

**THE UNIVERSITY OF CHICAGO,
DEPARTMENT OF POLITICAL
ECONOMY; THE ECONOMIC
HISTORY OF THE HAWAIIAN
ISLANDS. A DISSERTATION**

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The University of Chicago, Department of Political Economy; The Economic History of the Hawaiian Islands. A Dissertation by U. S. Parker

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The University of Chicago
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THE ECONOMIC HISTORY
OF THE
HAWAIIAN ISLANDS.

A DISSERTATION

SUBMITTED TO THE FACULTY OF THE
GRADUATE SCHOOL OF ARTS AND LITERATURE

IN CANDIDACY FOR THE DEGREE OF
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Department of Political Economy

BY
U. S. PARKER.

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CHAPTER I.

Physical Conditions.

Preliminary Remarks. In order that we may understand the great economic changes that have taken place in the Hawaiian Islands during the last hundred years, it is necessary to consider briefly those phases of their physical geography which affect industrial activity, and to get in our minds a picture of the economic condition of the people when they first came in contact with civilization a little more than a century ago. Our first two chapters, therefore, form the introduction to our study.

Location and Area. The Hawaiian territory consists of a group of twenty islands lying in the North Pacific, about 2,100 miles from San Francisco, 5,700 from the Philippines, and nearly in a direct line between these two places. Only eight of the islands are of economic importance, the others being mere rocks. The main islands form a chain 390 miles in length, lying just within the tropics, and extending from northwest to southeast. The area of the eight habitable islands is given in the following table:

Area of the Islands.¹

ISLANDS.	Area Sq. Miles.
Hawaii.....	4004.0
Maui.....	721.9
Oahu.....	597.8
Kauai.....	595.4
Molokai.....	257.8
Lanai.....	173.6
Niihau.....	104.5
Kahoolawe.....	83.1
Total.....	6538.1

¹Census Bulletin, No. 169, p. 3.

The production of sugar is confined to the first four, which contain more than 90 per cent of the total area. On Molokai is the leper settlement, established in 1870, which contains 8,300 acres. The remainder of the island is devoted chiefly to cattle grazing.² Lanai and Niihau are exclusively devoted to grazing, sheep being the chief animals raised. Until recently a few shepherds resided on Kahoolawe, but the grass gave out and the island was abandoned.

Surface Features. Though the islands contain an area nearly as large as Connecticut and Delaware combined, only a small part is of direct economic value. The islands are of volcanic origin and have therefore very steep slopes. As a result, the soil, as it is formed by the disintegration of the lavas, is washed down and lodged on or near the shore. "The quantity of land available for any purpose is comparatively small, only the rims of the islands being used, as their interiors are generally mountainous and barren. Being of recent volcanic origin, a sufficient time has not elapsed since their formation to allow the greater portion of their area to reach a condition of fertility."³ In 1900 only about two or three per cent of the total area was under cultivation.⁴

From the nature of the country, therefore, the population is confined to narrow strips along the coasts. In 1800 it was estimated that on the Island of Hawaii the inhabited portion extended only seven or eight miles from the shore.⁵

Most of the rivers are on the northern slopes, where the greater part of the rain falls. They have cut deep gorges, which render traveling difficult in the absence of bridges. Next to the coast are the cultivated portions, above which are pasture lands. Still higher up are timber belts, especially on the northern slopes, and beyond the timber are mountain masses, high plateaus, and broken surfaces, over which roam wild cattle. Radiating from the centres of the chief islands, and cutting across the timber belts and pasture lands below, are vast fields of barren, black lava.

²*Report of Com. of Labor, Hawaii*, p. 12.

³*Ibid.*, p. 13.

⁴*Census Bulletin*, No. 169, pp. 4, 10.

⁵*Ogle and Aikman*, p. 186.

The coast line is generally regular, affording but few harbors. Here and there narrow beaches afforded the early voyagers convenient trading places. At many points, especially on the northeastern coasts, perpendicular cliffs, rising hundreds and even thousands of feet from the water's edge, confront the sea and form solid walls, sometimes twenty or thirty miles in length, broken only by the river gorges. In the whole district of Hamakua, in northeastern Hawaii, the sugar from the plantations is let down to the sea by cranes.

Soils. The soils are all disintegrated basaltic lava and are divided into three classes, sedimentary, dark-red and light-red. The first consists of material washed down from the mountains and deposited in the shallow waters between the coral reefs and the ancient shore line. They are very rich, but of small extent. Taro and rice are the favorite crops for such soils. The dark-red soils are as rich as the sedimentary, at least for sugar cane. They lie immediately above the sedimentary soils, mostly on the leeward or dry side of the islands. The remaining soils are much poorer in quality, owing to the fact that the heavy rains have washed away the more soluble parts. The average yield of sugar per acre is about four tons. But it takes two years, on the average, to mature a crop,⁶ while in Louisiana and most other cane growing countries, only one year is required. The yield for Cuba and Porto Rico is about a ton per acre, or one-half the yield in Hawaii.⁷ A large part of this superiority is due, however, to greater skill in cultivation and the use of fertilizers.

Rainfall. Owing to the topography of the country and the prevailing winds, there are great extremes in the amount of rainfall at different places, the greatest recorded extremes being one foot and nineteen feet per year.⁸ The two chief factors in determining the amount of rainfall are altitude and exposure to prevailing winds. At Honolulu the average annual rainfall is 28 inches, and at an altitude of 2,800 feet, not far from there, it is about 179 inches. The prevailing rain-bearing winds

⁶*Summary of Commerce and Finance, July, 1901, p. 73.*

⁷*Ibid.*, pp. 48, 193.

⁸*Ibid.*, p. 72.

blow from the northeast, and as they strike the highlands on that side of the islands, most of their moisture is precipitated. The average annual rainfall at low altitudes on the windward side is from 50 to 150 inches, and at high altitudes, 200 inches, while on the leeward side there is very little rain at low altitudes.⁹ As a result, one-half of each island is clothed in luxuriant vegetation and the other half is parched and barren. Also, most of the rain falls where it will do little good, directly, because nearly all the tillable land lies at low altitudes where there is only a comparatively light rainfall or almost none at all.

Irrigation. Because of these conditions, irrigation is necessary on nearly half the land now under cultivation.¹⁰ On the Island of Hawaii most of the cane is grown without irrigation, but during the last few years severe losses have been caused by droughts. The decrease in the amount of rainfall is attributed to the destruction of forests by the cattle, both wild and tame, which roam at will, killing the young trees and the herbs that keep the ground moist.¹¹

On the windward side of the islands irrigation is by gravity canals, the water being obtained from artificial reservoirs constructed among the hills on the highlands. On the leeward side there is not enough rainfall to serve the purpose, and water is obtained from wells sunk several hundred feet into porous strata. Owing to the porous nature of the lava rocks and soils, the water will not rise in the wells more than thirty or forty feet above sea level, and at higher altitudes it must be pumped. The land rises rapidly from the coast inland, the average rise being estimated at three hundred feet per mile.¹² At present it is not profitable to pump the water from a greater depth than six hundred feet;¹³ hence, irrigation by this method is confined to a narrow strip along the coast.

Temperature. The temperature is as varied as the amount of rainfall, due also to two causes, wind exposure and altitude.

⁹ *Report of Hawaiian Commission*, pp. 8-9.

¹⁰ *Census Bulletin*, No. 169, pp. 15-16.

¹¹ *Summary of Com. and Finance*, July, 1901, p. 80.

¹² *Annual*, 1900, p. 63.

¹³ *Progress of the Beet Sugar Industry*, p. 91.

At sea level the temperature is tropical, at higher altitudes it is perpetual spring, while on the mountain tops snow may be seen any month in the year. The northeastern slopes are cooler than the southwestern, the former being exposed to the cool winds. On the whole, the northeast slopes are moist and cool and the opposite slopes dry and hot. Places at sea level with a windward exposure are sometimes five to seven degrees cooler than points at sea level in the same latitude with a leeward exposure.¹⁴ Minor causes, such as the presence or absence of forests, a broken or an even surface, also modify the temperature and help to make the climate extremely local. As in tropical regions generally, however, the temperature at any given place is quite uniform. The extremes at Honolulu during the year are about 48° Fahrenheit and 87° Fahrenheit.

Three circumstances modify the temperature generally and make it about ten degrees cooler than in other countries in the same latitude.¹⁵ (1) Each island is small, and the cooling influence of the ocean reaches as far inland as the inhabited regions extend. (2) A branch of the Japan stream sweeps down from Behring Straits, bringing the cooling effect of the Arctic. (3) The prevailing winds, which blow from the northeast, are moist and cool.

The general effect of the climate upon human energy and activity may be considered fairly favorable, on the whole. The climate is generally healthful,¹⁶ and the temperature is not so excessive as to interfere seriously with physical or mental effort. But the absence of real cold weather, especially in the inhabited portions, cannot fail to give a languidness to those born and bred in the islands which is characteristic of the people of all tropical countries, and it would of necessity be somewhat enervating to one accustomed to a northern climate.

¹⁴*Summary of Commerce and Finance*, July, 1901, p. 72.

¹⁵*Mill, Inter. Geog.*, p. 661.

¹⁶*Report of the Commissioner of Labor, Hawaii*, p. 20; *Report of the Governor of Hawaii*, 1901, p. 68.