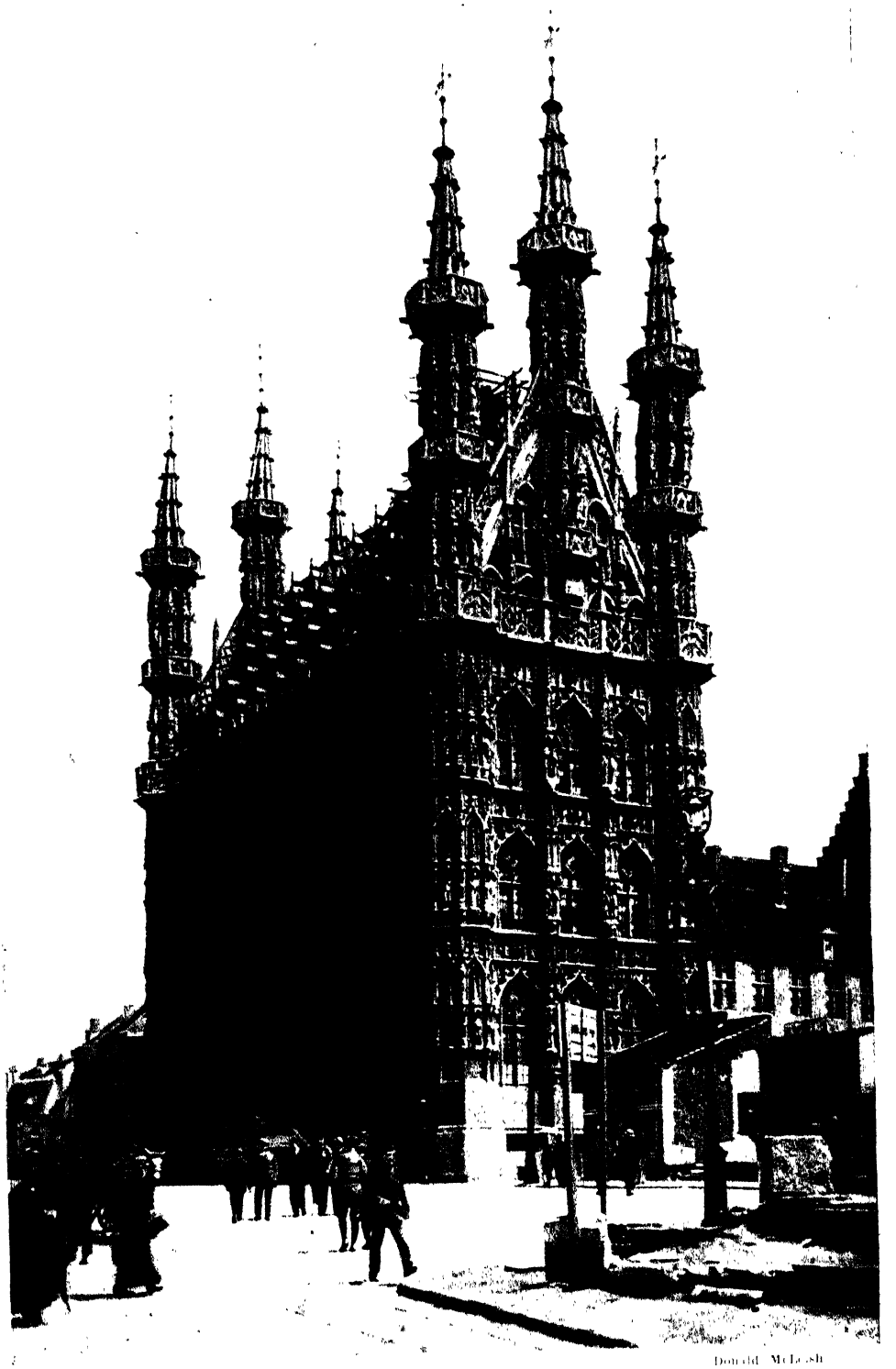
W. H. SMITH, PHOTO.

BELGIUM. *Founded in the thirteenth century the Béguinage of the Vineyard is still the home of gentle charity in Bruges. Its white-walled, step-gabled almshouses surround a large tree-shaded courtyard*



W. H. Smith, Brussels

BELGIUM. *Backed by limestone cliffs crowned with trees Dinant stretches its thin length along the right bank of the Meuse. The crag behind the church of Notre Dame is topped by the fifteenth century citadel*



Donald McLeish

BELGIUM. *A miracle of turrets, pinnacles, statues, tracery and delicate ornament, the little Hôtel de Ville is the chief glory of Louvain*

BELGIUM

Its Historic Plains & Wooded Uplands

by Charles Sarolea, D.Ph., D.Litt., etc.

Professor of French Literature, Edinburgh University

BELGIUM, of all European countries, is, perhaps, the most ideal object lesson for the student of what one might call "human geography." It is preeminently a land of political, social and economic experiments. No country shows more clearly the interactions between man and nature. Whereas in other countries it is nature which has transformed man, in Belgium it is man who has transformed and conquered nature.

Politically the Belgian kingdom is a paradox. It constitutes neither a geographical unity like Switzerland nor a racial unity like France. Its boundaries have shifted from age to age. It is divided into two unequal parts which are different in almost every respect. There are three million Flemings who cannot understand their Walloon brethren, and there are nearly three million Walloons who cannot understand the Flemings. And yet Belgium has an unmistakable moral unity. The great Belgian historian, Henri Pirenne, has proved from the cumulative evidence of history that a Belgian nationality does exist, and always did exist, that there is such a thing as a strongly-characterised Belgian type. And those conclusions have been strikingly confirmed by the Great War, and by the intense patriotic feeling which it revealed.

Ancient and Original Culture

It is therefore a superficial view and a gross mistake to look upon Belgium, as is often done in Great Britain, as a young country which was created in 1831 by the Concert of the Powers. Belgium is, in fact, one of the oldest of European nations. Bruges was already the Venice of Northern Europe when London was still a big village. For many centuries the Belgian people have produced a common and original culture. That culture has been municipal and not feudal; it has been democratic and not aristocratic. Belgium, in the past, has been mainly a federation of self-governing cities. And it is significant, as every tourist can verify for himself, that it is its municipal monuments, its town-halls, its guild-halls, its belfries, its market-places, which are typical of its national architecture.

Contrasts in Configuration

The duality of Belgium is reflected in its physical aspects. The flat country of the north and the hill country of the south are divided by the Meuse. The Belgian alluvial plain is the continuation of the vast North European plains of Russia and Prussia. The hills of the Ardennes are the continuation of the mountainous range of the Rhineland.

The same duality is reflected in the river system. There are two main Belgian rivers, the Schelde and the Meuse. The sluggish Schelde may be described as the river of the Flemish Lowlands, whereas the impetuous Meuse, breaking its way through the mountain ranges of the Ardennes, may be called the river of French Belgium. Most of the historical towns of the country are situated on these two rivers. Ghent is situated at the junction of the Schelde and the Lys. Namur lies at the junction of the Meuse and the Sambre, Liége at the junction of the Meuse and the Ourthe; Antwerp commands the mouth of the Schelde.

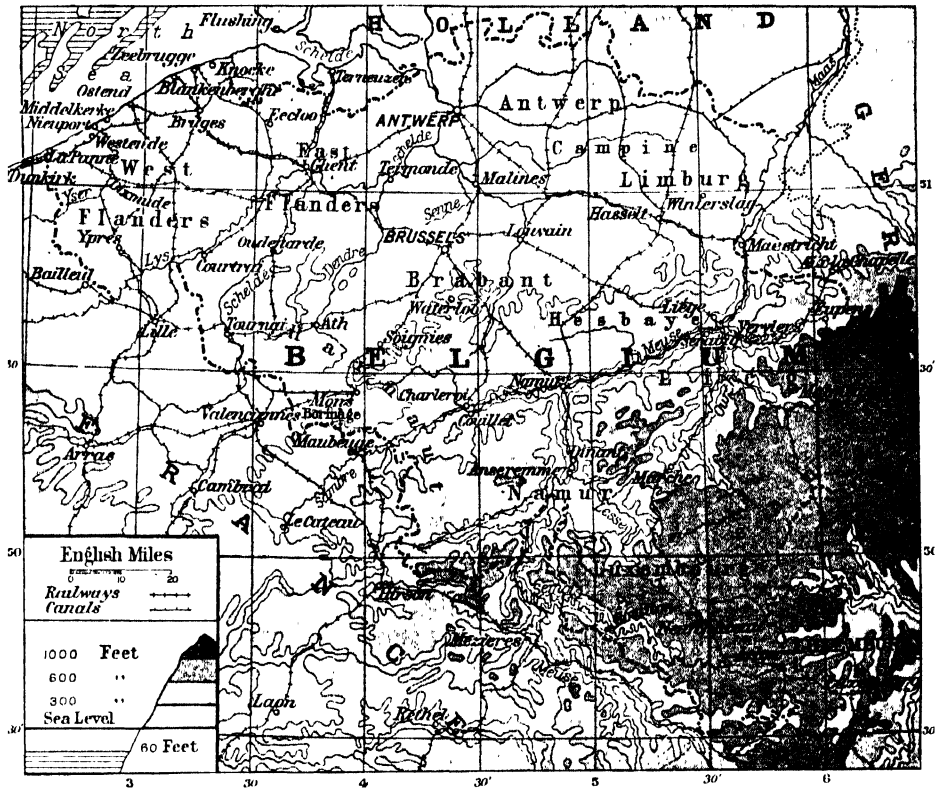
The Meuse with its affluents, the Sambre, the Lesse, the Ourthe, the Vesdre and the Semois, includes by far



Horace W. Nicholls

OSTEND'S WIDE SANDS THAT HAVE MADE IT THE GREAT BATHING RESORT OF BELGIUM

Ostend lies on the flat sandy coast of West Flanders about 14 miles to the west of Bruges from which run both a canal of considerable commercial importance to the country and a railway. Its port, its accessibility and its fine beach have together made it one of the most cosmopolitan and frequented towns on the whole North Sea littoral. A promenade, part of which is in the foreground of this photograph, is known as the Digue and runs along the water front for three miles. Besides the bathing, there are a kursaal and a racecourse to attract the visitors whose numbers grow yearly



PROVINCES OF BELGIUM AND THEIR SYSTEM OF CANALS AND RAILWAYS

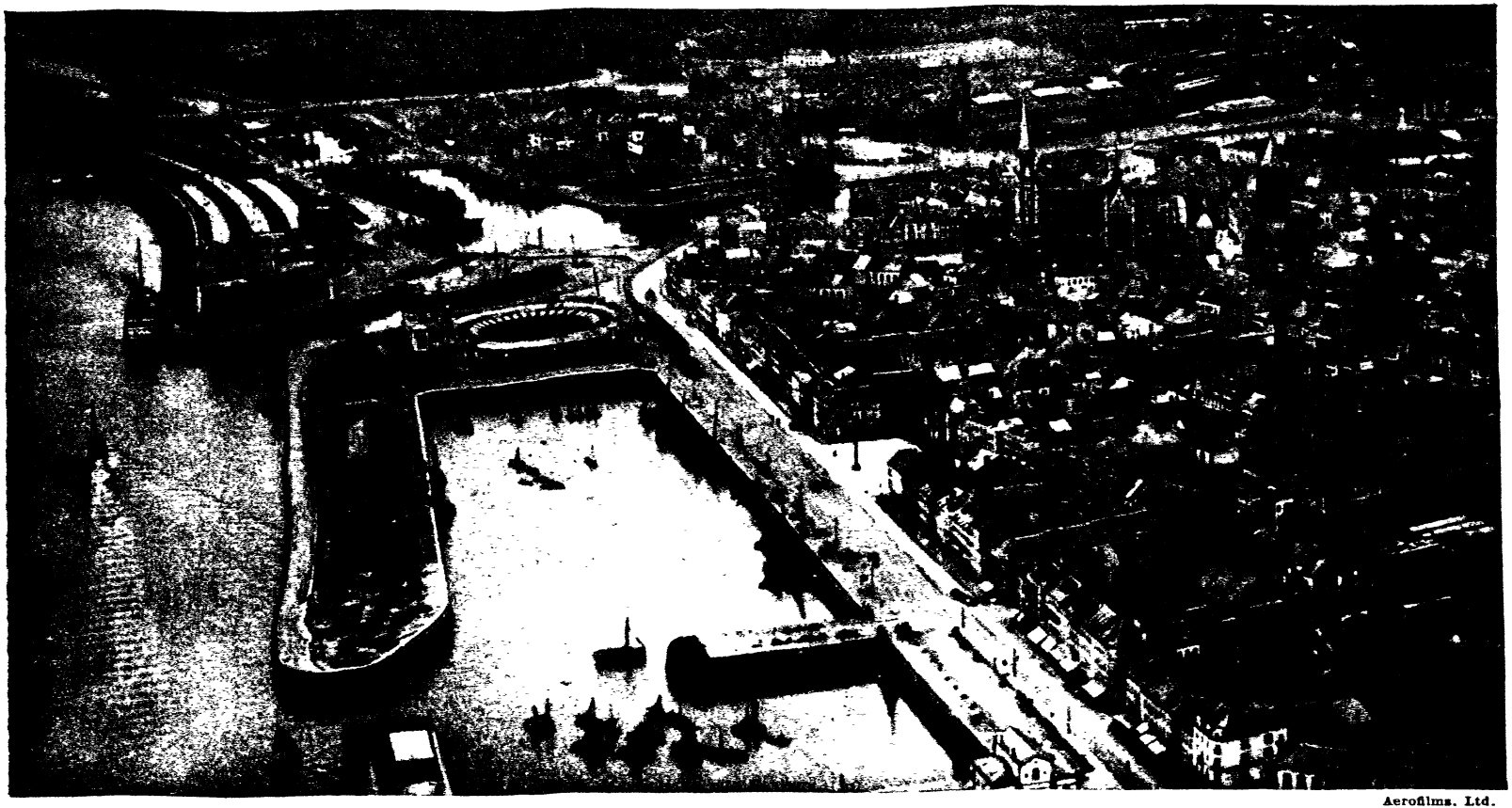
the most beautiful scenery of the country, and the hills of the Ardennes contain the most accessible and the cheapest tourist resorts, although the rich plains of Flanders and Brabant have a beauty of their own, and although even more than the Walloon provinces they have inspired the greatest national painters of Belgium.

Belgium's coast line is very small, being only about 40 miles in length; part of it lies below sea level and has been reclaimed in comparatively recent times. During the Great War, the left bank of the Yser was inundated and constituted the main line of defence of the Belgian army.

The climate is approximately the same as that of the south of England and the north of France. It is cloudy and rainy, and there are only about twelve days of unbroken sunshine in the year. The temperature is variable, September generally being the only steady month. Compared with the English climate the Belgian climate is rather colder in winter and warmer in summer. The temperature in the south is three degrees colder than in the north.

Belgium has great natural resources. In mineral wealth it is one of the richest countries of the Continent. It has an abundance of iron ore and zinc. Its vast coal-fields follow in an almost uninterrupted line the valleys of the Sambre and the Meuse from the French to the Dutch frontier. Within the last few years additional coal deposits have been discovered in the province of Limburg which have already transformed the moorlands of the Campine into a thriving industrial area. The Belgian "Black Country" is probably the densest industrial area of the world.

The country is equally rich in agricultural resources, abounding in every variety of agricultural produce. Yet allowing for the bounty of nature, it



Aerofilms, Ltd.

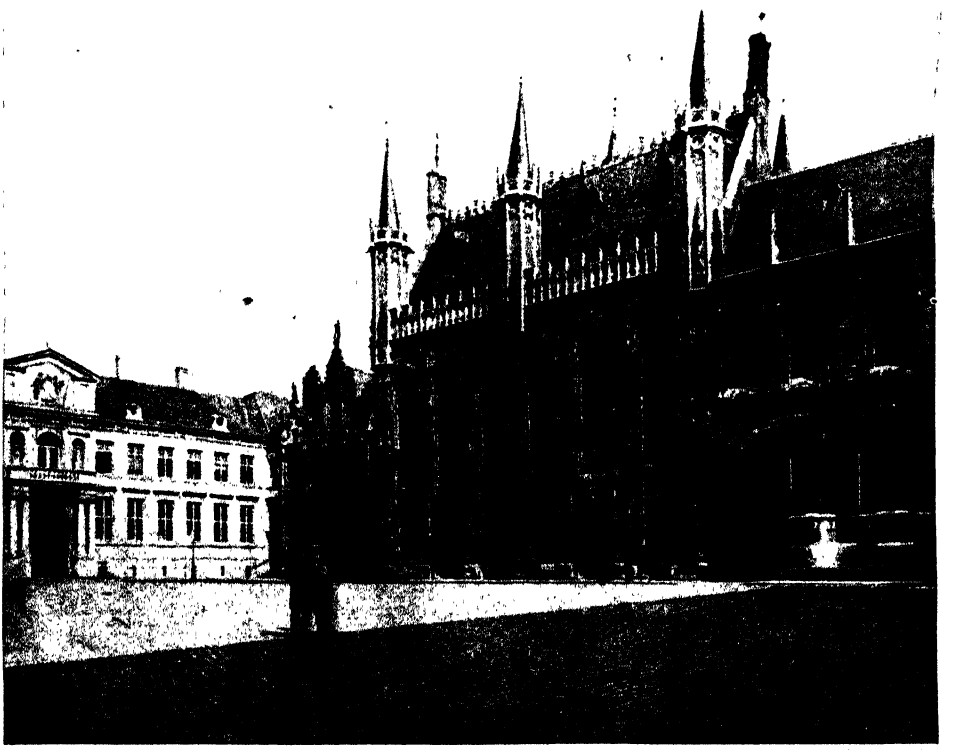
AIR VIEW OF OSTEND PORT: THE FAMOUS MOLES AND ENTRANCE TO THE BRUGES CANAL

This photograph shows a part of the Nouvelle Avant Port. Running inwards from the top left-hand corner is the Bruges Canal and between it and the main harbour are the three white platforms of the Station Maritime, where passengers from oversea disembark. From this point the Bassins du Commerce stretch across the view from left to right and near their central point the spire of the Gothic church of SS. Peter and Paul stands high above the town. Between the dock-side and the houses is the Quai des Pêcheurs, the open space half-way along it being the Place des Pêcheurs

remains true of Belgium, as of Holland, that its agricultural wealth has been mainly the creation of human labour.

Originally the Flemish Plain, and especially the north-eastern part of the Campine, was a desolate expanse, almost as barren as Brandenburg and Pomerania. Even to-day you can walk for hours in the provinces of Limburg and Antwerp over a boundless expanse of unproductive sand.

smiling market garden and a flower garden, even as the Walloon south has become a beehive of industry. The land has been improved out of all recognition by the hard toil of the small peasant proprietor. The climate is never too hot nor too cold for work in the fields. Belgium verifies the dictum of Arthur Young that "the magic of property is able to transform a desert into a garden."



W. H. Smith, Brussels

CIVIC SPLENDOUR OF THE OLD BURGHERS OF BRUGES

On the south-eastern side of the Place du Bourg (a short way to the east of the Grand' Place of Bruges) stands the fine Gothic town-hall adorned with statues of the successive counts of Flanders. Begun in the middle of the fourteenth century, it was finished in 1421 and restored in 1854. On the left is the old record office, now used as a law court, and at right angles the Palais de Justice

The northern sections of the provinces of Antwerp and Flanders were once a marsh. The province of Brabant was once a dense forest, of which the forest of Soignies, between Brussels and Waterloo, is an impressive remnant. But the Hercynian forest has been cleared, the marshes have been drained, the sandy plain has been manured and to-day the Flemish provinces have become a

If the test of a country's prosperity is to enable the largest possible population to live on the smallest possible space, then Belgium may justly be considered one of the most prosperous countries of the world. It is more densely populated than China. Its 7,600,000 people are spread over a small area of 11,000 square miles. Three-fifths of the population are



Horace W. Nicholls

ONE OF THE THREE GREAT TOWERS THAT DOMINATE BRUGES

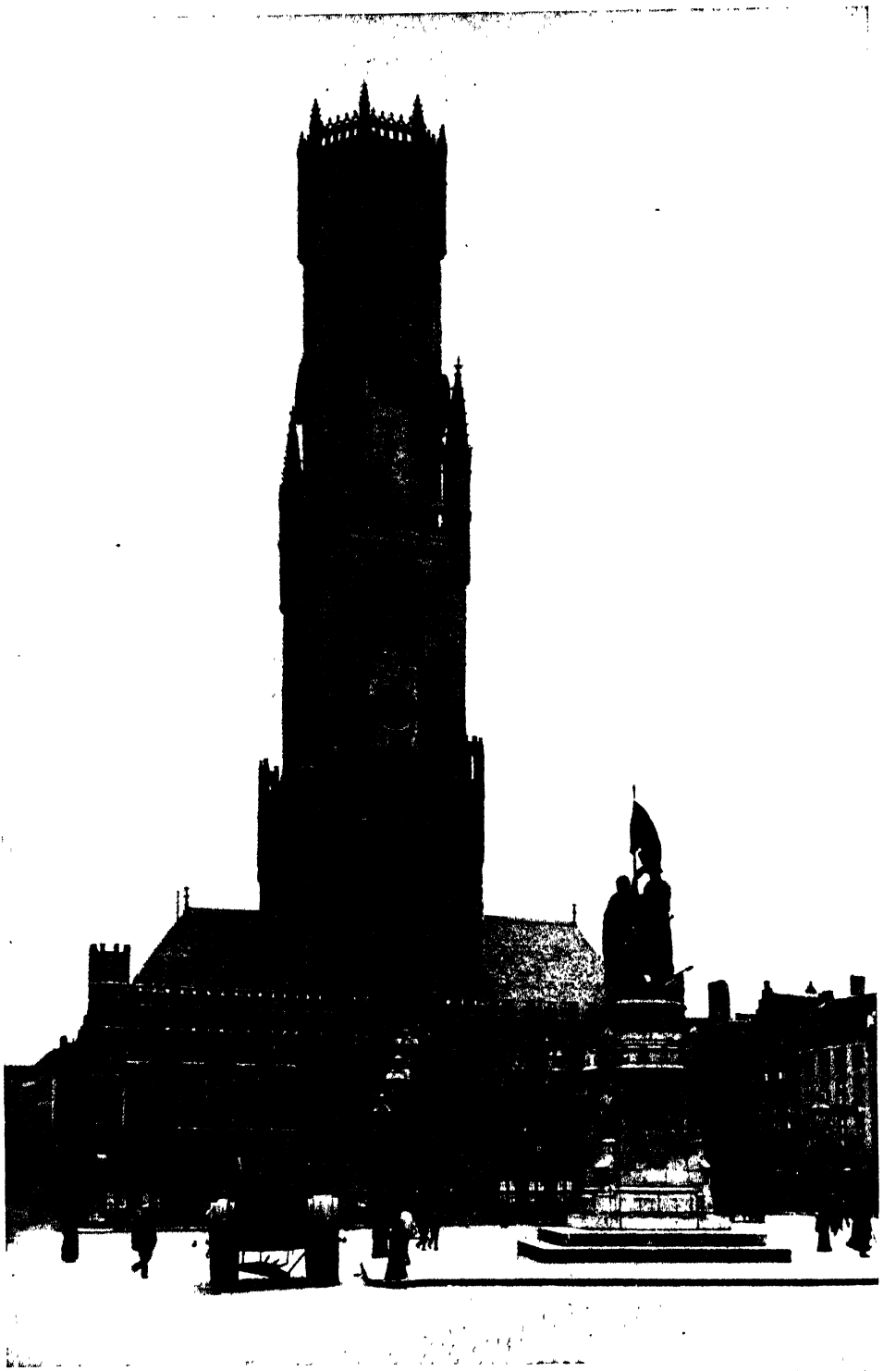
Leading from the Grand' Place westwards, the old Rue des Pierres affords a quite impressive view of the cathedral tower, which, seen thus above the clustering roofs, loses some of its ungainliness. Narrow though it is, the street is one of the main business thoroughfares of Bruges, which is regaining its old prosperity since the construction of the canal to Zeebrugge



W H Smith, Brussels

CHURCH OF S. SAVIOUR AT BRUGES, NOW A CATHEDRAL

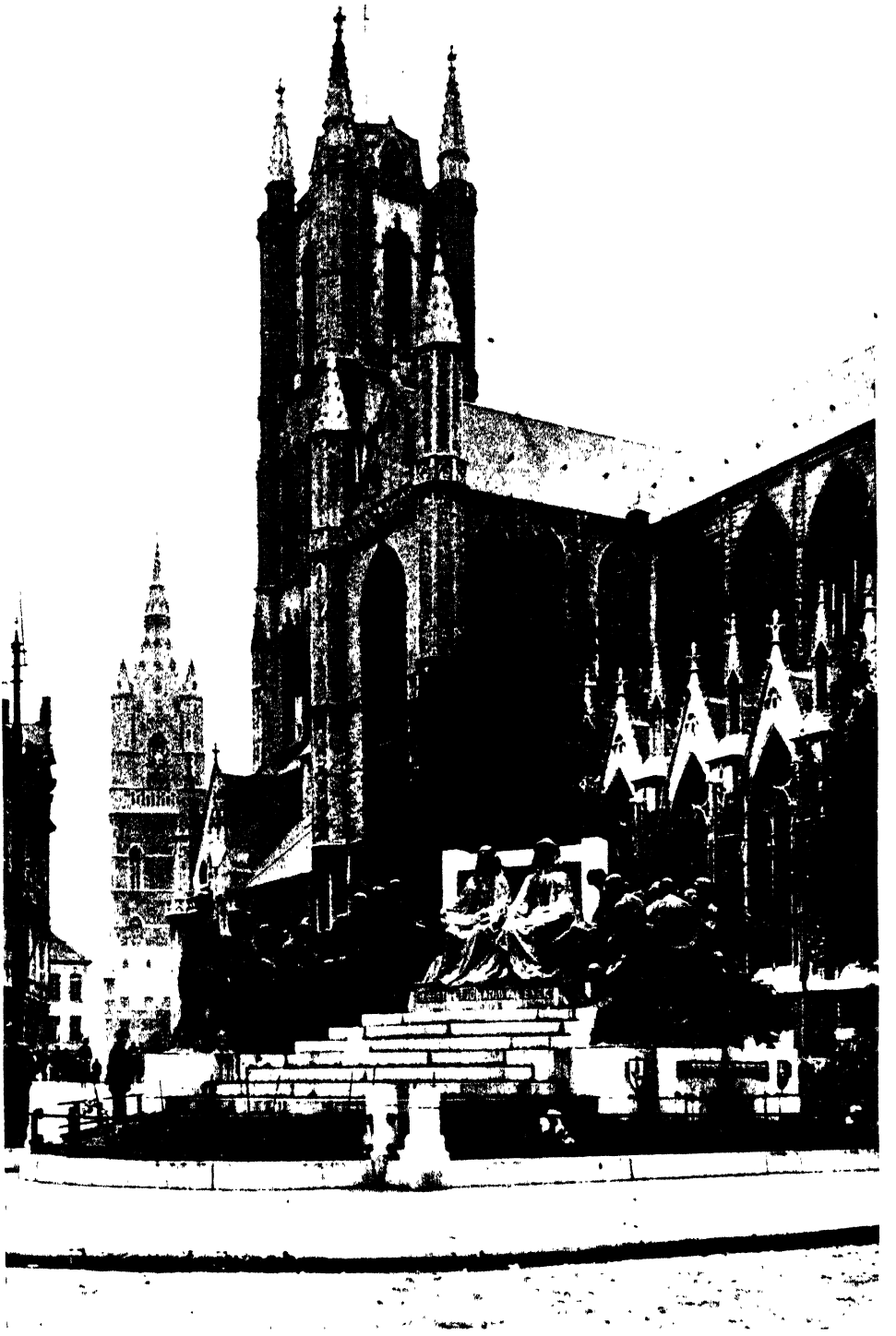
Compared with such secular buildings as the Belfry and the town-hall, the cathedral at Bruges (dedicated to S. Saviour) is a cumbrous and unpretentious edifice without, having elements of all periods between 1116 and 1871. The Romanesque lower half of the tower is the oldest. Within, however, the proportions are exceptionally fine and numerous art treasures of great worth are housed there



Donald McLeish

STATUES OF OLD GUILD-MASTERS BEFORE THE BELFRY OF BRUGES

Known as the Tour des Halles, the famous Belfry of Bruges in the Grand' Place towers to a height of 352 feet above the city with a slight inclination to the south-east. The octagonal upper storey dates from the end of the fifteenth century but the two square stages below were begun quite 200 years earlier, after a fire in 1280 that destroyed a still older structure on the same site



Donald McLe

GHENT'S MINSTER AND HER TRIBUTE TO HER ILLUSTRIOUS SONS

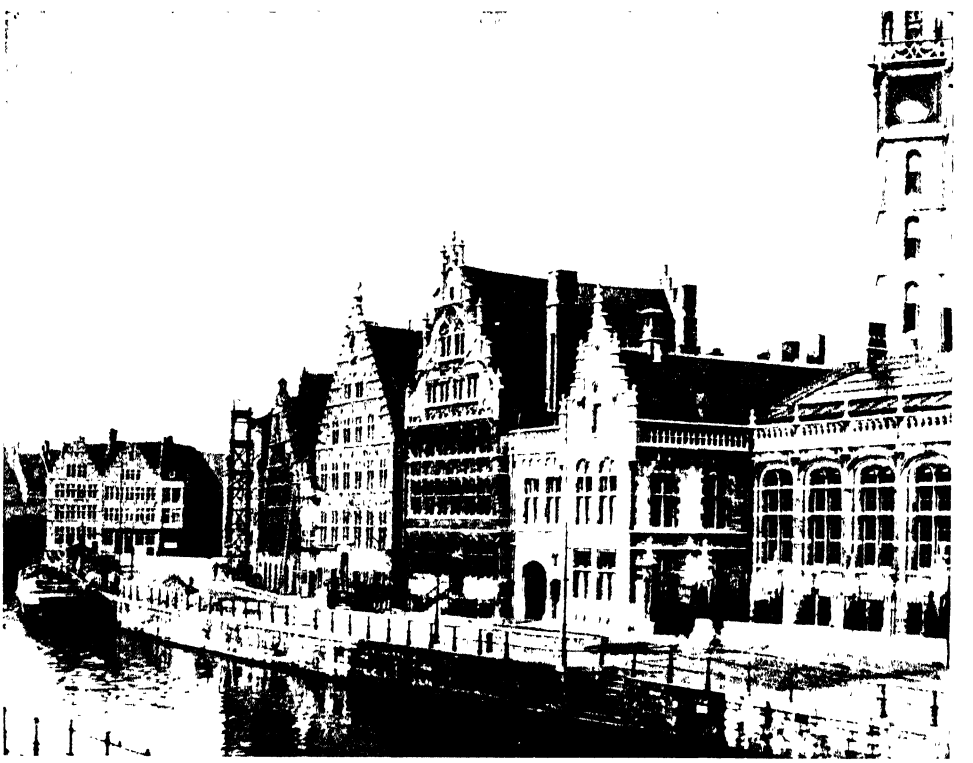
Ghent has many old buildings in the Flemish style, but foremost of all its public edifices is the great cathedral of S. Bavon. Though externally plain, the great church is richly decorated within and contains the famous "Adoration of the Lamb" by the brothers Van Eyck, who made Ghent the centre of Flemish art and whose monument is seen on the right. Behind is the fourteenth century Belfry



W. H. Smith, Brussels

WHERE GHENT DID HOMAGE TO THE COUNTS OF FLANDERS

It was in the Friday Market that the great events of Ghent took place; here the guildsmen—"the hard-heads of Flanders"—assembled to protect their rights, and here, too, Jacques van Artevelde raised the citizens against the Count of Artois. His statue shows him delivering his speech in favour of the alliance with England. The extensive square surrounding it is planted with trees

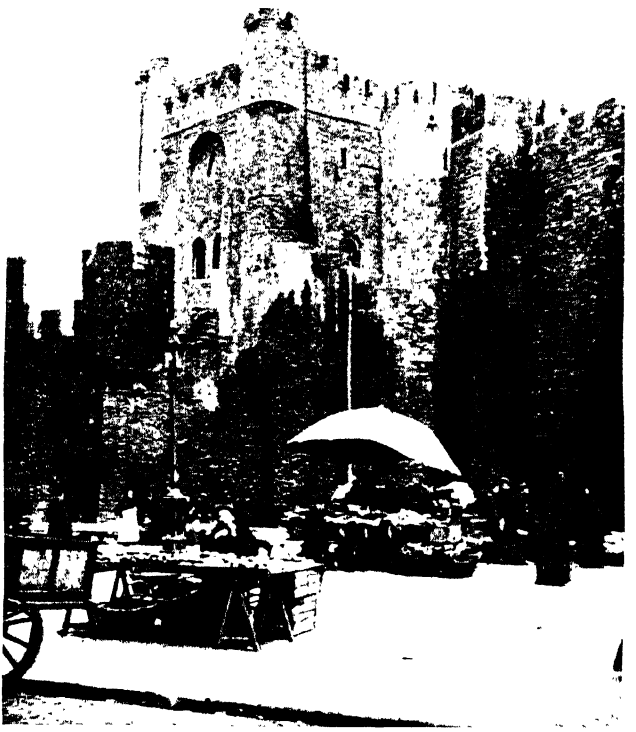


C. Ushter Knox

RELICS OF THE MIDDLE AGES IN MODERN BELGIUM

All through medieval times the burghers of Ghent were famous for their turbulence; their ancient guilds were powerful, well supported and wealthy. These societies built for themselves guild houses similar to those in Antwerp (see page 207), and to this day they remain to adorn with their quaint old time beauty the Quai aux Herbes on the right bank of the Lys in the centre of the town

Flemish, the remaining two-fifths are Walloons. They are engaged in every variety of occupation. A very small section is occupied in forestry and in fishing. The villages on the coast have to-day far less importance as fishing villages than they have as flourishing seaside resorts. Those resorts, La Panne, Nieuport, Westende, Middelkerke, Blankenberghe and Knocke, extend east and west of Ostend almost without interruption from the Dutch to the French frontier.



C. Vehter Knox

STORIED RELIC OF OLD GHENT

In the Place Ste. Pharaïde, hard by the banks of the Lys, is seen the battlemented stronghold of the counts of Flanders traditionally founded in the ninth century. It was the ancient citadel of Count Philip of Alsace

Half of the people live by agriculture in such activities as wheat growing, dairy farming, cattle breeding and horticulture. The industrial production is equally intensive. Ghent, with its cotton and linen factories, is the centre of the textile industry; Verviers is the centre of the woollen industry; Charleroi, with the surrounding Borinage country, is the centre of coal-mining.

But far the most important industrial centre of Belgium is the Liége district, with its coal-mining, its engineering works, its gun factories, its glass factories, its motor and cycle works. The Cockerill engineering works at Seraing, founded in 1817 by an Englishman, are, on the Continent, second only to Krupp and to the Creusot.

Belgium is not only a country of peasants and artisans, it is also a country of bourgeois or burghers. It has no class of large landowners as in Great Britain. Five hundred acres of land in Belgium is considered an exceptionally big estate. But it has a large and flourishing middle class. The civil services and the railway services (which as is often the case on the Continent are owned by the state) occupy hundreds of thousands of employees. The highly-developed trades and industries occupy an army of commercial travellers, professional men and lawyers. The accumulated wealth of many generations has produced a large class of "rentiers" who are living independently on their small incomes. There is a numerous Catholic clergy with about 20,000 nuns living in convents. The hotel industry and the busy tourist traffic, the thousands of cafés, which have become a national institution, the outcome as well as the medium of a sociable and convivial temperament, also give employment to large numbers.

Owing to the density of the population and to the keen competition, Belgium is a very cheap country to live in. Both wages and salaries are much lower than



H. Fawcett

OLD-WORLD TOWN OF BOUILLON IN THE PEACEFUL SETTING OF AN ARDENNES LANDSCAPE

The quaint old town of Bouillon lies about the base of the Castle hill on both banks of the river Semois—one of the southern tributaries of the Meuse—which is spanned by a stone bridge. It is in the province of Luxembourg, nine miles north-east of Sedan, and is famous historically and as a favourite centre for excursions through the Semois valley and other well known regions in the lovely, undulating, well wooded country of the Ardennes. Formerly a duchy, Bouillon was taken by Louis XIV. in 1678, joined to the Netherlands in 1815 and passed to Belgium in 1837



H Fawcett

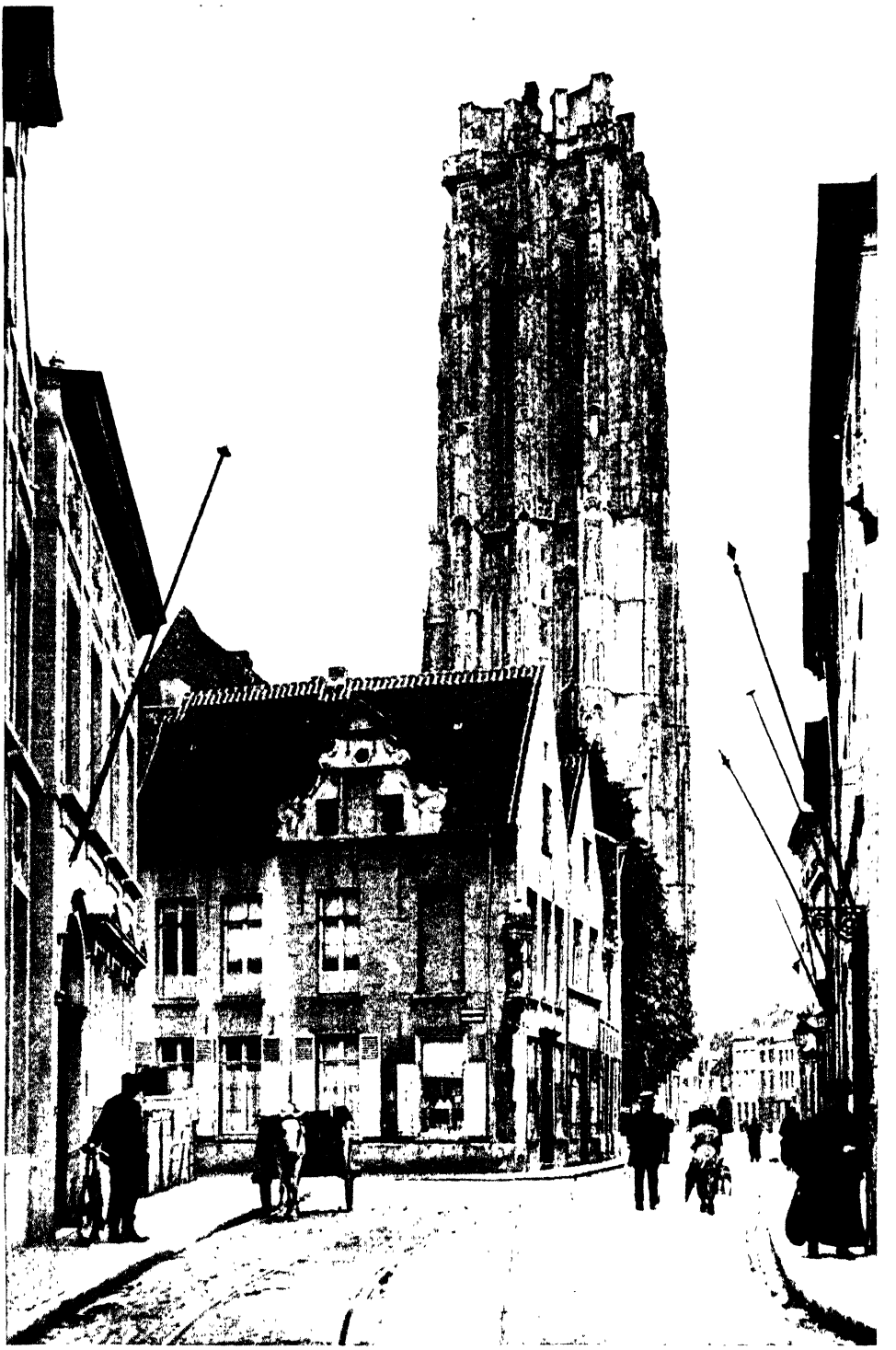
BEND OF THE SEMOIS, A TRIBUTARY OF THE MEUSE, AT BOUILLON

This beautiful view shows the fine position of the castle of Bouillon and the magnificent wooded heights—a feature of this part of Belgium. The citadel, a relic of antiquity still in a fair state of preservation, stands high on a rocky promontory below which the river flows almost in a circle; it is the original castle of Godfrey de Bouillon, the famous leader of the first Crusade

in England. Even a judge of the Supreme Court will seldom receive more than £300 a year. But the low wages have a tendency to keep down the standard of living. In recent years, however, the standard has been raised by two powerful cooperative movements, one started by the Socialist party with its headquarters in Ghent and the other by the Christian Socialist party, mainly under the direction of the country priests.

Few countries possess greater facilities for the transport of both men and goods. Brussels is only half an hour's journey from Louvain and Malines; it is one hour from Antwerp and Ghent; less than two or three hours from Ostend and Liége; and it is less than five hours from Paris. There are excellent roads both for ordinary traffic and for motor traffic, some of them dating their origin as far back as Roman times. As the bicycle is universally used, especially by the peasant and the working man, there are cycle tracks on every road. There is a close network of railways; the lines from Ostend to Liége and Cologne, from Brussels to Paris, and from Brussels to Rotterdam and Amsterdam are the most important of the international lines.

The light railways are a speciality of Belgium which deserves the careful attention of British social reformers. As Mr. Rowntree has pointed out in his excellent book on life and labour in Belgium, these railways play a considerable and a beneficent part in the distribution of population. They have helped to stop the rural exodus from the country into the big cities, and they enable the factory worker to continue to live in the villages. Recently a regular air service has been inaugurated plying daily between Brussels and Paris. Like Holland, Belgium has an important river and canal traffic. The barges relieve the congestion of the railways and are used mainly to carry cheap and



Donald McLeish

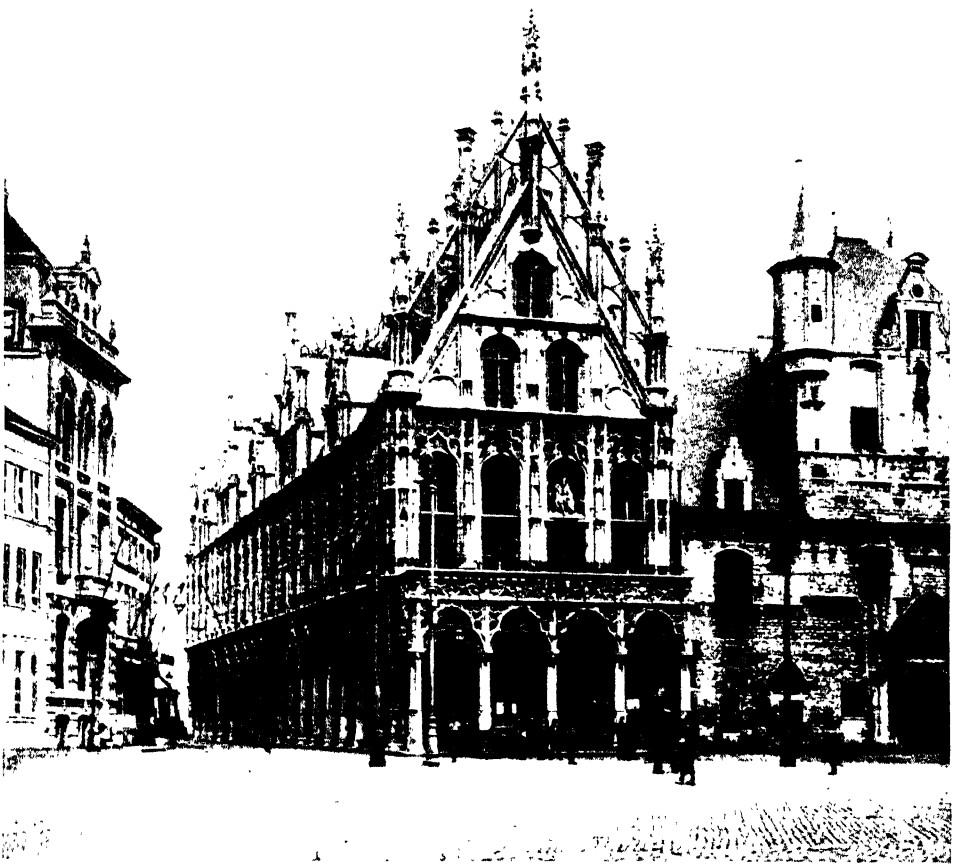
MALINES' GREATEST GLORY: THE CATHEDRAL OF S. ROMBOLD

Ecclesiastically, Malines is the capital of Belgium, and its great cathedral of S. Rombold may therefore be considered as the religious centre of this populous little land. Its great spire, rising 324 feet over the roofs of the old houses of the Place S. Rombold was never completed, though the remodelling of the great building took place as long ago as the fifteenth century

heavy goods. There are several regular steamship services between Belgium and Great Britain—the Antwerp-Harwich Line, the Dover-Ostend Line (owned by the Belgian State Railways), the Antwerp-Hull and the Antwerp-Leith Lines. There are also regular services from Antwerp to North and South America and to the Congo.

It is a remarkable fact that although Belgium has in proportion the largest international maritime trade of the world, yet the carrying trade is mostly done in foreign bottoms. Under the impulse of Leopold II. and King Albert there have been repeated attempts to create a mercantile navy. The opportunity seemed to have come for building up such a navy after the conclusion of peace. In 1919 a powerful syndicate, "The Lloyd Royal Belge," bought up a large fleet of steamers, but catastrophic fluctuations in freights and prices consequent upon the general European unrest have dealt a severe blow to the nascent Belgian merchant navy and threaten the success of this Belgian enterprise.

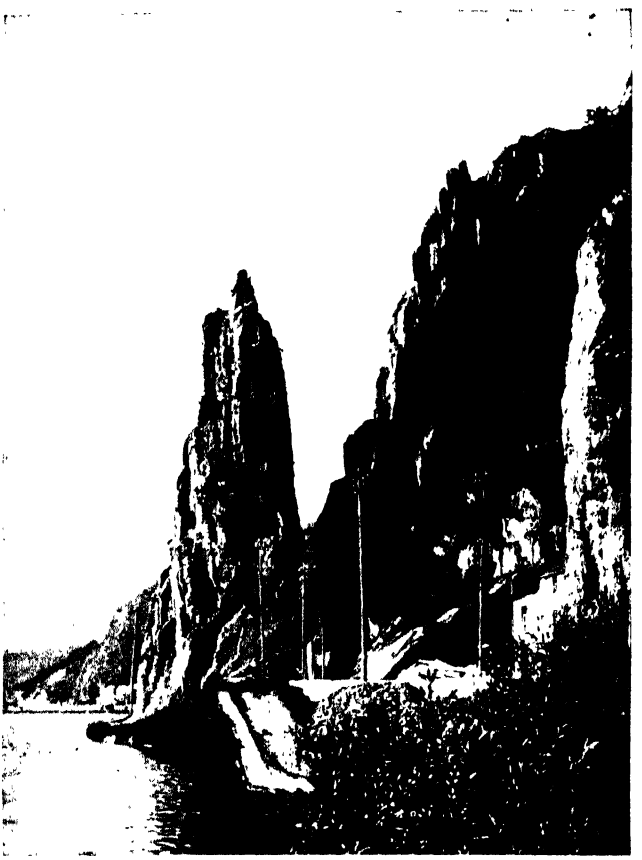
The thriving agriculture and industry, the facility of communications and the



W. H. Smith, Brussels

GOTHIC CLOTH HALL THAT ADORNS THE GRAND' PLACE, MALINES

The peaceful Grand' Place of Malines presents a marked contrast to the busy workshops at the station, a focus of the main Belgian railways. Illustrated above is the famous Cloth Hall rebuilt in 1320. In the left, the Gothic, portion is the post-office, and the older (right) portion houses the Musée Communal devoted mainly to civic antiquities; it contains a painting of the Crucifixion by Rubens



W. H. Smith, Brussels

SHARP PINNACLE OF THE ROCHE A BAYARD

On the right bank of the Meuse about a mile above Dinant is the Roche à Bayard: this legendary horse of the sons of Aymon is fabled to have left its footmarks here in springing across the river to escape the pursuit of Charlemagne

privileged geographical situation of the country at the cross-roads of European intercourse all combine to make Belgium a great commercial country, and to make Antwerp one of the great ports of the world. The prosperity of the home trade may be observed by the tourist on any market day in any big village or small town of Flanders or Brabant.

The Belgian village market is among the picturesque survivals of the Middle Ages and presents one of the most interesting aspects of Belgian life. National and international fairs, which are annual occurrences, are another proof of the activity in internal and external commerce.

The international trade per head of population is bigger than that of any continental country; France, Great Britain, Germany and Holland are all important customers. Before the Great War Germany took the lead. But it has to be noted that the international trade of Belgium is largely a transit trade, and as Germany with Central Europe constitutes commercially the hinterland of Belgium, the profits of this transit trade before the Great War did not go to the Belgian but to the German middleman. The trade of Antwerp was largely concentrated in the hands of German firms. Recently there has been an attempt to develop trade with France and Great Britain. Mutual ignorance of the language, differences of weights and measures and currencies are, however, proving serious obstacles.

Trade with the Congo, Belgium's great African colony which it owes to the foresight and statesmanship of Leopold II., has developed more slowly than was anticipated. The hopes of King Leopold and King Albert have so far not been realized. From such an over-populated country one might have expected a constant stream of emigration, but such has not been the case. The deficient emigration, which is due to the sedentary habits of the people, as well as to the climatic conditions of the Congo, is the main cause of the slow progress of the magnificent African colony. The vast concessions of Lord Leverhulme's companies represent more than one-half of the exports of the Belgian Congo.

The distribution of the population as between town and country is more evenly balanced in Belgium than in England. Belgium is preeminently a country of cities (Antwerp, Liége and



Donald McLeish

BELGIUM. *Seen here between the little Cloth Hall and the superb Hôtel de Ville, the ancient Gothic Belfry is one of the glories of Ghent*



Horace W. Nicholls

BELGIUM. *Notable even among the many charming spots in Bruges is the Quai du Rosaire. Framed in quaint buildings it stands at the corner of the Rue aux Laines, close to the Grand' Place with its ancient Belfry*

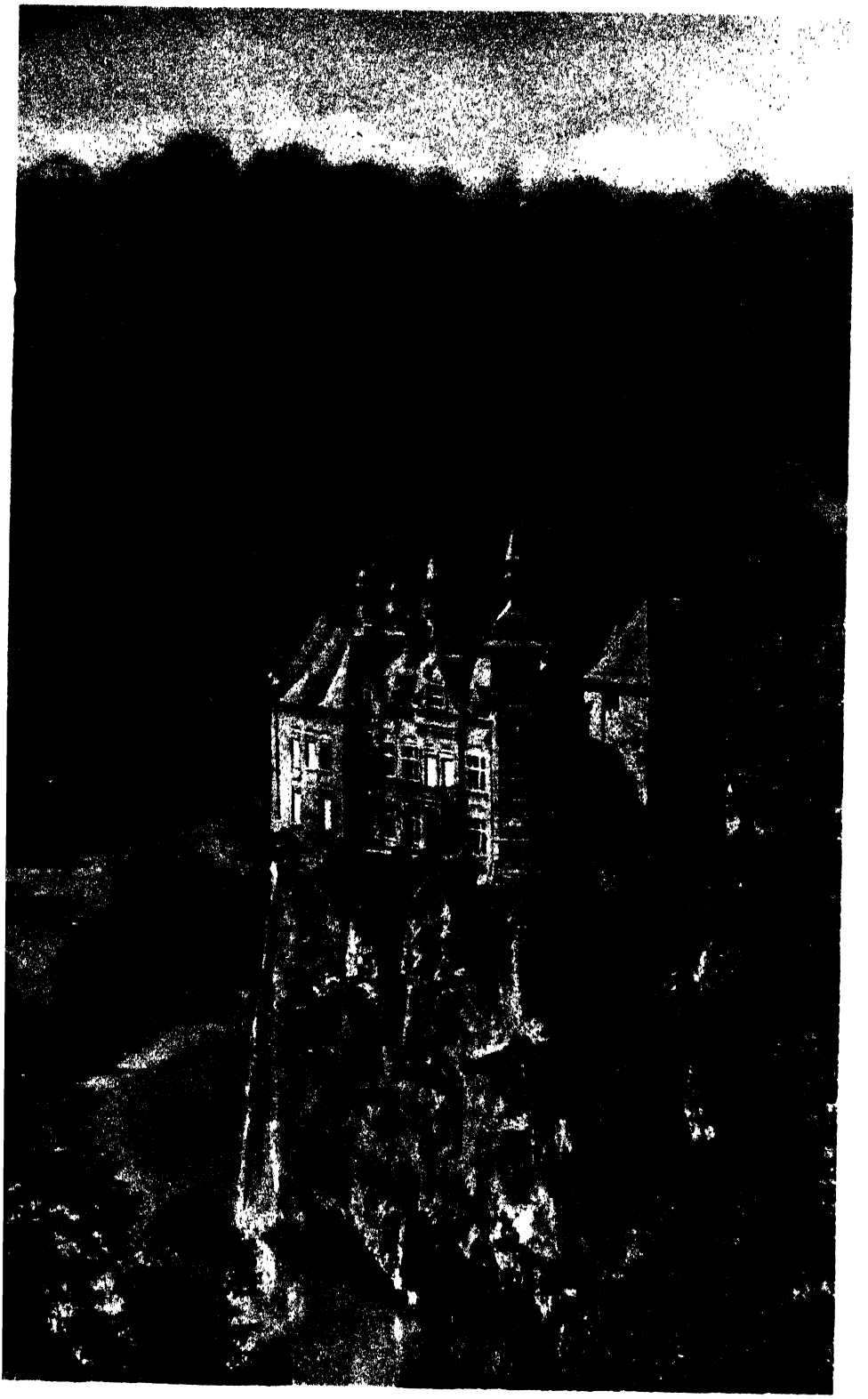


Horace W. Nicholls

BELGIUM. *Thousands of tons of merchandise are conveyed over the waterways of Belgium. Canal life is arduous here, for the bargemen often employ their whole family as the draught power for their heavy craft*



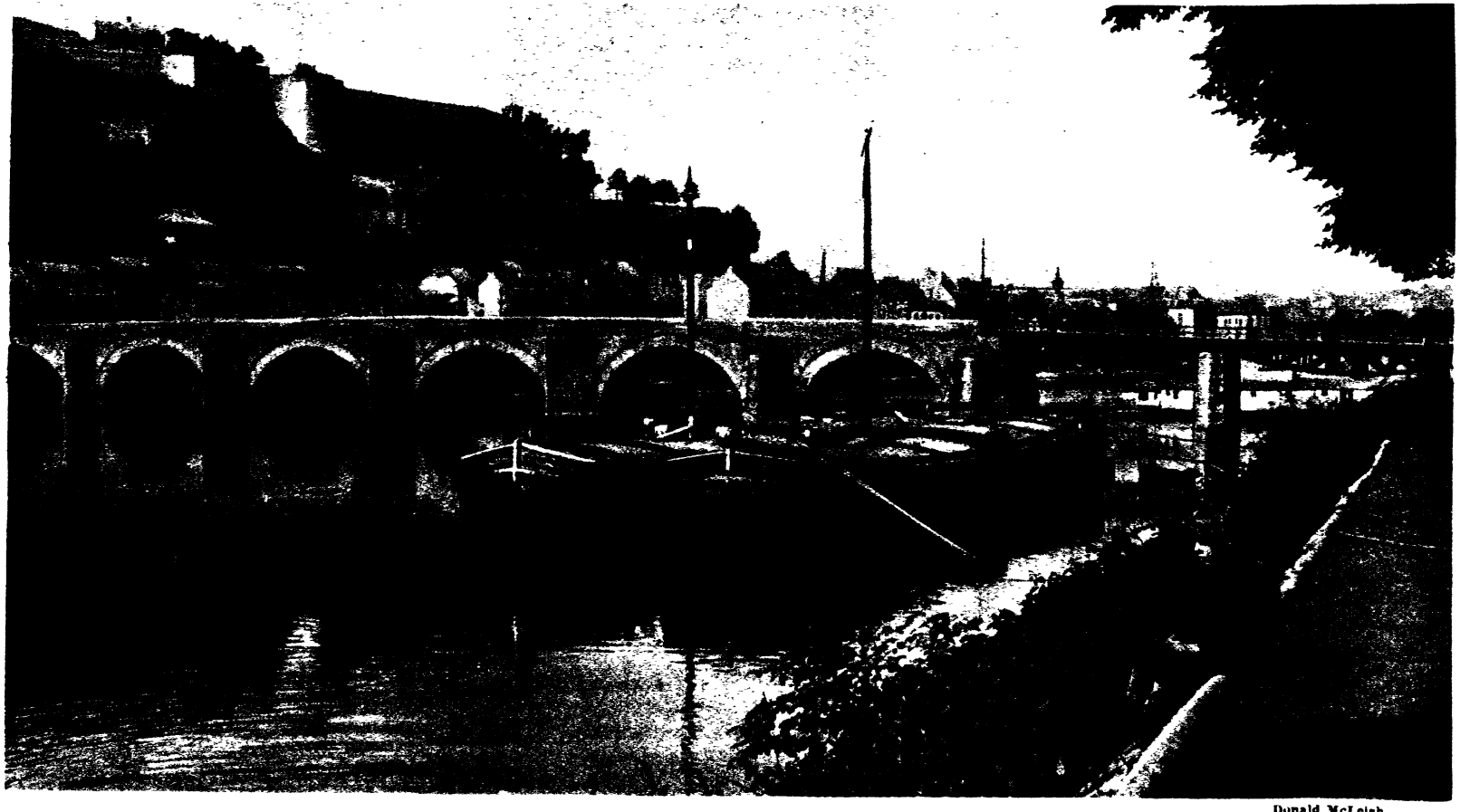
BELGIUM. *From the Rue Hors-Château this steep flight of* 385 *steps, the Montagne de Bueren, leads up to the Citadel of Liège*



BELGIUM. *In the wooded valley of the Lesse the thirteenth-century castle of Walzin is the artistic gem of the pretty village of Anseremme*



BELGIUM. *Near the farm of La Haie Sainte, a vital point in the Battle of Waterloo, the Mound of the Belgian Lion commemorates the victory of the Allies. Captured French guns supplied the metal for the lion*



Donald McLeish

BELGIUM. *Fortified since Roman times, Namur stands at the confluence of the Sambre and Meuse. Across the latter a nine-arch bridge, broken in* 1914 *to delay the German invasion, leads to the suburb of Jambes*



W. H. Smith, Brussels

Few places in Europe have seen the coming and going of so many armies as the Grand' Place of Mons, the capital of Hainault



W. H. Smith, Brussels

BELGIUM. *A very haven of peace is this old Béguinage in Courtrai, where good women devote their lives to religion and charitable work*

Ghent) ; Brussels alone with its suburbs absorbs nearly one-seventh of the total population. This concentration of the urban population, especially in the Flemish plains, is the main feature of Belgian demography. The sanitary conditions are good. The State and the Church have both made great efforts in improving the hygienic standard ; the new villages round Winterslag in the coal-fields of Limburg, the most wonderful model villages of Europe, testify



W. H. Smith, Brussels

BELFRY IN THE SPACIOUS MARKET PLACE OF OLD COURTRAI

Courtrai, or in its Flemish form Kortryk, is an ancient town on the Lys that still flourishes, unlike many contemporaries, with unabated prosperity. This good fortune she owes to her linen and lace making industries : see the illustration in page 691. The scene above shows the Grand' Place with the fourteenth century Beltry in the centre and the tower of S. Martin's Church on the left

to the great progress which has been made in recent years.

As we have already pointed out, there has been a considerable rise in the average wages of both the factory worker and the farm labourer, and it is worthy of note that the progress has been obtained not by strikes or direct action, but by cooperation and peaceful combinations. A great deal of progress, however, remains to be accomplished, for there are still many undesirable slums in the great cities. It is a curious anomaly that the worst sweated industry is the lace industry of Malines and Bruges. Luxury does not always provide profitable employment, and the lace industry is a parasitic industry. The wages of the lace workers have to be eked out by charity.

The two races which for fifteen hundred years have occupied Belgium have retained almost the same linguistic boundaries, which run in an almost straight line from Bailleul in France to Maestricht in Holland, passing to the south of Brussels. And the two races hitherto have always lived in harmony ; divisions and differences in Belgium have not been between race and race, but between town and town. The cleavage between Fleming and Walloon is of quite recent date and is largely a legacy of the Great War and the result of German propaganda. To-day the battle of languages, which has culminated in the demand for a Flemish university in Ghent, is the most burning question in the country. But for the unifying and moderating influence of the monarchy and the political sense of the Belgian people there might have been serious danger of political separation. The Fleming belongs to the blond



W. H Smith, Brussels

DINANT BY THE MEUSE, A BEAUTY SPOT IN THE HEART OF THE ARDENNES COUNTRY

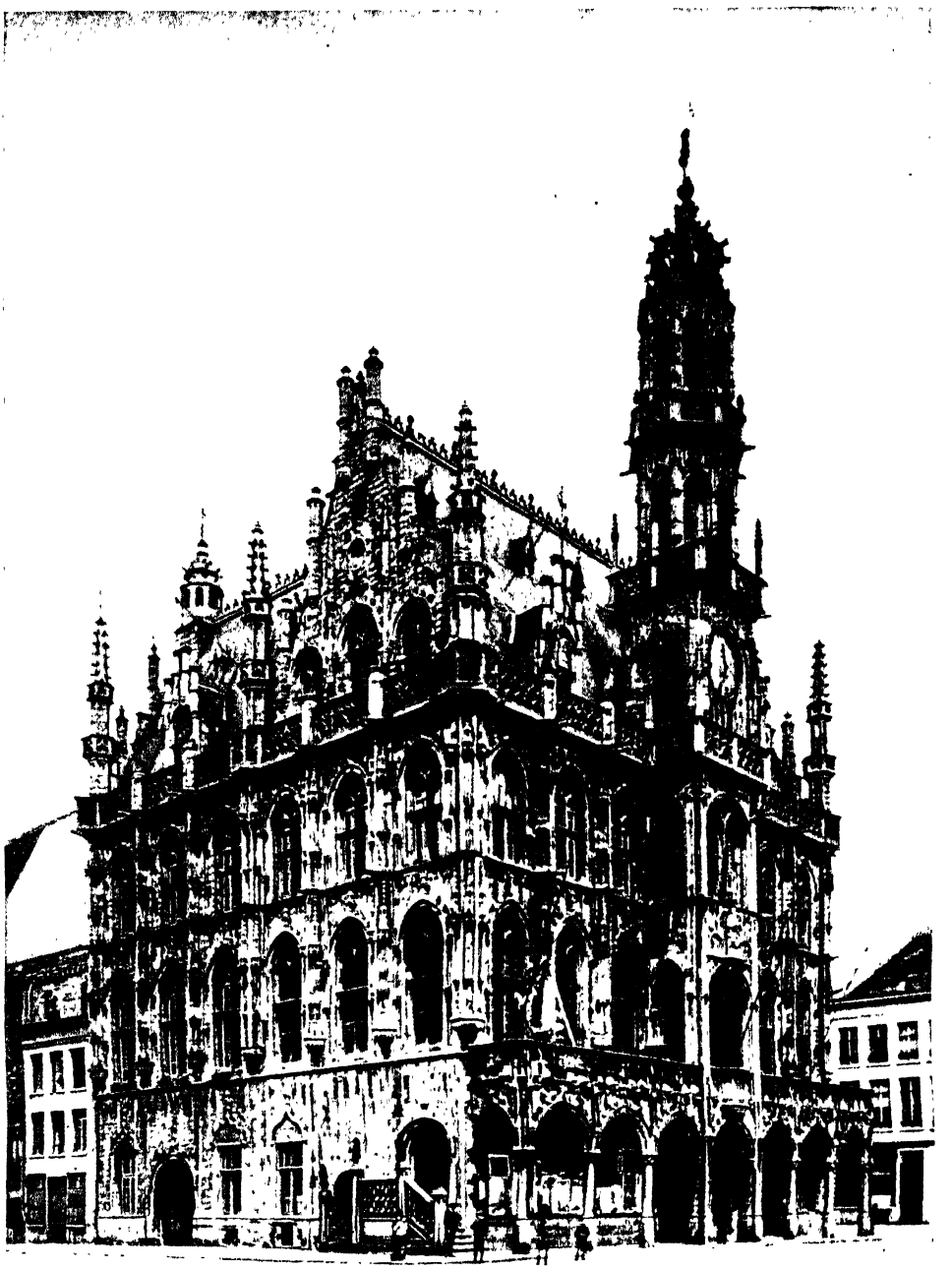
Beautifully situated among trees on sloping ground that falls gently from bare limestone cliffs to the right bank of the Meuse, Dinant has on many occasions been the object of military operations, and an examination of the photograph will show some of the devastation of the Great War. The chief interest of the town centres in the church of Notre Dame which is out of sight here to the left, but appears in the photograph in page 651. It is a fine piece of architecture which also suffered from bombardment, its spire and its famous twin towers having been partially demolished by shell-fire



PANORAMA OF THE WINDING RIVER MEUSE FROM ABOVE THE TOWN OF DINANT

H. Fawcett

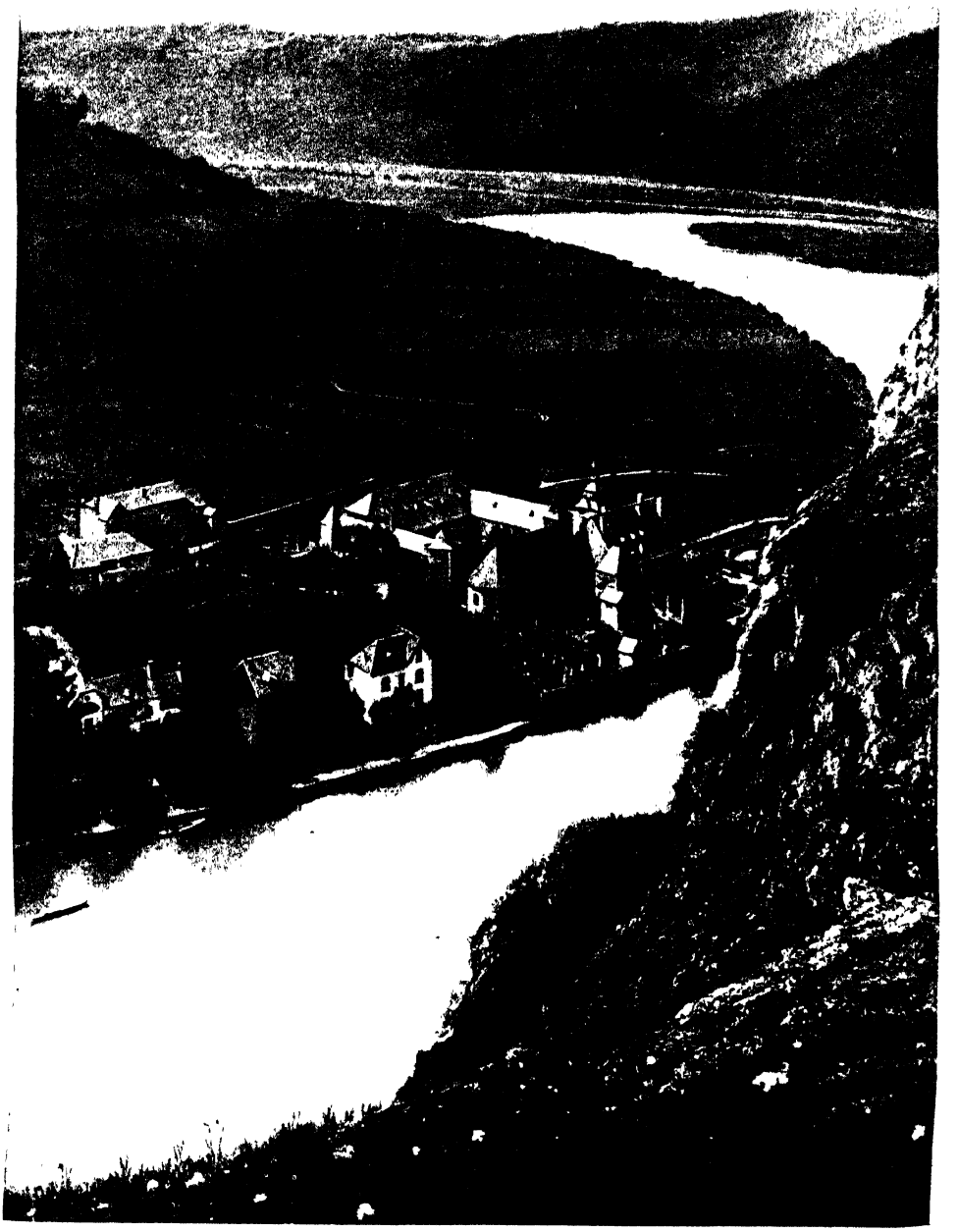
The Ardennes hills have always been very popular as a holiday resort; they are thickly clothed in trees that are the remains of a great forest, mentioned by Julius Caesar, which at one time extended to the Rhine but is now confined to the Meuse banks. The woods are rich in game and wild animals, and among these is the wild boar, formerly very common. Coal, iron, lead and slate are worked in the district surrounding Dinant which is here seen with its suburb St. Médard on the left bank; the ground is fertile and agriculture is the chief occupation of the region



W. H. Smith, Brussels

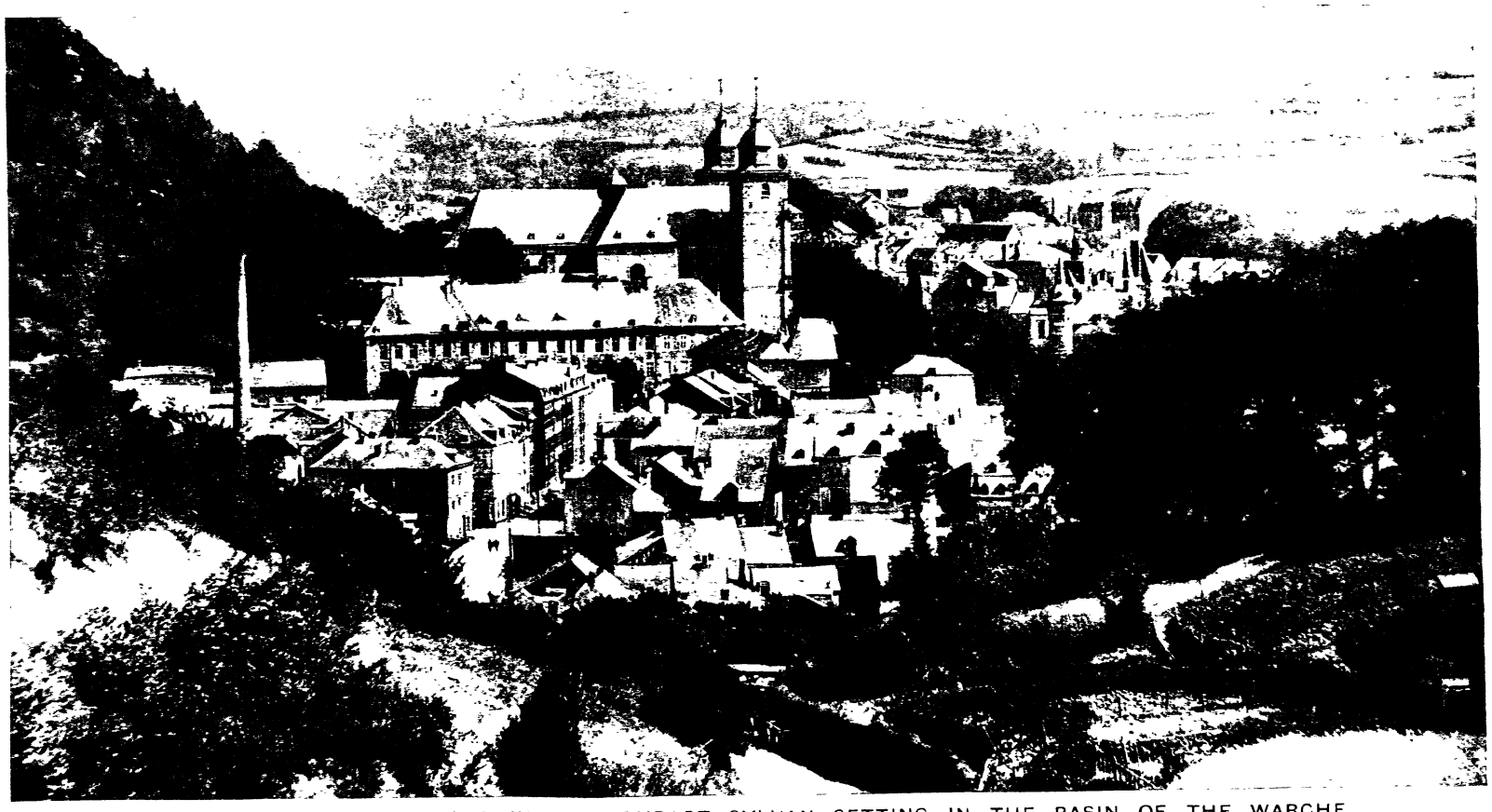
SIXTEENTH CENTURY HOTEL DE VILLE AT OUDENARDE

After a journey of 38 miles through Brabant and East Flanders along the line from Brussels to Courtrai the traveller reaches the little and very old town of Oudenarde. Its chief building is this town-hall, which is reputed to be second only to that of Brussels. On the ground floor is a fine hall with rows of columns and the five storeyed tower is rich in decorations. Oudenarde was once famous for its tapestry



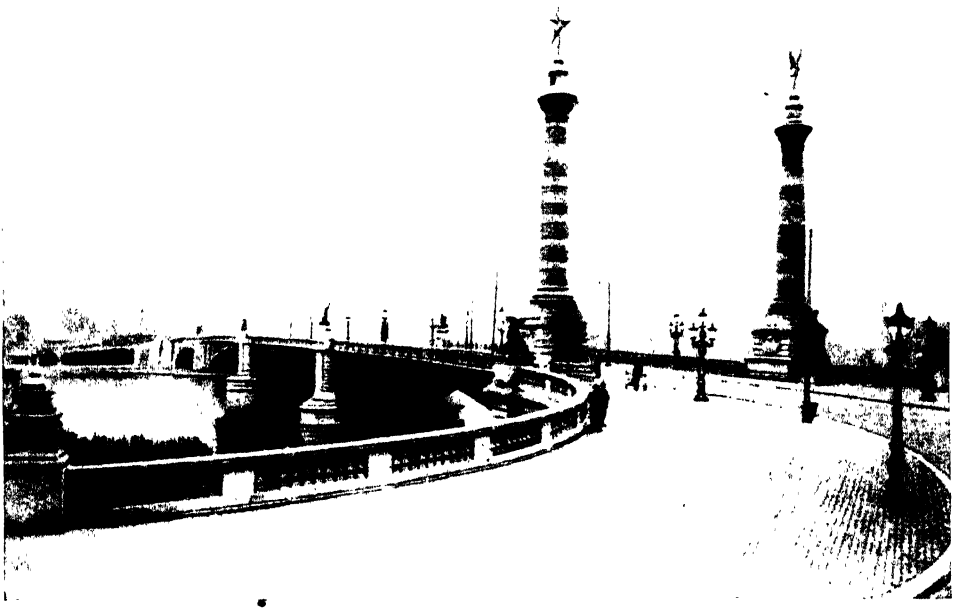
GLIMPSE OF ANSEREMME IN THE BEAUTEOUS VALLEY OF THE MEUSE

The country of the Ardennes is remarkable for its picturesque scenery, full of rare and distinctive charm, and the valley of the Meuse between Namur and the French frontier is one of its most attractive regions. Among the chief towns up the river Anseremme ranks as one of the loveliest; it lies at the junction of the Lesse with the Meuse and is a favourite resort of the artist and nature lover



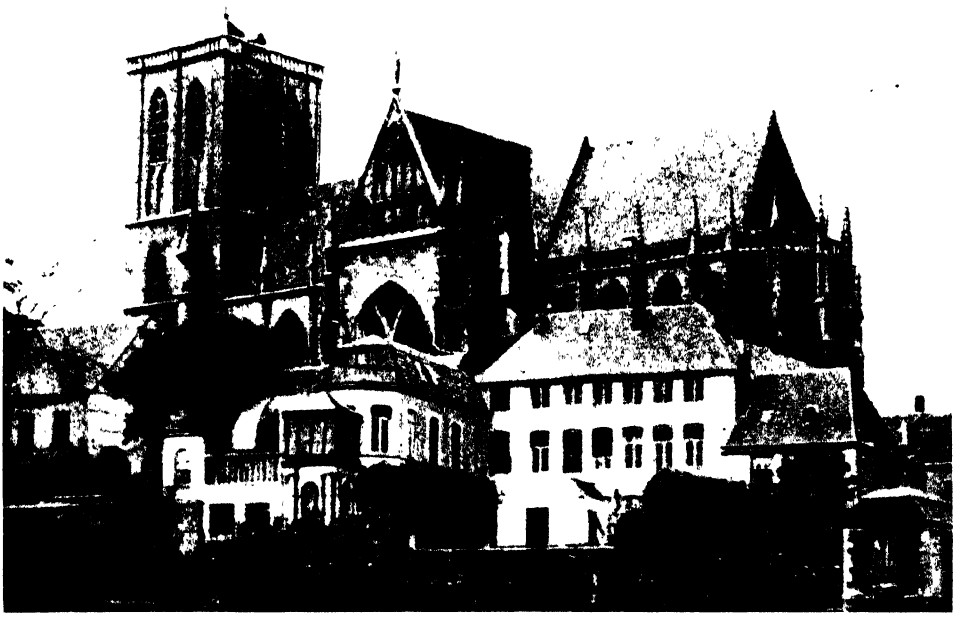
TOWN OF MALMEDY LYING IN ITS COMPACT SYLVAN SETTING IN THE BASIN OF THE WARCHE

Amid steep wooded slopes and verdant fields watered by the river Warche, in about as lovely a natural setting as the mind can conceive, lies Malmédy, chief town of the district of the same name formerly in Rhenish Prussia and since the Great War part of Belgian territory. The town is 25 miles south of Aix-la-Chapelle, and its population of some 5,000 persons is composed mainly of Walloons. The staple industry of the district, which covers an area of 318 square miles, is dairy farming, but the townsmen, intent on industrial development, are chiefly engaged in tanneries and paper mills



PONT DE FRAGNEE SPANNING THE MEUSE AT LIEGE

The city of Liege, occupying a magnificent position on both banks of the river Meuse at the influx of the Ourthe, has considerable commercial importance and has been described as the Belgian Birmingham and Sheffield combined. Extensive quays have been added in comparatively recent times. The handsome Pont de Fragnée spans the Meuse between the Ourthe and the Ourthe Canal



LIEGE: SEVERE BUT IMPOSING PROPORTIONS OF AN OLD CHURCH

Though the present edifice was built in 1542 and subsequently restored, the Church of S. Martin in the Rue Mont S. Martin can claim its share in the glamour of a more remote antiquity; for it is the lineal descendant of the Basilica founded there by Bishop Heraclius in 962 and burnt down in 1312. It was in this early building that the festival of Corpus Christi was first held

Germanic type. He is steady, industrious, prolific, sensuous, musical and artistic. He has more temperament and more originality than the Walloon, although, curiously enough, he is less long-lived. He is also politically more important. The Walloon belongs to the brown Gallic type and his temperament and his character are very like those of the French people. The French influence is dominant and

There are four universities, in Liége, Ghent, Brussels (Liberal) and Louvain (Catholic), in addition to a Faculty of Commerce at Mons and a Colonial Institute at Antwerp. All the higher institutions of learning in Belgium are as much cosmopolitan as Belgian. One-third of the students of Liége are foreigners drawn from all parts of the world. Artistic education is highly developed. The Belgians are, however,



WHERE WELLINGTON AND BLUECHER MET AFTER WATERLOO

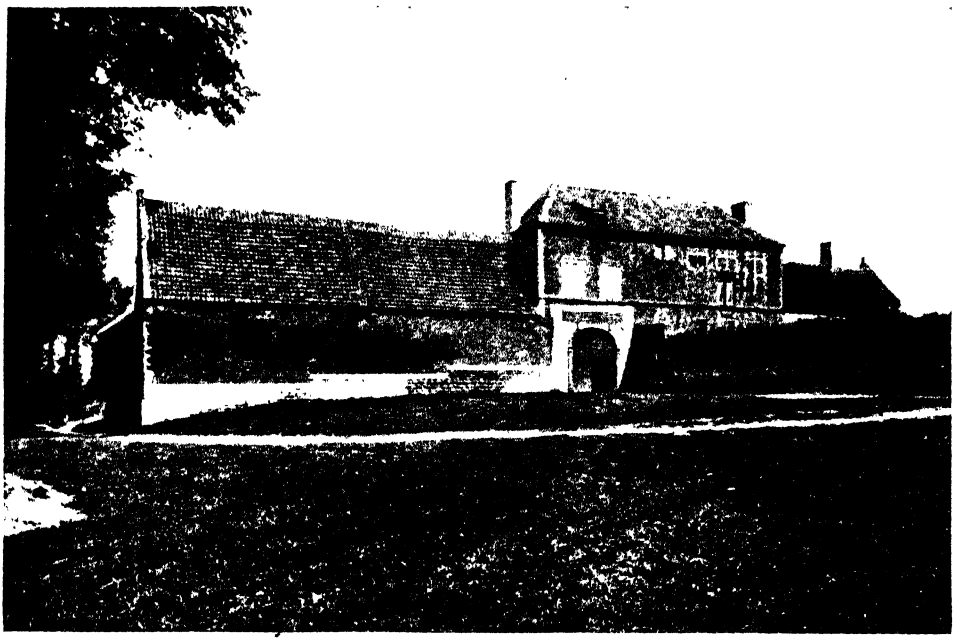
For decades the farm of La Belle Alliance has stood peacefully enough beside the long, poplar-lined "pavé." But one Sunday morning, on June 18, 1815, it found itself in the centre of the French lines, and when evening brought defeat and victory it was near this spot that the two generals whose cooperation had been the keystone of their success met at last

even Brussels, which contains a large Flemish element, has been called a "little Paris." Liége is almost more French than Lyons. Yet although the two races are very different, the solidarity of political life has produced a common type equally characterised by tenacity of purpose and enterprise, and by a wonderful vitality and an astonishing recuperative quality.

Educational progress in Belgium has been slower than might be desired, largely because education has been made a political and a religious question, and illiteracy is still very prevalent

more gifted in music, painting and sculpture than they have proved themselves in the arts of pure literature.

The Great War shook Belgium to its very foundations. Five years of German occupation, the emigration of hundreds of thousands of refugees, the destruction of mines and factories dealt a terrible blow to the former prosperity of the nation. But the country's recovery was astonishingly rapid. Here indeed history has been shown to repeat itself. Belgium has always been the battlefield of Europe and has frequently been ruined. But



HOUGOUMONT FARM THAT IN A DAY BECAME IMMORTAL

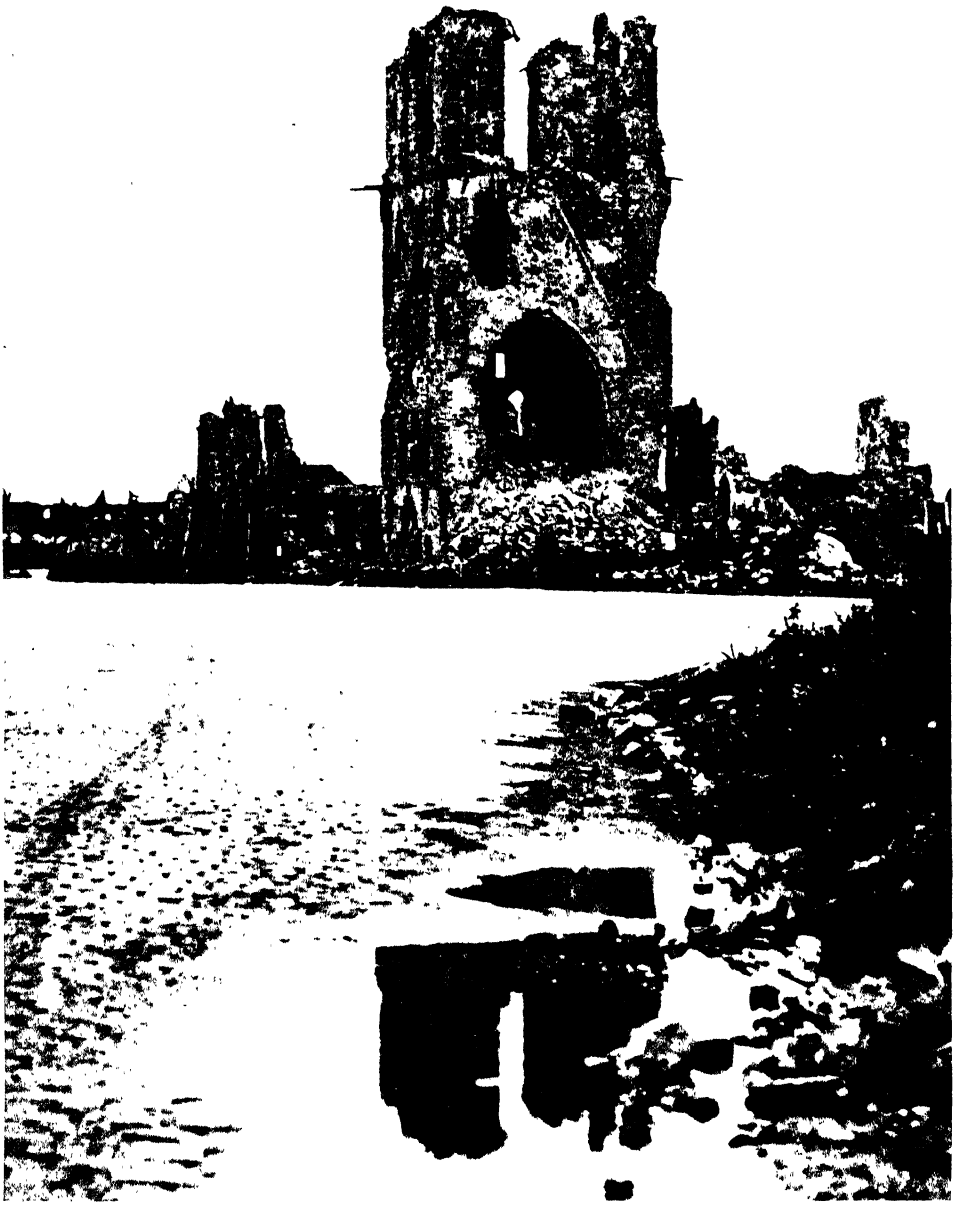
Napoleon opened his attack at Waterloo by a feint at this building on which rested the Allied right. It was garrisoned by Belgian units and detachments of the Coldstream Guards, who made good their defence all day, though towards evening the place was a charnel house. The loopholes that once spat flame from the Allied musketry may still be descried among the bricks



C Ushter Knox

CHAPEL AT HOUGOUMONT WITH ITS MEMORIAL OF THE DEFENCE

During the many magnificent attacks that the French delivered on Hougoumont they several times succeeded in setting fire to some of the outbuildings. These conflagrations were always smothered, but in one of them the flames burnt about a foot of this chapel before being extinguished. Eight hundred corpses were burnt outside the door after the battle and 300 British are buried near by



Leonard McLeish

RUINED TOWER OF THE THIRTEENTH CENTURY CLOTH HALL OF YPRES

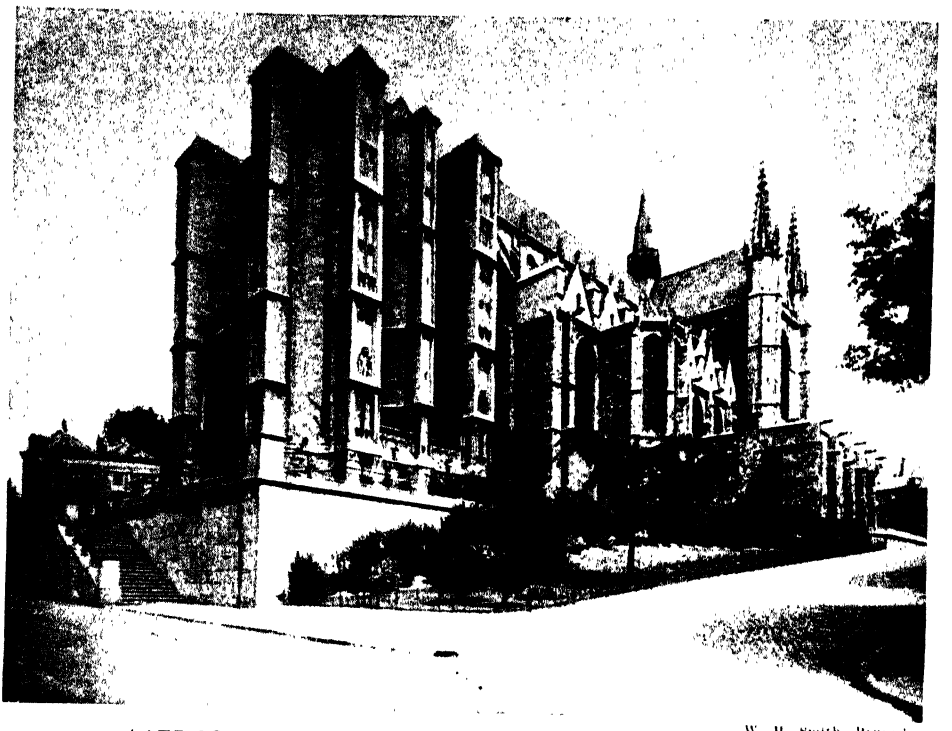
As it stood before the Great War in the Grand' Place at Ypres the Cloth Hall was one of the largest and finest Gothic buildings of its kind in Belgium. It was built mainly between 1200 and 1314, and the tower, which served the town as a belfry, was one of the first portions to be erected. The ruins are preserved as a memorial of the Great War



W H Smith, Brussels

GREAT BELL TOWER OF MONS ON A HILL ABOVE THE TOWN

Opposite the cathedral is the Place S. Germain whence a short ascent leads to the summit of a hill, once the site of some supposedly Roman fortifications. This is now occupied by a pleasant garden amongst whose trees rises the great Belfry with its fine carillon. The tower is 275 feet high and was set up in 1692. But Mons is remembered less for any building than for the Retreat of 1914



W. H. Smith, Brussels

LATE-GOTHIC CATHEDRAL OF S. WALTRUDIS AT MONS

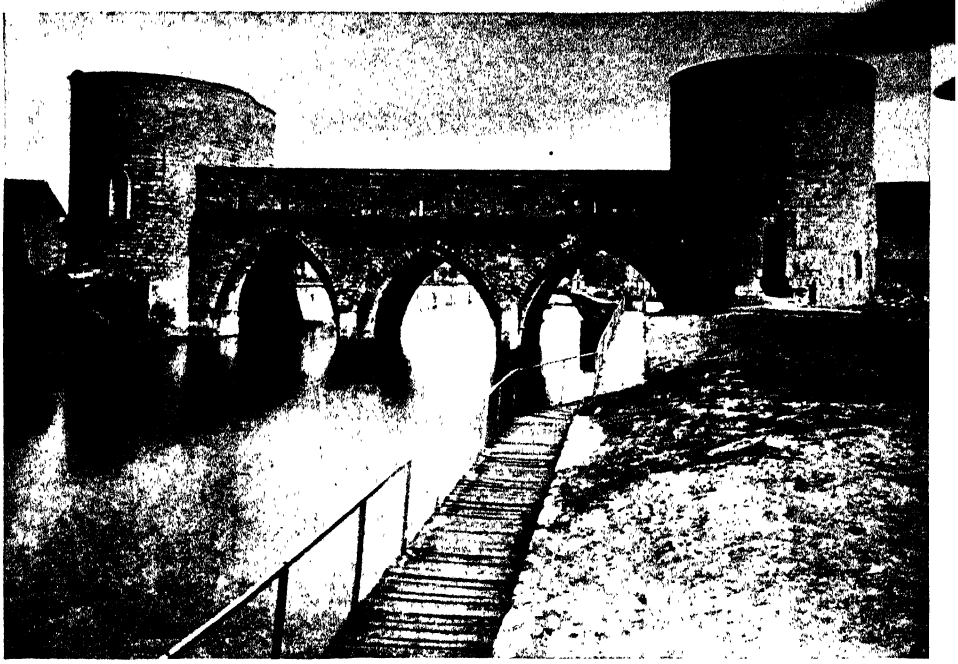
It took nearly 200 years to construct this building whose first stone was laid about 1450 and whose nave was not finally completed till 1621. The dedication is to the first countess of Hainault, of which province Mons was the capital from the eighth century. A later countess married Edward III. of England. The cathedral has ninety windows, of which many contain rare stained glass



W. H. Smith, Brussels

IN THE HEART OF THE CITY OF TOURNAI. THE GRAND' PLACE

In the centre of Tournai is found the Grand' Place, triangular in shape and adorned with a bronze statue of the Princess of Epinoy, the heroic woman who defended the town against the forces of Alexander, Duke of Parma, in 1581. The towers of the cathedral are seen above the houses on the left, while at the far end of the Place rises the isolated Belfry, partly dating from the twelfth century



E N A

PICTURESQUE PONT DES TROUS, REMNANT OF THE MIDDLE AGES

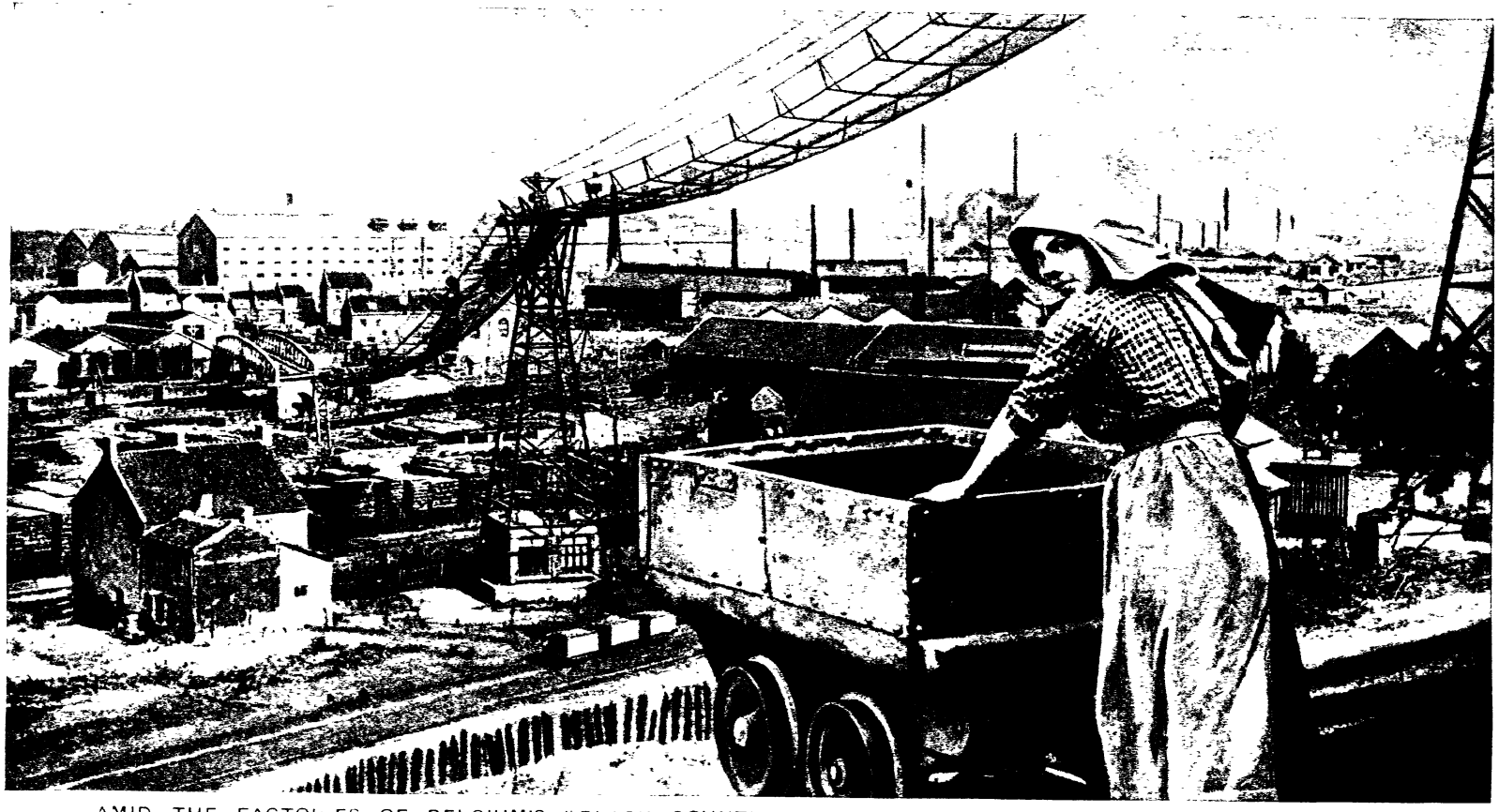
Tournai still contains some fine examples of medieval architecture, not the least interesting of which is the massive old Pont des Trous which spans the Schelde in three pointed arches at the lower end of the town. Built during the thirteenth century this ponderous structure, guarded by two strong towers, is full of historic interest and valuable as a relic of the ancient fortifications of the city



W H Smith, Brussels

STATELY MINSTER OF TOURNAI, ONE OF BELGIUM'S ANCIENT CITIES

The cathedral of Notre Dame is the dominating feature of Tournai, a city standing on both banks of the Schelde nearly 100 feet above sea-level. The central tower is surrounded by four lateral steeples of very graceful proportions; the nave and apsidal transepts are Romanesque of the eleventh-twelfth centuries, and the whole structure is one of the noblest achievements of medieval Belgium



AMID THE FACTORIES OF BELGIUM'S "BLACK COUNTRY": GIRL WORKER IN THE CHARLEROI COAL-MINES

A town of some 30,000 inhabitants, Charleroi is situated in one of the most densely populated areas in Belgium. It lies on an important coal-field with an immense output, is the centre of the iron industry, and has chemical, glass and pottery works. The town occupies the site of the former village of Charnoy, renamed Charleroi in 1666 in honour of Charles II. of Spain. It is in the province of Hainault and stands on the river Sambre, 22 miles by railway east of Mons, and is connected by waterways with the great system of canals of north-east France and Belgium



RIVER SCENE SUCH AS FLEMISH MASTERS LOVED TO PAINT

Along its placid course to the Schelde the Lys provides many a charming scene of industry wedded to calm and settled beauty. This photograph was taken on the outskirts of Courtrai (see page 677) and shows on the right one of the poplar fringed towing paths so characteristic of the Belgian countryside, while on the left may be had a glimpse of stacked flax ready for "retting" or rotting



SOAKING FLAX IN THE WATERS OF THE "GOLDEN RIVER"

The wealth of Courtrai and the surrounding district depends on linen in all stages of manufacture from flax to lace; and the reason for this preeminence rests with the river Lys. Owing to some quality of its water it is excellent above other rivers for rotting the flax, so much so that Irish flax is sent all the way there and back for this purpose alone; hence its name of the "Golden River"

it has always and very speedily been restored to prosperity. It cannot be said that Belgium gained any political advantage from the Peace Treaty. The 350 square miles of the Eupen and Malmédy annexed territories may prove to be a doubtful acquisition. Since 1918 there have been severe economic crises and labour troubles. The depreciation of the franc presented a formidable economic problem, and the loss of the Russian and German markets was not replaced by the gain of any other markets. To judge by the experiences of the past, however, there can be little doubt that the Belgian people with their indomitable spirit will weather the storms and maintain their place in the front rank of the progressive nations of Europe.

BELGIUM: GEOGRAPHICAL SUMMARY

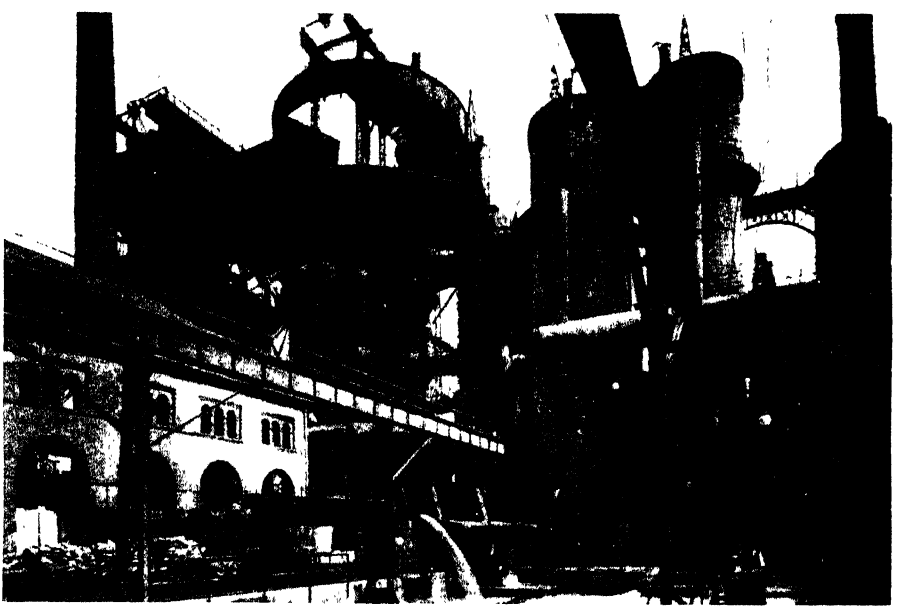
Natural Divisions. Coast—part of the 1,000 mile belt of sand dunes that fringes the North Sea. North—behind the dunes, western section of the Great European Plain. South—the Ardennes—one of the relics of the oldest mountain formation of middle Europe.

Climate and Vegetation. West European type, similar to, yet slightly more extreme than, that of the British Isles. The westerlies from the Atlantic Ocean bring frequent cloud with rain at intervals. Naturally a forest region.

Products. In agriculture, mining and population, probably, for its size, the most remarkable country in the world. Spade tillage produces wheat, potatoes, etc.; intensive cattle rearing provides dairy products. Coal, iron ore and zinc are the chief minerals, and on them is based a great engineering and metallurgical industry, as well as important textile production in linen, cotton and wool.

Communications. The Schelde and Meuse, with their tributaries, are connected with the waterways of France, Holland and Germany; the main railway lines, fed by a remarkable development of light railways, are international in scope. Antwerp is one of the greatest seaports in the world.

Outlook. Ringed with a closed fence, Belgium would have sufficient natural resources to be almost self contained, yet her position as a transporting depot has taken her far beyond mere self-sufficiency. Trade and production for sale are the mainstay of the people, whose future progress lies almost solely in the development of the world's trade. Belgium is the antithesis of Armenia.



MOLTEN SLAG IN A METALLURGICAL FACTORY OF COUILLET

Hainault, one of the nine provinces of Belgium, contains some of the principal industrial centres in the country; the rich coal and steel districts centring on Mons and Charleroi, whose coal fields and industries are closely connected with those of north-east France. Couillet is likewise a commune of iron workers, and the monotonous whir of machinery is heard throughout the day and night

BELGRADE

Progressive Capital of the New Serbia

by Sir Percival Phillips

Journalist, Author and War Correspondent

BELGRADE is a pleasant little city, chiefly remarkable for the astonishing energy it has shown in throwing off the old-fashioned garb of a Balkan town and living up to its new dignity as the capital of the Kingdom of Serbs, Croats and Slovenes, more familiarly known as Yugo-Slavia.

Although it possesses a population of less than 150,000, no community which suffered from the disintegrating effects of the Great War has undergone a more sweeping transformation since the armistice. An almost aggressive air of modernity stamps Belgrade as a pioneer in the intensive development of the Balkan States. It is all the more remarkable when one remembers that there are residents still living who knew the city merely as a dingy Turkish garrison town, possessing only the most primitive comforts. To-day the historic name "Beograd" (White City), which has clung to it through centuries of misfortune and misrule, is again realized in the post-War capital with its clean and cheerful streets and new stone and stucco-fronted buildings.

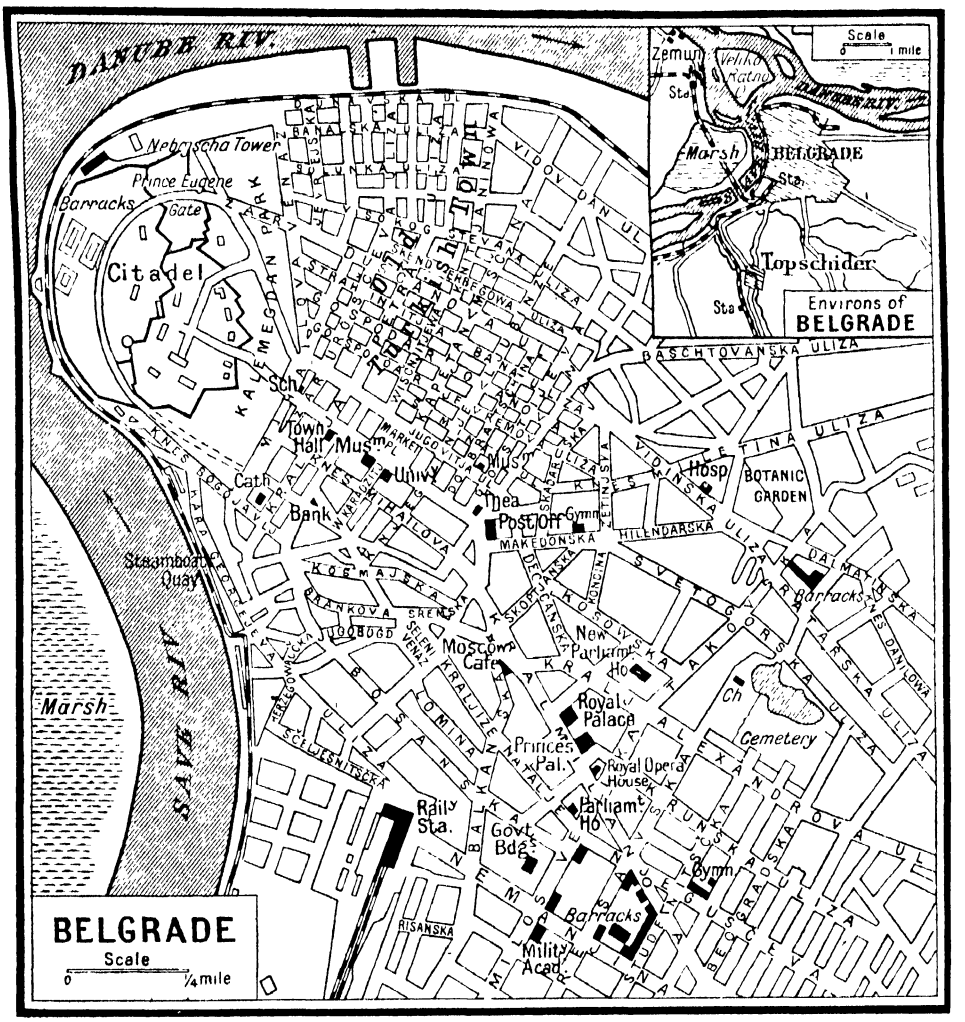
A Long-Contested Stronghold

Few capitals enjoy such a dominant site. It stands upon a narrow ridge which juts out boldly at the confluence of the Danube and the river Save and commands the wide plain on either side. Until long-range artillery revolutionised the science of war, this high shoulder of ground was a natural stronghold, the ownership of which was bitterly contested throughout the ages. Wandering tribes realized its security as early as the fourth century; the Romans built a fort on the summit and under Justinian, the Byzantine emperor, it became an important walled military depot. Attila and his Huns, the Samaratic tribes and the Ostrogoths held the hill in turn. Crusaders camped there on their way to the Holy Land. Then the Turk took the fort in 1521, and for more than 400 years save for intervals remained lord of the Danube.

Liberation from the Turkish Yoke

During this long period there were repeated struggles which gave the Serbs, Austrians and Hungarians brief tenure in turn, but it was not until 1866 that the Turkish garrison was finally dislodged from the citadel on the brow of the hill and Belgrade became wholly the property of the Serbs. Peace prevailed until 1914 when the first shells of the Great War were fired into the defenceless city. For three years the Germans and Austrians were masters of the ridge. With the armistice came the birth of a new and greater Slav kingdom, and now there remains only the battered brick shell of the old fort as a relic of the passing of the Turk.

Viewed from the train which approaches deviously across the Hungarian plain past Zemun, the pre-War frontier station, the distant view of Belgrade is very imposing. The ridge is so narrow that the city appears to be struggling for a foothold upon the steep slope; rooftops rise in crowded terraces from the riverside quays, and at the tip of the promontory the shattered bulk of the citadel looms large over the meeting-place of the rivers. The traveller realizes how the ridge could be held when war was waged with primitive weapons, and how defenceless it was when Austrian monitors on the Danube and howitzers hidden in the



SERBIA'S CAPITAL ON A RIDGE 'TWIXT SAVE AND DANUBE

plain were able to fire almost point-blank at such a tempting target set large against the sky.

Victory erased the old frontier bounded by the Save, and to-day the plain with Zemun and all the towns for many miles beyond it which were part of the old Austro-Hungarian empire are within the confines of South Slavia.

In Turkish times the ridge was covered by a straggling, overgrown village intersected in a haphazard way by narrow, filthy streets. From the fort at the tip a road followed the crest and the more important buildings, mostly of the usual makeshift Turkish type, were clustered around it. The hilltop road is now the principal thoroughfare of the capital, and so complete has been the destruction of the old Turkish town that only a few tumble-down buildings survive on the Danube fringe; these are wholly overshadowed by the masses of concrete and steel surrounding them.

Hemming in the fort at the end of the promontory is a little park laid out in the last century by Prince Michael, as a barrier between the Turkish barracks and the civil population. It still retains the old Turkish name, Kalemegdan (garden), and in summer is a favourite resort for the inhabitants. The panorama of the Danube seen from the shaded terrace of Kalemegdan is a view that can never be forgotten



UPRAVA FONDOVA, STATE MORTGAGE BANK OF YUGO-SLAVIA

The principal banks in Belgrade are the Mortgage Bank, or Uprava Fondova, founded in 1862, the National Bank of the Kingdom, founded in 1883, and the Export Bank, founded in 1901 for the promotion of foreign trade. The first is the only large state institution of its kind in Yugo-Slavia. It controls public funds, negotiates loans and makes advances on mortgage to agriculturists



PORTION OF KING PETER'S STREET IN BELGRADE CITY

Belgrade, or Beograd, signifies White City, and its pleasant clean streets and numerous stucco-fronted buildings amply justify the title. The Oriental aspect of Belgrade has almost disappeared, and handsome public institutions, electric lighting and tramways lend it all the up-to-date touches of a modern city King Peter's Street, or Kralja Petra Ulica, was formerly known as Dubrovatschka Ulica



E. N. A.

OLD-REGIME ARCHITECTURE SURMOUNTED BY A STORK'S NEST

Since its transference from Turkish to Serbian rule, Belgrade has assumed quite a European appearance. Nevertheless, in some districts bordering upon the rivers the quaintly-built and often tumble-down houses still bear witness to the Moslem regime. This house in the Old Turkish Town near the Danube is carefully preserved, for here the first Serbian high-grade school was founded in 1819

Sight-seeing is a simple matter. You have only to begin at the park and walk down the main avenue along the crest of the ridge in order to reach the principal buildings and to study the life of the people. The excursion may prove in a sense disappointing, for the city has no historic monuments, and its development since freed from vassalage to Turkey has swept away what little there was of picturesque charm. There are no bazaars, no medieval churches, no deserted mosques or old Turkish palaces. The cathedral is a severe stone structure, depressingly like a Georgian parish church in England, perched on the hillside below Kalemegdan; it would hardly be noticed by the tourist.

The hilltop avenue is the main artery of Belgrade. In order to reach it you must scramble breathlessly up steep and slippery side streets from the river level, or trust to the exertions of frantic, half-starved horses as they drag your rickety carriage over the uneven stones. But once at the top you are well satisfied by this rambling thoroughfare without at first knowing why. Eventually it dawns upon you that the mere fact of being once more on level ground is curiously pleasant, and you realize why the residents living on the slopes drift upwards during the later afternoon and evening for the sake of walking solemnly in procession from the park to the royal palace and back again.

Like certain absent-minded streets in London, this avenue changes its name as it progresses, and – in an even more surprising way – changes its character as well. At first you are in Knes Mihailova (Prince Michael Street) which pretends that Belgrade is still a drab little city of plain-faced, low-roofed dwellings, interspersed by still humbler shops dating well back into the last century.

But this deception is not long maintained. The hustling real-estate speculators and their accomplices, the masters of concrete, are eating steadily into the fabric of the pre-War capital ; and after a few hundred yards of provincial simplicity the visitor is ruthlessly plunged into the heart of new Belgrade.

The Serbs do not believe in hastening slowly when they are concerned with town planning. Reconstructing a city piecemeal—a brick at a time, so to speak—is far too tedious. They have hoisted entire blocks of glaringly up-to-date office buildings and apartment houses into the air, and consequently the Knes Mihailova suddenly finds itself decked with architectural ornaments more French than Slav : tall, assertive structures plastered above with statues of heroic size and frivolous little red balconies, and with a shining expanse of plate-glass below. During the first five years of peace 3,000 new houses were erected.

Here and there an all but submerged survivor of the old regime still peeps out sadly between lofty compositions in concrete, and at intervals a little group of " diehards " — insignificant one-storey wooden and whitewashed affairs —hang together in a futile last stand against the invasion of the lightning builders. But they make no impression. The general effect is one of uncompromising newness and a determination to outshine all the lesser Balkan capitals in splendour and proof of prosperity.

And so the street itself expands under the influence of this ambition. Rising in the social scale, it becomes the Kralmilanova (King Milan Street) and, widening out cheerfully, is inclined to follow the Parisian style in boulevards. You are invited to admire its spaciousness where it reaches the Moscow Café, for an ornate bandstand has been planted there as a kind of island in the stream of traffic, and this virtually marks the centre of the city.



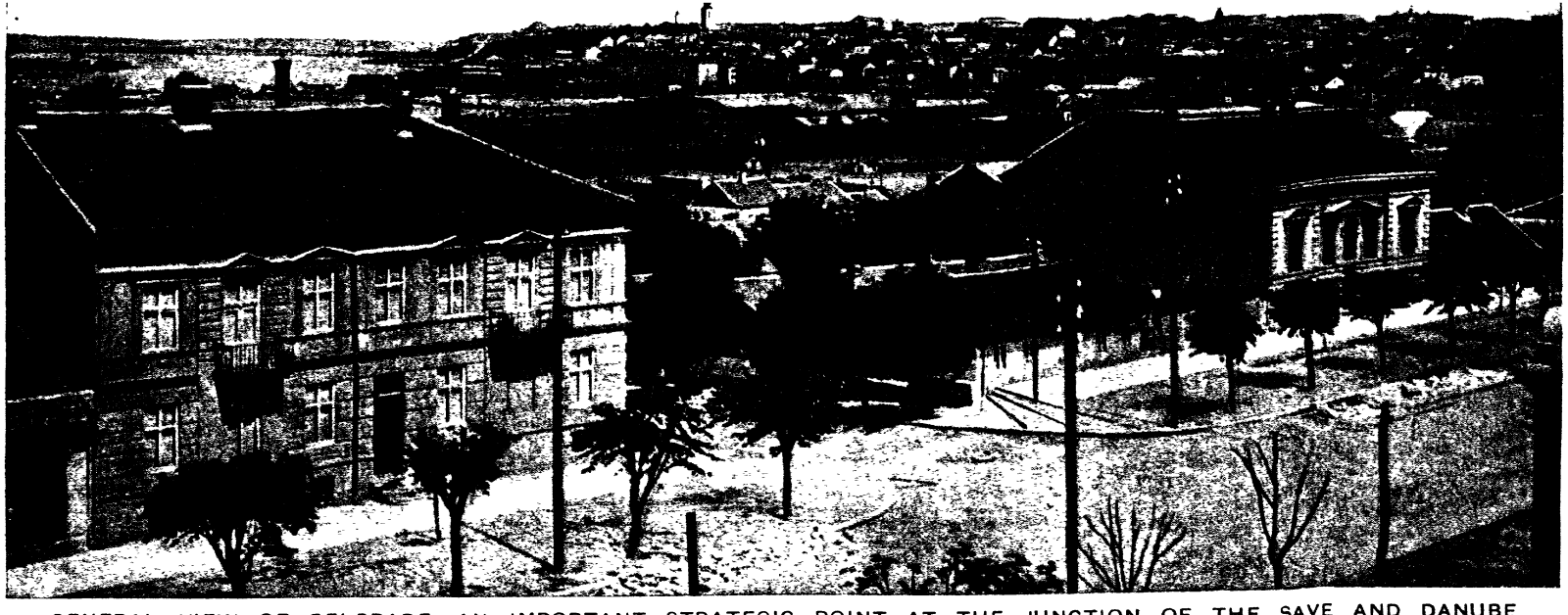
CHARACTERISTIC DWELLINGS IN BELGRADE'S OLD TURKISH TOWN

Of the three old divisions of Belgrade—now only partially applicable—the Dortschol, or Turkish Town, on the Danube north-east of the fortress was the principal. The typical plaster walls and red-tiled roof of the Turkish domicile are still to be seen in this old quarter, where a provincial simplicity prevails that contrasts strikingly with the modernism of later important extensions



BELGRADE, CAPITAL OF THE SERB, CROAT AND SLOVENE STATE, VIEWED FROM ZEMUN IN SLAVONIA

The city of Belgrade, known until the seventh century by its Celtic name of Singidunum, lies on the south shore of the Danube at its junction with the river Save Though possessing little industrial importance, the city enjoys considerable prestige as the residence of the king and the seat of government Foremost among the principal structures are the cathedral the lofty spire of which is seen above in the central background, the royal palace, the new parliament house, the university, the national library and the national theatre Zemun, formerly in Hungary and known as Semlin, lies across the water directly opposite Belgrade



GENERAL VIEW OF BELGRADE, AN IMPORTANT STRATEGIC POINT AT THE JUNCTION OF THE SAVE AND DANUBE

The old town of Belgrade was originally encircled by walls, pierced by several gates, but only mere fragments of these ancient fortifications are still in existence. As a fine strategic point the city has long been recognized ; in the Roman times it was an important military camp and frequently changed its masters during the early centuries of the Christian era. In the ninth century it was captured by the Bulgarians, and from that time passed successively under Byzantine, Hungarian, Serbian and Turkish rule ; it was finally transferred to Serbia in 1866. During the Great War it experienced two severe bombardments



BROAD STRETCH OF THE SAVE RIVER AND THE LOWER TOWN

Situated mainly on an eminence which slopes down on the one side towards the Save, on the other towards the Danube, Belgrade may be said to consist of the upper town, containing the citadel, and the lower town on the river bank. Across the water on the right is seen a tongue of the Zemun district from which the famous Vienna-Constantinople railway bridges the Save to reach the capital

A seat on the terrace of the Moscow Café during apéritif time, or on a pleasant summer evening, affords an excellent opportunity for studying the types and personalities of Belgrade. The entire population appears to be on parade in an aimless, good-humoured way. One realizes that, despite the showy superstructure of a smart Western city, the real life of the Balkans underlying it is emphatically different from that of its more sophisticated neighbours on the other side of the Hungarian plain. Peasant costumes and Paris fashions are unexpectedly mixed in the slow-moving throng. As smart frocks are to be seen in the Kralmilanova as in the Rue de la Paix; nor does the Belgrade "young man about town" differ from his brethren in other cities which are ministered to by expensive tailors. They excite as little notice as do the martial-looking Montenegrins in their jaunty little embroidered jackets and "pill-box" caps and the Albanians in mountain dress newly arrived from their refuges in the southern hills.

The dress parade on the Kralmilanova has a decidedly military tinge. Officers of the regular army seem to favour tight khaki tunics covered with bright ribbons and little enamelled crosses; but there are others in the more imposing uniform of the royal guard, also the cadets from the government Academy and representatives of the "navy" in blue frockcoats with gold markings and heavy epaulettes. The army, however, is supreme. Soldiers in worn service uniforms are encountered everywhere; even the police are a species of soldiers and they patrol the streets with short rifles strapped to their backs. The church is represented by bearded, fatherly-looking priests in voluminous cassocks and by monks with long hair. When a funeral passes down the Kralmilanova you see the full splendour of the Greek ritual in the heavy

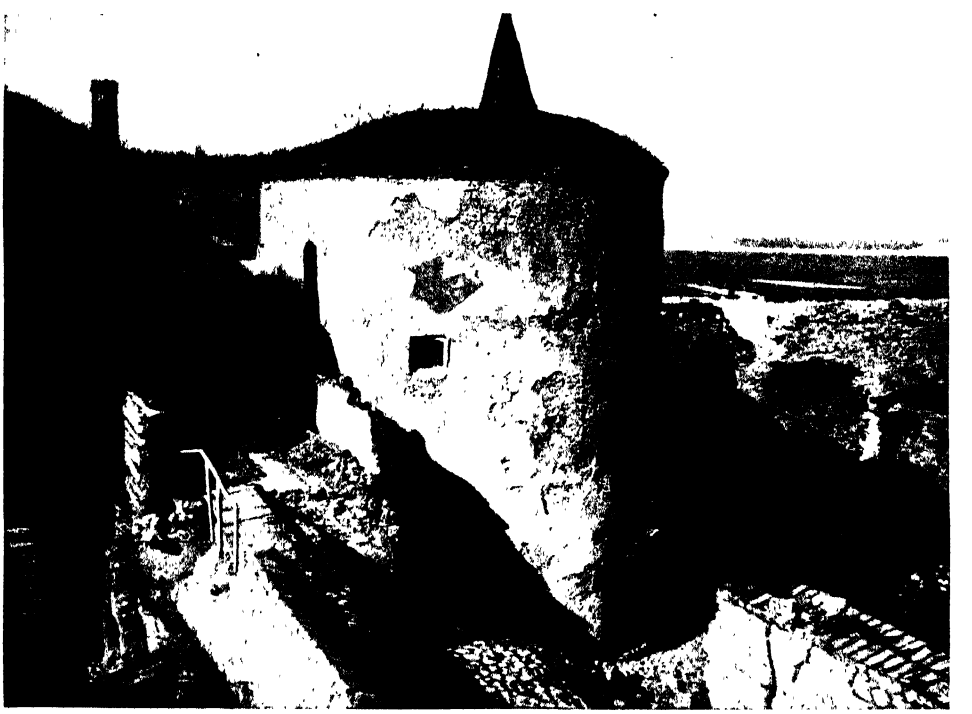
gold-embroidered copes worn by the clergy who walk three abreast by the open bier.

A pathetic note in the martial pageant is struck by the Russian refugees who wander about in faded, much-darned tunics still adorned with their service medals and the decorations won in Tsarist days. There are thousands of Russians in and around Belgrade, including the greater part of the army which fought under General Wrangel in the Crimea. They are engaged in all kinds of work. An ex-general who commanded an infantry division during the Masurian lakes campaign sells newspapers in the hotels and cafés, and a prince is glad to run errands at the Moscow Café. There are Russian restaurants in the side streets where these exiles gather nightly and listen to their national songs.

The street second in importance is Milosh Veliki (Milos the Great) which crosses the Kralmilanova, and here are to be found most of the government offices—modestly housed—and the temporary quarters of the Skupshtina (Parliament House), a plain wooden structure with no pretensions to architectural beauty. In the little square hard by the Kralmilanova is the new Royal Opera House, also a post-War product, in concrete. Milosh Veliki leads to the district known as Topschider, a favourite residential quarter where there is a royal villa and many fine modern mansions.

Even the royal palace has grown and put on new dignity since King Peter first came back from his long exile in Switzerland to re-establish the Karageorgevitch dynasty.

He lived in a comfortable but unimposing residence from the first-floor windows of which he was accustomed to watch the animated scene in the street below. His son Alexander, the first King of the Serbs, Croats and Slovenes, occupies a larger



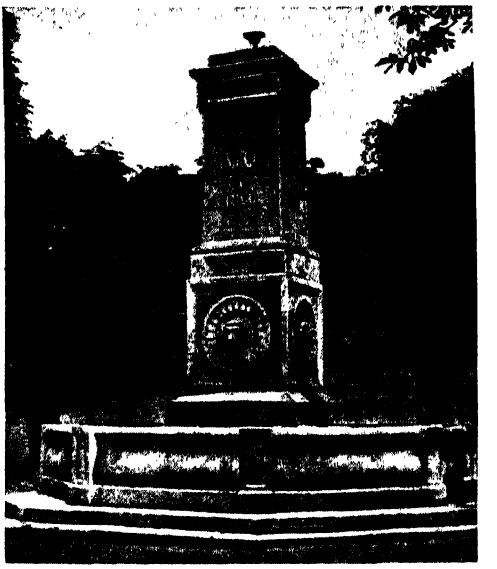
E. N. A.

OLD-WORLD FORTRESS CROWNING BELGRADE'S HEIGHT

Set on a limestone rock, 150 feet high, the imposing citadel of Belgrade commands an extensive view of the surrounding countryside. The walls and towers of this ancient stronghold, mellow with age, have been ruthlessly scarred by time's passing and various bombardments, and present a truly dilapidated appearance. Nevertheless, the hoary fortress still proves useful as barracks

and more splendid palace facing the old one. It is rather like a large country house transplanted to the edge of a busy street. The king and queen live simply and go about among their subjects in very democratic fashion. Save for the stalwart sentries of the Household Guard posted at the entrance gates, you would not know that theirs was a royal residence.

So intent have the Serbs been on erecting a new capital at break-neck speed that they seem to have neglected certain essential improvements. The traveller is made unpleasantly aware of the bad street paving, for even the Kralmilanova and its neighbours of the better class are but indifferently shod, and in wet weather there is mud everywhere. The general effect of the splendour overhead and the insecurity underfoot is that of a man who is proudly wearing a new suit of clothes but the same old boots. It would be impracticable, however, to give a smooth surface to the hilly streets which form the ribs of Belgrade, for when ice and snow cover everything wheeled traffic finds it difficult to ascend to the higher level of the city.



PRINCE MICHAEL'S WELL

To the south of Belgrade is the park of Topschider, where stands this stone well, erected to the memory of Michael Obrenovitch



CENTRE OF THE SERBIAN STATE RELIGION

Despite the important part Belgrade played in history the city contains few historic monuments, but several fine modern buildings stand forth prominently, not least being the cathedral where the Head of the Serbian Orthodox Church has his throne

The city suffers from insufficient water and electric light supplies, but these drawbacks will be dealt with, and the energy already shown in municipal improvements is sufficient guarantee that all the necessities of a modern capital will eventually be provided for Belgrade. The Serbs are very proud of their city, and they are not afraid of comparisons with their Balkan neighbours who have gone more slowly along the path of progress.

BENGAL, BIHAR AND ORISSA

Rich River Lands of Eastern India

by Edward E. Long, C.B.E.

Author of "The All-India Moslem League," "British Rule in India," etc.

LANDS of broad rivers winding their way to the sea through rich plains thickly clad with vegetation of an extreme luxuriance, flanked in the north by the sombre hills of the Forbidden Land of Nepal and by mighty Himalayan ranges, in the south by the lofty plateau of Chota Nagpur, Bengal and Bihar, though they differ somewhat in soil, climate and people, and possess a separate government, are one in a geographical sense, for they are united physically by the great Ganges. They form an extension of the great Gangetic Plain which, commencing at the base of the Himalayan hills near Simla and extending 1,000 miles eastwards to the Bay of Bengal, is one of the most distinctive physical features of India; for within its territory the chief kingdoms of ancient India were established: here the great centres of Indian civilization rose and fell.

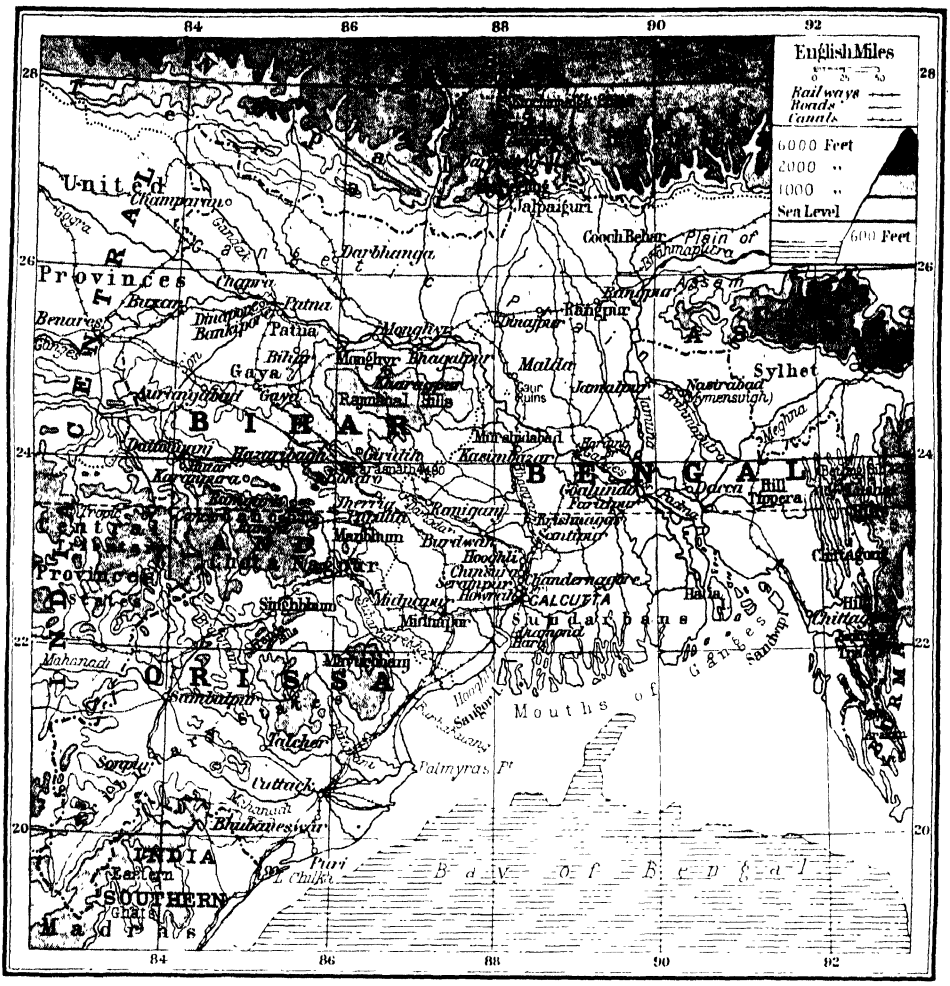
Wedge Between India and Burma

Comprising with Assam the entire north-eastern portion of India, the region comprehensively called Bengal, Bihar and Orissa, with the native states of Cooch Behar and Hill Tippera and the tributary states of Chota Nagpur and Orissa, cover an area of 196,000 square miles. In shape the territory is a broad wedge driven between India and Burma from the head of the Bay of Bengal to the Himalayas, shutting off Assam from the sea, throwing out a wide spur, Orissa, into India on its left, and projecting with Chittagong into Burma on its right like the sharp-pointed tooth of a dog.

Its boundaries in the north are the mountain ranges of Nepal, Sikkim and Bhutan. The first-mentioned, with its wide belt of Terai lands often clothed with dense forest, is in places quite impenetrable, excessively malarious during the wet season, harbouring hordes of ferocious wild animals, and always guarded by jealous Gurkha sentries. In the east the plains of Assam, the Lushai hills and the ranges of northern Arakan in Burma form the border country; southwards lie the Bay of Bengal and the hilly butt-end of the Madras Presidency; while in the west the Central Provinces and the United Provinces provide the boundary —the former mostly with hilly ground and river, the latter with the level lands of the Gangetic Plain.

A Network of Waterways

An airman flying due south over the Darjeeling district of Bengal would descry beneath him, as he passed from the tea-terraced slopes of the Darjeeling hills to the plains of northern Bengal, a broad, cultivated, level tract of land unbroken by hills but threaded in all directions by rivers large and small forming a veritable network of waterways. As he neared the sea this would give place to a labyrinth of creeks and rivers; if it were the wet season it would be an immense lake mottled with dark, forest-clad islands fringed with sandy shore. Turning and flying eastwards he would perceive a rampart of hills by Chittagong and Hill Tippera; reversing once more and flying across the many mouths of the Ganges to the coast of Orissa he would see another tract of flat, alluvial land near the coast, gradually rising hills inland, then a succession of mountain ranges of moderate altitude; and turning northwards over Chota Nagpur, wide plateaux



VAST ALLUVIAL PLAINS OF BENGAL, BIHAR AND ORISSA

of rugged formation sending out hill spurs to the right which project boldly into Bihar and Bengal.

Passing on across southern to northern Bihar, his flight would take him over hilly ground to level, well cultivated plains once again intersected by river and stream and cleanly divided by one river of majestic breadth, the Ganges, bringing from the icy fastnesses of the great Himalayas a mighty volume of water to the teeming millions of Bihar and Bengal, and, what is of almost equal worth, a vast store of rich silt, toll of the fertile highlands.

Except the Singalila Range, which strikes southward from the great peak of Kinchinjunga in Sikkim and possesses peaks reaching an altitude of 12,000 feet, Bengal has no lofty mountains; but in Orissa there is a succession of magnificent ranges, northern spurs of the eastern Ghats, with fine valleys between. Crags and peaks of a wild beauty overhang river channels so narrow in places that the flood rush of water causes a rise of 70 feet. The hills are densely wooded to the summit, and though the height of the highest peaks is somewhat under 4,000 feet their grandeur is most imposing.

North of these lies the extensive and diversified tableland of Chota Nagpur, an extension of the great Vindhyan system of Central India, which from its highest points affords magnificent views. It has an elevation of 2,000 feet and consists of three

plateaux divided by belts of rugged hill and ravine, from which hill ranges extend northwards to Monghyr in Bihar and north-eastwards to Bengal (the Rajmahal hills), while outlying spurs project far into the plains of south Bihar and western Bengal. One of these spurs, the Saranda hills in the Singhbhum district, reaches a height of 3,500 feet, while another, Parasnath, 4,480 feet high, stands out by itself boldly, a landmark for all and a lofty shrine for Jain pilgrims. The mountains of Hill Tippera and the Chittagong Hill Tracts have a certain wild beauty, but the former do not exceed 3,000 feet, except at one point—Betling Sib (3,200 feet); the latter, very difficult of ascent, attain an altitude of 4,304 feet in the peak of Keokredang.

The coasts of Bengal and Orissa are everywhere alluvial and flat, the former with harbours situated up rivers miles inland. Interesting is the process of land formation which goes on owing to the silting-up of river channels. First islands appear, these then join the mainland, and thus the coastline increases and alters in aspect. In this manner were created the Hatia and Sandwip Islands, long notorious as a nest of Portuguese and Arakanese pirates, who harried the coasts of Bengal in the seventeenth century. The only lakes are a string of small ones at Champaran in north Bihar and Lake Chilka in southern Orissa.

The most distinctive feature of Bengal and Bihar is their network of rivers, mostly in the alluvial plains and deltas of the Ganges and the Brahmaputra, though quite a large alluvial coastal strip of Orissa is formed by its principal rivers—the Mahanadi, Brahmani, Baitarani, Burhabalang and Subarnarekha, which flow into the Bay of Bengal from the Orissa and Chota Nagpur highlands.

The Ganges, swollen to noble size ere it enters Bihar from the United Provinces by incorporation with its great tributaries, the Jumna and the Gogra, becomes vastly broader, and is an



F. I. Peters

CRUMBLING TEMPLES OF NASIRABAD BY THE BRAHMAPUTRA

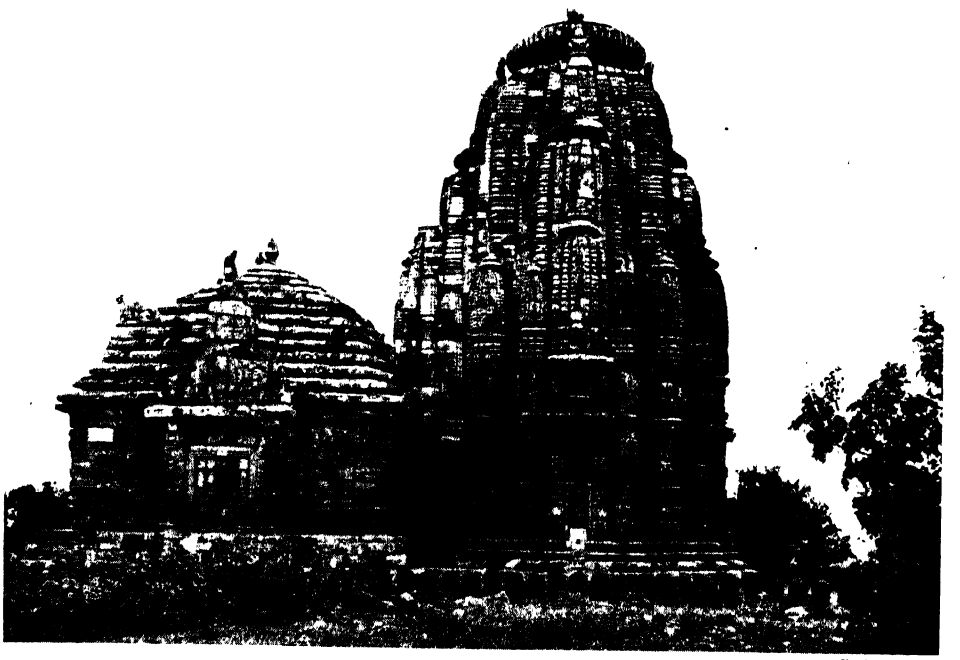
Nasirabad, once known as Mymensingh, stands on the right bank of the old channel of the Brahmaputra in the Mymensingh province of Bengal and some 75 miles north of Dacca. It plays an important part in the river-borne traffic, which is mainly in jute and rice. The town was visited by an earthquake in 1897, as the shattered steps and cracked portico of the left-hand building show



F. I. Peters

ELEPHANT MAKING ITS WAY THROUGH THE JUNGLE TO A SHOOT

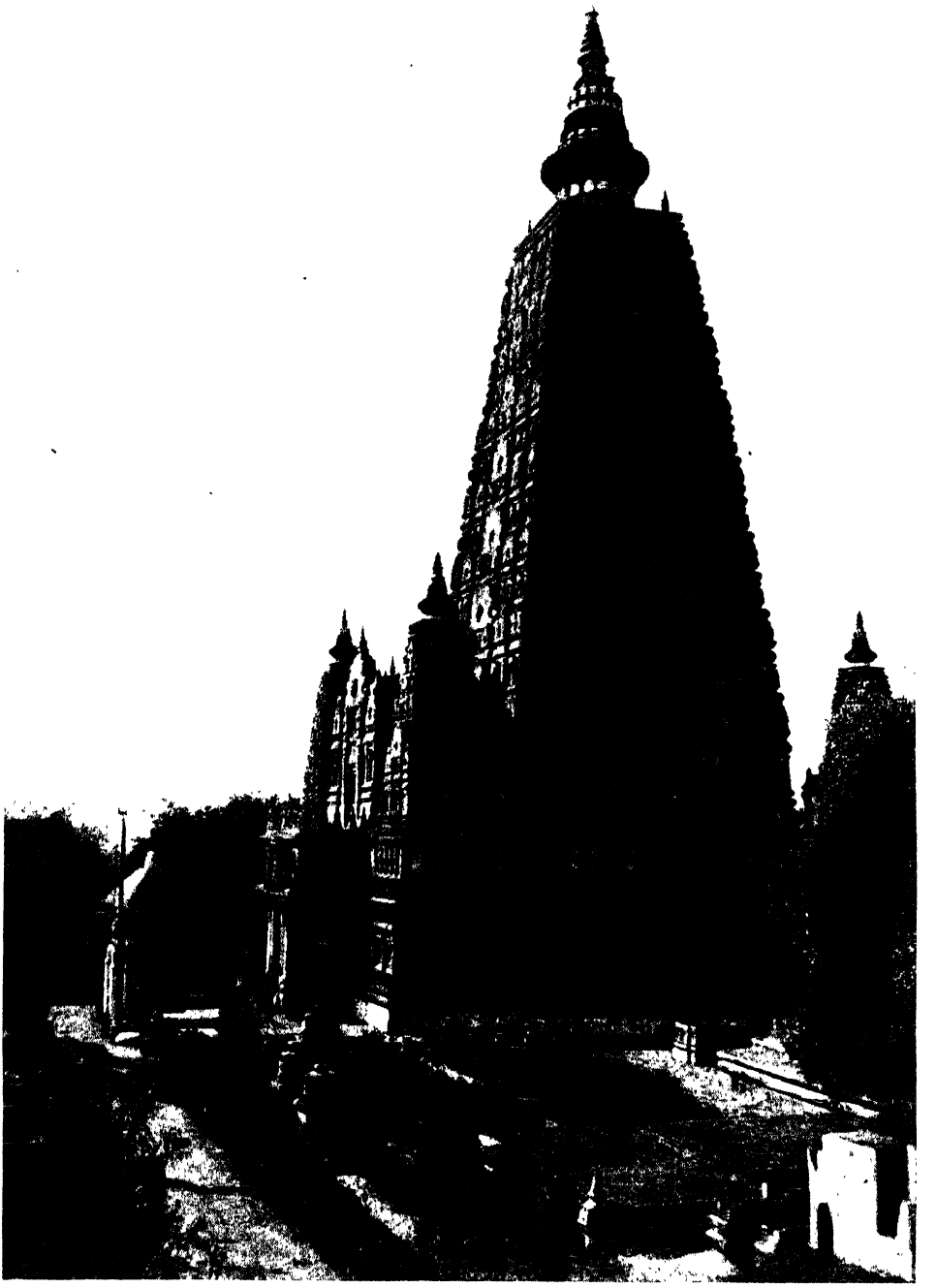
On the railway 37 miles from Gaya is Gujhandi ; and it is in the surrounding jungle country that this photograph was taken. It shows a hunter making his way to a shoot mounted on a " pad " elephant—that is, one used for riding and not haulage. The Indian elephant is one of the only two existing species and is bulkier and has smaller ears than the African kind



F. I. Peters

MAGNIFICENT ARCHITECTURE OF A TEMPLE IN ORISSA

At Bhubaneswar in Orissa are several hundred great Hindu temples of various degrees of splendour, relics of a traditional 7,000 that encircled the sacred lake ; one of these is illustrated here. The great cone of the " sikhara " is ornately carved and there is lavish decoration with symbolical figures. Dating, as some of them do, from the seventh century, they have been restored but not spoiled



F. I Peters

BUDDH-GAYA, MOST SACRED SITE IN THE BUDDHIST WORLD

There is no other temple in all India to compare with the great temple of Gaya in Bihar. It was erected on the site of the shrine built in the third century B.C. by the great Asoka to mark the spot where Gautama became the Buddha. Throughout the ages it has been the goal of pilgrims from all parts of Asia, and the traveller is at once struck by its grace and its dignity



TEMPLE OF THE "LORD OF THE WORLD" AND HIS JUGGERNAUT CAR, AT PURI IN BENGAL

F. I. Peters

In a district of the same name in the Cuttack division of Bengal stands the famous town of Puri, to which sometimes as many as 250,000 people flock on the occasion of the annual festival in honour of Krishna. His image, called Juggernaut or Lord of the World, is housed in the magnificent 800-year-old temple shown above, but once a year is dragged forth in a colossal car which has become proverbial for inexorable progress. Stories of self-immolation beneath its wheels are much exaggerated. The town, with a population of nearly 40,000, stands on the Bay of Bengal and is in use as a health resort for Europeans

awe-inspiring spectacle during flood time. Flowing eastwards and gaining fresh strength from two other tributaries, the Gandak from the north and the Son from the south, it cuts Bihar and western Bengal in half, and then turns sharply south-eastwards, throwing off a subsidiary stream, the Bhagirathi, which proceeds southwards to Calcutta, and thence, as the Hooghli, to the sea. The Ganges flows on to mid-Bengal and at Goalundo joins the Brahmaputra, one of the grandest rivers in the world, 1,700 miles in length, which retains the proud distinction of being unbridged.

The Brahmaputra entering Bengal in the north-east from the plains of Assam flows on due southwards to meet the Ganges, and from Goalundo these two mighty rivers flow as one (the Padma) to the Bay of Bengal, their channel widened yet further by the inclusion of the Meghna from the Khasi hills of Assam, noted for its great tidal wave.

Deltas as Big as England and Wales

The deltas of these three great river systems cover an area of no less than 50,000 square miles, very nearly equal to that of England and Wales, its lower part, split up into innumerable waterways by the many estuaries of the Ganges, being known as the Sundarbans, a region of swamps and morasses, some filling up, others in course of formation—a maze of rivers and streams enclosing numbers of islands of every shape and size.

Although the greater part of Bengal and Bihar lies just outside the tropics, for about two-thirds of the year the climate is tropical. From the middle of March to the end of October it has two distinct weather periods—dry and wet; the former lasting from mid-March to the middle of May, the latter from May to nearly the end of October. During the dry period high temperatures are experienced, a mean on the plains varying from 80° to 90° F., but the intense heat is mitigated by violent storms known as nor'-westers, generally accompanied by heavy rain and occasionally by hail. There is a marked difference between Bengal and Bihar during the dry season, the latter being swept by hot, dry winds from the west, and having higher temperatures but less humidity. In the wet season, ushered in by a strong south-westerly wind current which blows up the Bay of Bengal, the temperature falls slightly, but humidity increases, and the heat is less bearable; relief is always at hand, however, on the heights of Darjeeling for those who are able to make the journey thither, where it is pleasantly cool and refreshing.

Effect of Climate on Europeans

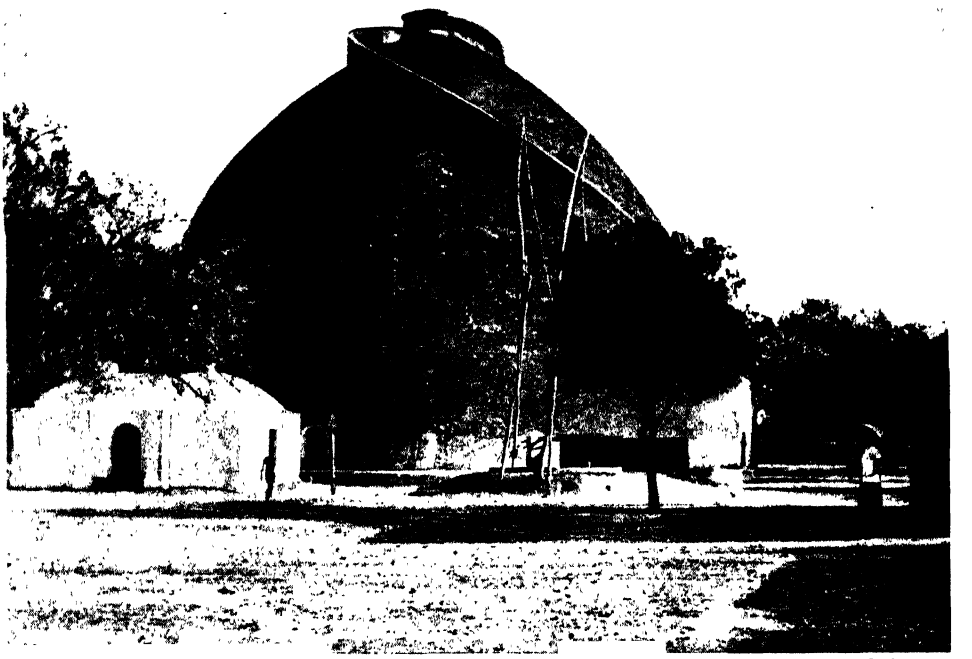
At the end of October northerly winds set in, blowing down from the mountains, the temperature falls to a mean of about 64° F., humidity decreases considerably, and from November to February, inclusive, there is dry, cool weather, with practically no rainfall.

Although great variation in temperature occurs throughout the year, from a minimum of 52° F. in the coldest period to 103° in the hottest, the diurnal range is not great, averaging not more than 20° or 21° in November to January, 18° in May and 10° in July. Darjeeling has the lowest mean, 40° in January, and Cuttack in Orissa the highest, 90° in May. On the whole, Bengal is not unhealthy, even for Europeans if they live carefully, but continued residence therein without a change in the hills, or better a voyage to Europe, tells upon most people.

Cyclones and Devastating Floods

Rainfall is greatest along the coast, in the north and east, and in the inland districts of Orissa, and is least in Chota Nagpur, western Bengal and south Bihar. It varies from 122 to 229 inches in Darjeeling to 42 in south Bihar. The average rainfall in the western tract is only 52 inches as compared with 73 in the eastern and rain commences much earlier in the north and east than it does farther west. It is, however,

largely dependent upon local conditions, and its fluctuations are so irregular that while devastating floods not infrequently occur from an excessive rainfall, the rains occasionally fail, and the hilly districts of Orissa and Chota Nagpur and south-west and north Bihar and north Bengal have sometimes experienced serious droughts. Bengal is also subject to severe cyclones, especially on the coast of eastern Bengal.



F. I. Peters

RELIC OF WARREN HASTINGS: GIANT GRANARY AT BANKIPORE

To the west of Patna is the suburb of Bankipore, important in the Patna district as a railway junction. Its most remarkable building is this huge grain or rice store called the Golá. It was erected by order of Warren Hastings (1732-1818), the ill-fated governor-general of India, as a precaution in case of famine. It measures 426 feet round the base and 96 feet in height

Earthquakes visit the province occasionally, the last one of any considerable severity occurring in 1897, in north and east Bengal, where much damage resulted.

More than half the whole area of Bengal—the eastern—is composed of the rich alluvium brought down by the rivers, the top soil varying from sand to clay and the greater part being a light loam. Moreover, the rivers which have made the soil enrich it annually, for the silt they bring down when in flood is the best of all possible manures. The soils of the other parts are mainly gneissic, laterite and old alluvium, all of which require artificial manures.

Vegetation is very luxuriant, the soil teeming with every product of nature in such profusion that it is capable of supporting one of the world's densest populations. In Bengal and Bihar the vegetation is diluvial, most of the species both wild and cultivated being widespread in the eastern tropics. Bihar, with a mainly annual turf, has the crops and weeds of Upper India, and its forests in the south are open and park-like; Bengal has perennial turf, and except in the extreme north the forests are mixed with reedy grasses sometimes replaced by savannahs. East of the river Bhagirathi the greater part of the country is a vast aquatic rice-plain with patches of jungle on river banks and marshes, sluggish streams and pools filled with water-plants. This is intensified as one proceeds



F. Deaville Walker

LONE VILLAGE HIDDEN AWAY IN A LEOPARD-HAUNTED JUNGLE

This photograph was taken from the roof of a house belonging to the chief landowner in the locality. The houses, like those in most jungle villages, are of mud and thatched with straw. The jungle in this vicinity, the Midnapur district about 100 miles west of Calcutta, is infested with leopards. In these villages one finds a self-supplying community complete with carpenter, potter and smith



F. I. Peters

ELEPHANTS AND DEVOTEES IN THE HAPHAZARD CONCOURSE OF A YEARLY HINDU FAIR

At Singheswarthan, on a northern tributary of the Ganges in the Bhagalpur district of Bihar, is held every year what is known as a "mela"; it is a kind of fair in connexion with a Hindu religious festival, and here pilgrims are seen bathing and paying their devotions at the shrine. Bhagalpur district is a very heavily cultivated area, maize, wheat and rice being grown, of which the last named is far the most important crop and is exported in considerable quantity. Altogether three-quarters of the total area have been brought under cultivation

eastwards, where during the rains the rice-swamps become vast inland fresh-water seas, picturesquely dotted with grassy, floating islets, until the Sundarbans are reached; here the partially submerged islands are densely covered with Malayan shore forest and mangrove swamps and the flora comprises no fewer than 300 indigenous species of flowering plants. In the north the flora changes gradually from tropical to Himalayan; the lower ranges of the hills are covered with dense forest, a similar forest skirts and ascends the hills of the Chota Nagpur plateau, and the Orissa highlands have a vegetation mainly of the central Indian type but sub-temperate on the higher peaks, while the plains, with rice-fields, resemble those of Bengal.

Fauna of Forest and Jungle

The forests, mainly under the control of the Bengal Forest Department, cover an area of over 12,000 square miles and contain a great number of species very varied in character. The trees most widely spread and most useful are the "sal" (Shorea robusta), a very hard and tough wood, and the bamboo, and in reserved areas teak, mahogany, canes, mulberry and rubber-trees are cultivated. Scientific forest management dates from the year 1854. Before that time reckless exploitation ran riot; now an excellent system of conservation is in force, the forests are a considerable source of revenue, and experimental work is always being carried out.

In olden days Bengal was the home of dangerous wild animals and the elephant, rhinoceros and wild buffalo frequented the dense jungles which have since given place to cultivation; but these are now to be found only in the more remote tracts, such as the Sundarbans and the jungles of Jalpaiguri, Chittagong and the Orissa States. Tigers still exist, though not in very large numbers, and do a good deal of damage in places, while leopards, bears, wild hog and deer are plentiful and other animals include monkeys, wolves, jackals, wild cats, wild dogs, hares, squirrels and the mongoose, and mice and rats are a pest. The waters of the Sundarbans and elsewhere are infested with crocodiles which are dangerous to man and beast, and the cobra, python and many other varieties of snakes are to be found in the jungles.

Chorus of Wild Birds

Domesticated animals are buffaloes and oxen, the latter small and weakly, both used for draught and milch purposes only; a weedy kind of horse known as a "tat"; goats of a small breed; sheep (the Patna variety the best); and pigs. Cats, dogs and rabbits are fairly common; the domestic fowl is reared, also the duck, goose, turkey and guinea-fowl.

Wild birds are extremely numerous, including, besides many European species, such well-known Indian varieties as the "bulbul" (the Eastern nightingale) and the "mina," a good talking bird. The jungle contains much game such as partridge and pheasant.

The scenery of Bengal and Orissa is very charming at certain seasons of the year. During the hot, dry months groves of bamboo, areca and coconut palms, tamarind, "pipal" and other trees form pleasant patches of vegetation restful to the eye amid the drab and dusty plains, while in the rains, from the time when the young rice seedlings cover the ground with a delicate green mantle until December when their golden harvest is reaped, the landscape is often very lovely.

Flowers in Riotous Profusion

Flowering creepers of gigantic size and gorgeous colours festoon the trees, while each village tank bears its own beautiful crop of lotus and water-lily. Vegetation is scantier in south Bihar, and except for occasional groves of mango trees the ground, when the crops are harvested, is very bare until the maize, millet and rice sowings germinate. North Bihar is more thickly wooded, but it does not equal Bengal.



F. Deaville Walker

HOW IRRIGATION PROBLEMS ARE SOLVED IN BENGAL

On the right of the road is one of the huge, shallow, artificial ponds, sometimes approaching the magnitude of lakes, that have been dug out of the soil to conserve the water from the monsoon rains. In front is an ox-cart, the usual vehicle for the natives of Bengal, whose driver is protected from the sun by an awning of grass thatch. The animals used are water-buffaloes.

The cultivated lands supply a wonderful wealth of valuable crops and products. The slopes of the hills in the north and east are terraced with dark-leaved tea-plants; the plains are covered with fields of rice, barley, wheat, oats, gram, millet, maize, rape, mustard, linseed and other oil-seeds; jute, hemp, cotton, tobacco, quinine, indigo, poppy (opium), ground-nuts, sugar-cane, turmeric, ginger, coriander, aniseed and cumin; such garden produce as potatoes, yams, pumpkins, onions, chillies and garlic; and during the cold weather most of the vegetables common to Europe. Among cultivated fruits figure the delicious mango—those of Malda being renowned throughout India—pineapple, custard-apple, "li-chee," jack-fruit, plantain, guava and many varieties of fig and melon, while parts of eastern Bengal have coconut plantations.

Rice is the principal crop, 85 per cent. of the cultivated area of Bengal and 48 per cent. of Bihar being devoted to it, and the yield is more than all the rest of India and Burma put together. Just over 6,000,000 acres in Bihar are sown with barley, wheat, pulses and oil-seeds, and in Bengal nearly 1,500,000. In Bengal jute takes up 2,500,000 acres and tea 173,200. Rice-growing in Bengal is so highly specialised that within the single district of Rangpur nearly 300 separate kinds of rice are said to be distinguished; there are three crops, the principal one being sown in May and reaped in November. The Government Agricultural Department, always endeavouring to improve the quality of rice seed, has lately succeeded in producing varieties yielding from 246 to 492 lb. per acre more than the average seed, with its yield of slightly over 11 cwt. per acre for the winter crop, the heaviest.

More than 56,000,000, or 71 per cent. of the entire population of Bengal, are supported by agriculture, and of every 100 agriculturists 89 are rent-paying



F. Deaville Walker

BENGALI VILLAGE ON THE OUTSKIRTS OF CALCUTTA

Here is another irrigation pond artificially made to store the monsoon floods. The water is led to the fields by rough dykes and men may sometimes be seen helping the precious liquid along with a palm leaf or even with their feet. This pond will also provide good bathing and perhaps even drinking water for the villages. The village is on the road from Calcutta to Barrackpur



F. I. Peters

VIEW FROM THE DARJEELING HILL STATION WITH ITS COLOSSAL BACKGROUND OF HIMALAYAN GIANTS

Near the southern border of Sikkim, a state under British protection, lies Darjeeling, one of the chief hill sanatoria in the Himalayas. It lies at an altitude of 7,346 feet and more than one-third of the district is covered with forests. The chief attraction is its scenery of inexpressible grandeur, with unrivalled views, such as this one, looking across lofty hills and a vast chasm of mist to the stupendous Kinchinjunga, 28,146 feet, the third highest mountain in the world, rising from a glittering white wall above the line of perpetual snow—the majestic culmination of a great spur which extends south from the main Himalayan range



F. I. Peters

SCENE IN THE MUNICIPAL MARKET OF DARJEELING

Less than a quarter of the Darjeeling district is cultivated, and the chief industry, introduced in 1856, is the growing and manufacture of tea, while rice, maize, cotton, jute and other ordinary crops are successfully produced. The markets of Darjeeling are prosperous and the bulk of the wares is drawn from the neighbourhood, whose productive powers mainly depend on native enterprise

tenants, 9 are agricultural labourers, and 2 live on their rents. The rotation system of cropping is known and followed, but a system of mixed crops is also in vogue which serves the same purpose.

The agriculturists of the east are much better off than those of the west, deriving considerably higher profits, especially from jute, and they enjoy a far larger measure of rights in the soil. Those who live in the Ganges and Brahmaputra deltas suffer from one great disadvantage: the courses of the rivers are changing constantly, land being cut away from one bank and thrown up on the other; but they have this advantage, that the deposition of river silt on their lands gives them an even surface, whereas the agriculturists of other parts, particularly in Bihar and Chota Nagpur, often have to build embankments and construct small terraces, involving a good deal of manual labour, in order to form their fields. The area under cultivation is being increased steadily by felling forests, reclaiming the sandy islets which form constantly in the big rivers, embanking lands in littoral tracts and filling in swamps. Irrigation is far less essential than in other parts of India and is almost unknown in parts of Bengal proper, but there are important systems of irrigation in Orissa, in the Midnapur district of Bengal and in the Champaran district of Bihar where the waters of the Gandak are utilised.

Fishing is quite an important industry. The waters of the Bay of Bengal, the rivers large and small and the swamps swarm with fish, while prawns and crabs are caught in myriads. Best of the salt-water fish are the

"bekti," the "tapti" or mango-fish, the mullet, pomfret and sole. The Bengali is a clever fisherman. He trawls at sea from a sailing-boat, fishes streams from weirs, drags tanks and ditches, angles, and uses cast-nets, whilst streamlets are studded with hundreds of wicker fish-traps and prawn-cages are everywhere. The marvel is indeed that any fish should escape at all!

Geological Medley of Soil and Rock

The greater part of the plains of Bengal being covered with alluvium, interest geologically is centred chiefly in the Chota Nagpur plateau, of which gneissic rocks form the nucleus, fringed on all sides by transition rocks and interbedded freely with micaceous, siliceous and hornblendic schists. Transition rocks are found in south Bihar in groups of isolated hills, in the Ranchi district of Chota Nagpur and in the Singhbhum and Manbhum districts of Orissa, and they carry metalliferous lodes. Of paramount importance is the Gondwana system—patches of Gondwana strata faulted into archaean schists and gneisses —containing coal-bearing strata; it occurs in the Rajmahal hills, the Damodar valley, several Chota Nagpur districts and the Orissa highlands, and has given Bengal and Bihar one of their principal industries—coal-mining.

Wealth of Iron and Coal

The principal coal-fields are those of Raniganj, Jherria and Giridih, the last producing the best steam coal in India. In 1907 an official estimate of these fields held them to be capable of producing 14,000,000,000 tons; they all lie within 200 miles of Calcutta and are easily accessible by rail. There are other good fields at Daltonganj, Karanpura, Bokaro, Ramgarh, Hutar and Talcher, all of which are giving good results. The maximum thickness of the coal seams is 95 feet and the portions worked vary from 2½ to 45 feet. The method follows the European.

Bengal, Bihar and Orissa are the only provinces in India at present in which iron is mined for smelting by European methods. The chief ore deposits are in the Singhbhum and Manbhum districts of Bihar and at Mayurbhanj in Orissa, and in the year 1919 just over 300,000 tons of pig-iron, 113,222 tons of steel, 31,665 tons of iron castings and 1,183 tons of ferro-manganese were produced. Mica occurs, of a good quality, in the Gaya, Hazaribagh and Monghyr districts of Bihar.

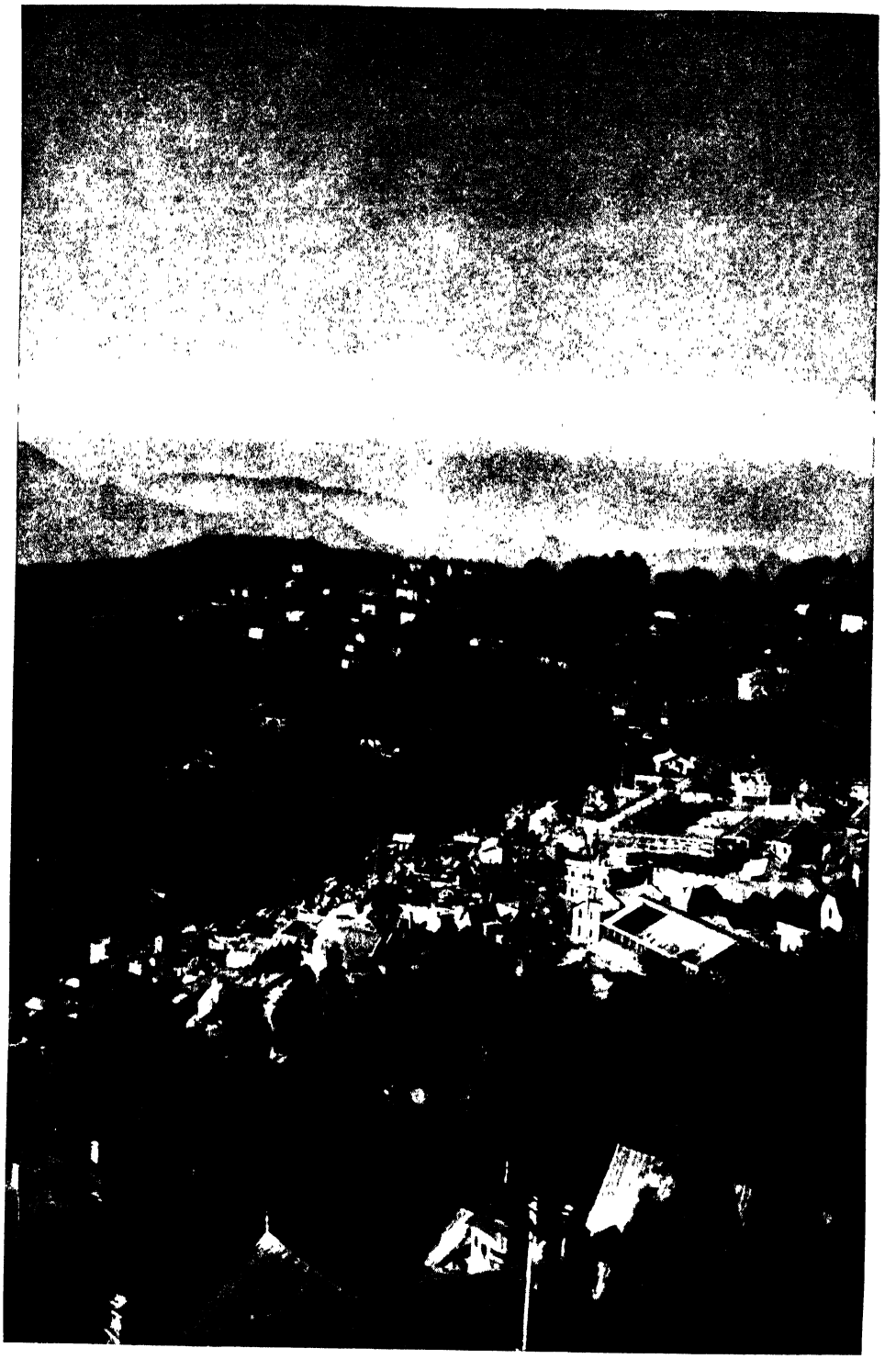
It has been mined very wastefully in the past, but is now under Government control. Mica exports in the year 1920 were valued at just over a million sterling. Gold-bearing sands exist and yield poor pay to a few hard-working Indians who wash them, and small shafts have been sunk in Singhbhum giving 1 to 6 dwts. of gold per ton. Alluvial tin has been discovered in Hazaribagh; saltpetre is obtained in large quantities at Patna and Monghyr, the latter also yielding slate; limestone, laterite and granite are distributed widely; soapstone occurs at Manbhum.

Industry and European Competition

The days have gone when the muslins of Dacca and Santipur were famed throughout Europe and from Dacca alone the yearly exports were over a million sterling. The introduction of machinery in Europe killed the export trade and seriously crippled the home weaving industry, but Serampur and Dacca are still weaving centres while cotton goods and cheap muslins are made at Dinajpur. The silkworm is reared and silk weaving is carried on, but the woven silk is of a rough quality and suffers from foreign competition, and the industry is declining.

Other wholly Indian industries are those of the filigree gold and silver work of Cuttack and Dacca, the silver work of Kharagpur, which is very fine, the "chikan" fancy work of Calcutta, the ironwork of Monghyr (where shot-guns are manufactured), mat making of south Midnapur, and stone-carving of Gaya.

The premier industry in Bengal, after agriculture, is the manufacture of



F I Peter

DARJEELING AND "THE SNOWS" SURVEYED FROM THE JELAPAHAR ROAD

From the excessive heat of the summer sun in India's plains and cities the European hastens to the [illegible] ranging between 5,000 and 8,000 feet above sea-level. Darjeeling, in the Bengal presidency, originally purchased as a sanatorium from the Raja of Sikkim in 1835, is magnificently located beneath the distant heights of the snowy, cloud-wrapped Himalayan range

jute. Since its inception in the year 1855 (the first power-loom was introduced in 1859 with an output of eight tons per day) the progress has been astonishing. During the year 1919-20 there were 72 mills at work which produced a daily output of 3,000 tons. The mills are situated mostly at some little distance outside Calcutta near the banks of the Hooghli. They are modern, up-to-date buildings with effective sanitation and electric lighting, and the condition of the workers—all Indian in the lower grades with both Indian and European supervision—is satisfactory.

Tea manufacture, the total production of which in 1920 was 72,081,081 lb., gives employment to nearly 1,000,000 persons; sugar, soap and paper manufactures are carried on—three paper mills produced 25,070 tons of paper in 1919-20; while twelve cotton mills employ just under 12,000 persons. Tobacco is manufactured and one of the largest cigarette factories in the world has been erected at Monghyr, which has done much to stimulate tobacco growing in the surrounding country.

The manufacture of indigo in Bihar, revived by the Great War, is now again



F. I. Peters

THE MALL IN A FAMOUS HILL SANATORIUM OF BENGAL

As the summer headquarters of the governor of Bengal and the health station of the presidency, Darjeeling enjoys a great deal of gaiety in the season. The streets of this beautiful hill-retreat—for Darjeeling is reckoned by many to possess "the noblest scenery in the world"—are mostly steep and winding, and hammocks and chair-litters are still in considerable vogue

declining; also that of opium, owing to the Government of India prohibiting export to China and restricting severely its export elsewhere.

Communications are good. Although the alluvial soil makes it difficult to construct hard, metalled roads, this has been done, and there are now useful trunk roads in all directions. Principal of these is the Grand Trunk Road which runs eastwards from Calcutta through the Burdwan division of Bengal, across Chota Nagpur and the Patna division of Bihar, to the United Provinces, and is 396 miles in length. Almost all the principal towns are connected by rail.

The main line of the East Indian Railway runs northwards from Calcutta till it reaches the Ganges, then follows that river, uniting many riverside towns, and connects with the United Provinces a little west of Buxar; it has also important loop lines which shorten the route to Calcutta.

Railways into the Himalayas

The Eastern Bengal Railway runs from Calcutta north-eastwards to the Brahmaputra and a branch goes almost due north to the foot of the Himalayas, where it joins a 24-inch gauge mountain railway to Darjeeling. The Bengal and North-Western Railway runs east and west on the northern side of the Ganges, serving the northern half of the province, and the Bengal and Nagpur Railway joins Bengal with the Central Provinces and with Madras while providing the shortest route between Calcutta and Bombay and linking Calcutta with Madras. The Assam-Bengal Railway runs from Chittagong to Assam.

There are regular services of passenger steamers on the Brahmaputra, the Ganges and the Meghna, and on the Hooghli and the Padma, and there is a service from Calcutta to Chittagong, touching at coastal ports en route, and from Calcutta to the Orissa ports. As regards overseas communications, Bengal is exceedingly well served, being linked via Calcutta with the chief Indian ports, those of Burma, Ceylon, the Straits Settlements and the Federated Malay States, and also with China, Japan and the leading ports of the world. A good home and foreign telegraphic service exists, also a telephone and wireless service, but there is no regular passenger air service.

Rivers More Important than Roads

Goods transport is by rail and water, the roads serving as "feeders," and in addition to many river systems (over 100,000 Indian cargo boats ply continually on the Ganges alone), there are the Calcutta and Eastern Canals which carry a good deal of the produce of eastern Bengal and the Brahmaputra valley to Calcutta, and the Midnapur and Orissa Canals. The Eastern Bengal Railway brings large quantities of jute and tea to Calcutta, the East Indian deals with much of the coal and other minerals, of which the Bengal-Nagpur also has a share, while the Assam-Bengal Railway brings its complement of jute to Chittagong.

The home trade of Bengal and Bihar is connected largely with the import and export trade of the province, most of the articles sent into Calcutta from the various districts being either for export or to be used in the manufacture of exports; exceptions would be articles purely for Indian consumption.

Entrepots of Foreign Trade

Foreign trade is by far the most important, but it must be borne in mind that Calcutta is the port for the United Provinces and part of the Central Provinces, while both Chittagong and Calcutta import for Assam. Yet again, Calcutta imports for the Himalayan States, Nepal, Sikkim and Bhutan, and it is not possible to estimate strictly what proportion she keeps for herself.

Two-thirds of the imports come from the United Kingdom and consist mainly of cotton and woollen goods, metals, liquors, sugar, salt, oils, glass, machinery and mill work; for the year 1920-21 they amounted in value to £54,994,000. The export trade, which also is partly



F. I. Peters

BENGALI LABOURERS AT WORK IN THE BRICK-FIELDS

Brick making is a common industry of Bengal and around the town of Dinajpur in the east are several extensive brick-fields. The region surrounding it, which bears the same name as the town, is rich and arable and the staple product is rice. Though crossed by a veritable network of channels and water courses the district has no great navigable rivers

that of the United Provinces, Assam and the Central Provinces, is concerned mainly with jute (raw and manufactured), hides and skins, pulses and flour, oil-seeds and opium. The value in the financial year 1919-20 was £91,990,000, jute alone comprising 55 per cent. of this total.

The villages vary considerably in different parts. In Bihar they are packed closely together; elsewhere there is a single village site around which the houses are collected, but each house stands in its patch of homestead land. In eastern Bengal, however, the ground is often so swampy that there is no trace of a central village site, and the houses are to be found in straggling rows, lining the high banks of rivers, or else in small clusters on mounds from ten to twelve feet high, laboriously thrown up during the dry months when the water disappears. A general type of village house is a one-storeyed dwelling with mud walls, thatched or sometimes tiled roof, an average of two rooms and a courtyard, surrounded by wooden or bamboo posts and interlaced walls or sides of split bamboo; the whole often encircled with a bamboo fence, and sometimes by a moat and a thorny cane or cactus hedge—a very necessary protection against the predatory animals of the district.

Of the cities and towns in Bengal, Calcutta forms the subject of a separate chapter. Chittagong is the second port in the province. It is well situated, a few miles up a navigable river, and has a good harbour. It was an important place of trade in the sixteenth century, then known to the Portuguese merchants as Porto Grando. Dacca, a great Mahomedan capital and the seat of a luxurious court, once famed for its muslins, is now the centre of the jute industry for eastern Bengal. Malda has near it the ruins of Gaur, once Bengal's capital under the Afghan kings; and Murshidabad, the last capital of the province, remained so for some time after the British conquest. It numbers less than 50,000 persons now.

and though it has a few industries, it is in a state of decline—a city of the past.

Kasimbazar, now in a state of decay, but once noted for its silk manufactures, was so prosperous that we find Job Charnock, the founder of Calcutta, living there as Chief Agent before Calcutta existed. Hooghli boasted an English factory in pre-Calcutta days. Chinsura, close by, was once a Dutch trading settlement, and Serampur was ceded to the British Government by Denmark. Chandernagore, not far distant, is still held by the French—a quiet little suburban town of 25,000 people—with a few patches of territory on the east and one on the west coast, the sole relic of France's bid for an Indian Empire. The hill and health resort of Bengal is Darjeeling—Queen of the Snows—which lies in a beautiful situation 7,300 feet above sea-level, commanding magnificent views of the highest snow-peaks of the great mountains of the Himalaya range.

In Bihar the city of Patna is the largest centre, recently made the seat of the government of Bihar and Orissa. In the days before railways it was one of the greatest trading-places on the Ganges, and it is held to be the same as Pataliputra, the capital of the ancient Hindu kingdom of Magadha, which once ruled all northern India. The old civil station is known as Bankipore and the military station as Dinapore—the newly-erected government buildings lie midway between these places. Another city, Gaya, is a far-famed place of pilgrimage for all followers of the great Gautama Buddha, for there under a bo-tree Buddha is said to have attained all knowledge, and there is consequently a great number of interesting Buddhistic remains in the neighbourhood. Gaya is also a great Hindu place of pilgrimage, possessing a rock supposed to bear the foot-print of Vishnu, on which a temple stands. At Bihar, another reputed capital of Magadha, are the remains of the great "vihara," or college of Buddhist learning, which gives to the town and the province their name.



F. Deaville Walker

COAL-MINES IN THE RANIGANJ DISTRICT, THE "BLACK COUNTRY" OF BENGAL

One of the rivers flowing into the Ganges delta, the Damuda, in its upper reaches traverses the Raniganj coal-field, the most important in all India. Its total area is over 500 square miles and the whole district, covered as it is with scores of coal mines, potteries, factories and paper-mills, suggests rather the "Black Country" of England than the rich warm lands of Eastern Bengal

Monghyr with its old fortress is one of the most picturesque places in Bihar. Mir Kasim Ali selected it in 1763 for his capital, built a great arsenal and therefrom made war upon the English, disastrously to himself. Chapra, at the junction of the Gogra and the Ganges, once flourished exceedingly, possessing French, Dutch, English and Portuguese factories. Both rivers changed their courses, severe visitations of plague followed, and Chapra was soon in a state of rapid decline. Bhagalpur, which ranks as a city, was once the seat of a military governorship in the time of the great Akbar, and it is noteworthy that here the Ganges has a width of seven miles.

Orissa and Chota Nagpur have few towns, much of their territory being overrun with jungles and inhabited by aboriginals. Cuttack is the largest town in Orissa, on the Mahanadi, not far from the coast; and Puri, a port, is something like the English Margate—a place of lodging-houses to accommodate the enormous number of pilgrims visiting the shrine of Juggernaut, the "Lord of the World." The great yearly festival occurs in June, when the image of Juggernaut, in its massive triumphal car, is dragged through the streets with ropes by frenzied multitudes, accompanied by the clashing of cymbals and the beating of drums, to its country residence. Bhubaneswar is famed for its large number of temples encircling a sacred lake, and Sambalpur is situated picturesquely on the Mahanadi and commands a beautiful view of the river. The only important towns in Chota Nagpur are Ranchi and Hazaribagh. Both are 2,000 feet above sea-level, and Hazaribagh is placed very prettily in the midst of a group of conical, well-wooded hills.

Cooch Behar is a well governed and flourishing little state situated in the north-eastern corner of Bengal, not far from the Assam border; it lies very low; in the rainy season is almost a swamp, has an unhealthy climate and is subject to severe cyclonic storms. It grows large quantities of jute, tobacco and rice, and its chief town, Cooch Behar, is on a branch of the Eastern Bengal Railway. Hill Tippera lies east of the Dacca district of Bengal and is wedged in between Chittagong and the Sylhet district of Assam. It is a hilly, jungle-clad state. The staple crop is rice, but jute, tobacco, sugar-cane, mustard, chillies and onions are grown.

BENGAL, BIHAR & ORISSA: GEOGRAPHICAL SUMMARY

Natural Divisions. In the main the eastern portion of the flat Indo-Gangetic Plain, with hilly lands north to the Himalayas, east to the Burmese mountainous frontier and south-west to the heights of the Deccan.

Rivers. Ganges (see also India Central); Brahmaputra (see Assam); Mahanadi (see India Central). The great delta and the Sundarbans.

Climate. Monsoon, cool dry winters; hot dry early summer; late summer hot, humid, with heavy rains from the Bay of Bengal.

Vegetation. Jungle forest on the swampy rainy lowlands, the Terai and the Sundarbans. Forest on the uplands. The plains treeless, with annual or perennial grasses, except where cultivated.

Products. Agricultural. For export, tea, jute and some rice. For the home trade and local consumption, native food grains, tobacco.

Mineral. Coal, three-quarters of the Indian yield, which is 1 per cent. of the world's total; chiefly sent to Calcutta by rail and river for the railways and for export to Ceylon, Singapore, and to the other chief ports of India. Mica, more than half the Indian yield, which exceeds that of the rest of the world. The beginnings of an iron industry.

Communications. Road, railway, river, canal, coastal and oversea steamer.

Outlook. A third of the people of India are concentrated chiefly in a square of land of which the delta coast is the southern edge, 250 miles in length. They produce minerals with slowly increasing skill, and most of the world's jute, but they are losing their markets for opium and indigo; otherwise, they are a self-contained people, parcelled out on plots of land, and dependent upon the rains for their existence and a measure of comfort. Education alone will bring progress.

END OF VOLUME I.

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