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ANDES.



✓ *Green (C. W.)*

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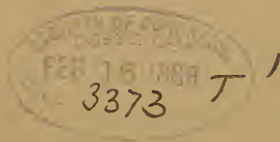
ANDES.

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ANDES.

Andes, a lofty mountain-system of South America, extending north and south along the Pacific coast of that continent, throughout its whole extent. Geographically, it may be regarded as an extension of the vast and complicated mountain-system of Western North America, although it is not distinctly connected with that system. As the Andean chain approaches the Isthmus of Darien, after having crossed the Atrato, it is represented by a low crest of serpentine, at one point only 130 feet high; and much of the Isthmus proper is even lower than that.

The mountains of the Fuegian Archipelago, south of the mainland of South America, must be held to belong to this system. Cape Horn, on a detached island, is regarded as the most southerly point of the chain, which, however, may be said to extend to the rocky islets of Diego Ramirez, 60 miles SW. of the Cape. Without allowing for curves, the Andes extend some 4500 English miles. For about 1000 miles (south of Chiloe), the mountains not only reach the ocean, but in part stand in its waters, for the great Chonos Archipelago is only an irregular double chain of mountains. Indeed some geographers hold that these islands for at least 300 miles north of Cape Horn, in reality represent the main chain of the Andes. The Patagonian portion of the

system is much cut by steep ravines, sometimes partly filled with glaciers, and not seldom occupied by deep fjords, or arms of the sea. On the eastern slope in Patagonia lie vast masses of granite, porphyry, basalt, and lava; and on both sides of the ranges vegetation is luxuriant; extensive forests covering a large proportion of the surface. This is chiefly due to the excessive abundance of the rainfall, to which cause also must be ascribed the numerous and rather large sub-Andean lakes of Patagonia, and the swift and copious streams which water its wild and gloomy terraces—for the ascent to the mountains is here by a step-like succession of steep rises. The Patagonian Andes cover a strip of land from 20 to 50 miles in breadth, and, as will be seen in the table given below, are not of great height.

Between lat. 42° and 24° S. the main chain of the Andes recedes from the sea-coast, leaving in Chili a tract of country nowhere exceeding 120 geographical miles in breadth. The mountains here reach a mean elevation of 11,830 feet; one of the peaks (Aconcagua) is the loftiest on the American continent. In this region, both to the north and to the south, there is but one main line of peaks; but between these two parts two high parallel ranges occur, having between them a relatively low plateau. A low parallel ridge of granite skirts the mountains to seaward. On the Argentine side a great number of buttress-like processes extend into the Pampas country, chiefly having a south-easterly direction except to the northward, where they are numerous, and are nearly parallel with the main Andes. The Bolivian Andes occupy perhaps one-third of the area of the republic. They form a vast arid region of great elevation.

The east and west Cordilleras of Bolivia inclose the land-locked plateau of the Desaguadero, 13,000 feet in height, and having an area of 30,000 sq. m. It has thus about the superficial extent of Ireland, and has been called 'the navel of South America.' In the vicinity are several much smaller land-locked basins of similar character; and near at hand are some of the loftiest of the Andean summits.

The Peruvian Andes present features of great interest. The maritime Cordillera overlooks the sea in a close succession of volcanic cones. Near lat. 10° S. the chain divides into the seaward Cordillera Negra, and the more eastward Cordillera Nevada, with a deep trough or ravine intervening. The central Cordillera of Peru is the chain which bounds the Titicaca basin on the west. No river, except the Marañon (Upper Amazon), cuts through its vast wall-like ridges. The eastern Andes of Peru lie between a high, cool, western valley and the hot and seething forest plains of the Amazonian basin. They form a magnificent succession of grand peaks, with only very local evidences of recent volcanic action. To the north they decline greatly in elevation. Here the grandest scenery of the Andes is to be witnessed. The lofty wildernesses of the high Peruvian Andes form a cold and wind-swept region known as the Puna, and are scarcely habitable. In the SW. of Ecuador the various ridges of the Andes coalesce, immediately to divide again into two main chains, both characterised by intense volcanic activity. Transverse ridges divide the intervening valley into three basins, that of Cuenca in the south, Ambato in the centre, and Quito (with its fine climate and productive soil) in the north. The

Cuenca basin is 7800 feet in elevation, that of Ambato 8500, and that of Quito 9500 feet.

The Colombian Andes are disposed in three main lines. The maritime range runs north and ends at Cape Tiburon, on the coast of the Caribbean Sea. It declines greatly in height to the northward, and the same thing is true of the central range, which in the south, near the great *paramo* or tableland of Cruz Verde, are very lofty. The very lofty eastern range (Cordillera of Suma Paz) extends to the NE., and near the Venezuelan boundary it forks out into two chains, one of which forms the Goajira peninsula west of Lake Maracaibo, and the other becomes the main Venezuelan mountain-system. Near Caracas the mountains skirt the sea-coast. Only a few of the peaks of the Venezuelan Andes rise above the snow-line.

PLATEAUS.

Of the numerous plateaus of the Andes system, one, Assuay, is at a height of 14,500 feet. That of Titicaca, the Collao, is 12,500 feet; of Cruz Verde, 11,695 feet; of Pasco, 11,000 feet; of Quito, 9500 feet; of Bogota, 8958 feet.

HEIGHTS OF MOUNTAINS.

<i> Fuegian Andes :</i>	Feet.
Mount Sarmiento . . .	6910
Mount Darwin . . .	6600
Cape Horn	3000
<i> Patagonian Andes :</i>	
Yanteles	8030
Corcovado (volcano) .	7510

HEIGHTS OF MOUNTAINS.

<i>Chilian Andes Proper :</i>	Feet.
Aconcagua	22,427
Cima del Mercedario .	22,302
Tupungato	20,269
<i> Bolivian Andes :</i>	
Gualtieri	22,000
Sorata	21,290
• Illimani	21,150
<i> Peruvian Andes :</i>	
Huascan	22,000
Huandoy	21,088
Arequipa	18,373
<i> Ecuadorian Andes :</i>	
Chimborazo	20,517
Cotopaxi	19,550
Antisana	19,260
Cayambe	19,200

HEIGHTS OF MOUNTAINS.		
<i>Colombian Andes:</i>	Feet.	is 11,455 feet high, the highest (Dona Ana), 14,770 feet. In the Bolivian Andes the passes of Potosi and Gualillos are respectively 14,220 and 14,380 feet; of Peruvian passes, Jacaibamba is 15,135 feet, and Antarunga, 16,196 feet high; while Assuay, in the Ecuadorian Andes, is 12,385 feet; and Quindiu, in the Colombian Andes, is 11,500 feet high.
Cocui	19,300	
Tolima	18,314	
Sierra Nevada de		
Santa Marta	17,500	
<i>Venezuelan Andes:</i>		
Sierra de Merida . . .	15,342	
PASSES.		
Of nine notable Chilean		
passes, the lowest (Planchon)		

Geologically, the Andes are by no means a unity. It is certain that the elevation of the different parts must have occurred at various times. The great bulk of the mountain masses is composed of stratified rocks, largely made up of materials which were deposited at the sea-bottom. It is believed that as a whole the formative sediment must have accumulated on subsiding areas. Upheaval, denudation, and direct volcanic action have been the other leading factors in the building and shaping of the mountains. The mineral wealth is great and varied. Volcanic action is still very active in Ecuador, but less so in the other parts of the chain. The Chilean volcanoes are numerous, but are seldom very active. Earthquakes occur frequently all along the coast from Caracas to Chiloe. Gold, silver, copper, mercury, and other metals abound in nearly every part of the Andes. The silver product is still very large. Further details of the mining industries of the Andes are given under the names of the various countries traversed by the range.

The effect of the Andes in drying the atmospheric

currents that flow over them from the eastward, and the almost uniform desert character of most of the Pacific slope, are noticed in the article AMERICA. The awful cañons and chasms of the Andes, the sublime height of their peaks, the difficult and dangerous character of the passes, the rich and varied vegetable life of the eastern slope, and the steep descent of the generally barren Pacific slope, all give elements of great interest to this great range.



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