

W. C. PEACOCK & Co., LIMITED, SOLE AGENTS

Pabst Brewing Co., Milwaukee, Wis. B. Dreyfus & Co. Californian Wines and Brandies. Andrew Usher's Scotch Whiskies. Cyrus Noble Whiskies. Vaughn-Jones "Dry" and "Old Tom" Gins. Marie Brizard & Rogers, Brandies and Liqueurs. Buffalo Brewing Co., Sacramento. J. J. Melcher's "Elephant" Gin Schiedam. Hiram Walker & Sons' "Canadian Club" Whisky. Pommery & Greno, Reims, Champagne. Green River Whisky.

THE CLIMATE OF HAWAII

By Titus Munson Coan, A.M., M.D., of New York City.

(Continued From Yesterday.)

The wind force and cloud amount at Honolulu for the three years from July, 1897, to June, 1900, are shown in the following table:

Table with columns for Year, Wind Force, Cloud Amount, and Rainfall. Rows for 1897-1898, 1898-1899, and 1899-1900, with sub-rows for months from March to June.

RAINFALL

Throughout the group this is very variable, whether at different stations or at the same station, and whether in the totals of the same months for different years, or the totals of different years. It occurs under these forms: (1) Trade wind rains, occurring at any time of the year; (2) winter storms from the southwest, as already noted; (3) spring rains of the month of April; (4) July rains.

The trade winds, laden with moisture from the North Pacific, blow during the greater part of the year, beginning with March; in the South Pacific they blow during the same months. As already noted, the greater part of the moisture falls on the north and east acclivities of the mountains, from the sea level to their highest ranges, giving a rainy climate to the windward coasts and uplands. But the precipitation is not confined to the windward side; a part of it, especially on the smaller islands, spills over to the leeward side. Even on the Island of Hawaii much of it falls on the westward uplands, while very little rain gets to the westward coast itself, so that while Hilo, Hamakua, and Kohala districts, on the east, are deluged, the coasts of Puna, Kau, and western Kohala may be suffering from severe drought. It would be hard to find, in any part of the world, more striking contrasts in the amount of rainfall of neighboring regions or in their infrequency. The eastward districts just named have a coast-line of about seventy-five miles, and not less than seventy perpetual streams; in the other districts, including the entire southeast and nearly all the west shores of the island, a coast-line of 200 miles, there is no running water—not a single stream reaches the sea, the light soil and the porous lavas absorbing the entire precipitation. There are few available figures for the coast rainfall of western Hawaii, but it is nearly nil. At high levels on the west side there may be heavy rainfall; yet even here the difference between the windward and the leeward stations is very great. Thus, at Kaunama, in the Hilo district, on the east, at an elevation of 1250 feet, the rainfall in the year July, 1897, to June, 1898, reached the extraordinary figure of 230.53 inches, while at Waimea, partially sheltered by the Kohala range, but at an elevation of 2720 feet, the rainfall was only 34.64 inches. The direct distance between the two stations is thirty miles. Again, at Olana, near the east coast (elevation 1650 feet), and at Kailua, near the west coast (elevation 950 feet), the figures for the year 1896-97 were 176.82 and 51.21 inches respectively; and during the year 1898-1899, at Oolaka in the Hilo district (elevation 400 feet), and at Puna, in Puna (elevation 850 feet), the figures were 99.76 and 10.29 inches respectively. These stations are seventy miles apart.

Coming now to the smaller islands, we shall find that their lower mountain barriers allow a larger part of the trade wind rains to reach the leeward coasts than is the case on Hawaii; and these, with rains from other sources, sometimes drench the entire island. Indeed, the yearly precipitation may be greater on leeward than on the windward side; thus at Kahuku, on the north side of the island, the precipitation for the year 1896-97 was 22.16 inches, while at Punahou, on the south, it was 25.53 inches. In the year 1897-98 the figures were 24.64 inches and 25.03 inches, and in the year 1898-1899, 20.45 inches and 20.55 inches. Again, as on Hawaii, so on a smaller island, the rainfall may be nearly extinguished at the leeward coast. Thus, on the east side of Maui, in the year 1898-99, at Kaupo, it was 50.87 inches while at Olowalu plantation on the southwest (elevation 400 feet) it was but 2.70 inches; and here there was rain only from December to March. The rainfall for the year 1899-97 at other stations on Maui ranged from 17.39 inches at Kahului, to 39.95 inches at Punahou, at eight stations on Oahu, from 18.44 inches at Kapolei Park, near Honolulu, to 53.82 inches at Ahulimanu; and at four stations on Kauai, from 43.88 inches at Hanalei. These totals, of course, include the winter rains and others not directly connected with the trade winds.

The rainfall is thus in places phenomenally great, in other places almost absent; and it is very different at different altitudes. Often, too, the monthly and yearly averages vary greatly in the same place. Thus, at Honolulu, during the nine years from 1897-98, 1898-99, 1899-00, the annual fall varied from 21.1 inches in 1897 to 46.8 inches in 1898, and to 58.48 inches in 1899.

It will thus be seen that as to rainfall the islands have a great variety of climates. While some regions are almost rainless, others are deluged; and still others, like Honolulu, the chief place of resort, have a moderate rainfall only a few showers of an English April with the temperature of an Italian June. October is generally a pleasant month. The heaviest rainfall of the year occurs in November and February. December and January are variable months, fair weather sometimes prevailing throughout, sometimes rain from the north. March and April are marked by the rains that set in with the coming trades—on the northwest coast of Hawaii, as we have seen, these are very continuous and heavy, and more marked on Hawaii than on Oahu. With May the Hawaiians say "puka iwaho" come out into fair weather. When clouds hang over the sea and it is clear on the high mountains, they expect rain; and, conversely, fine weather when the mountains are clouded and there is clear space over the sea. June is a fine clear month, but with the mercurial sun comes a somewhat higher midday heat and less wind, but the nights are cool. The July rains are trade wind rains, and the natives call them "maimaha lino," bad months, for canoe voyaging and channel trips. (Lyons.)

FROM RECORDS OF WEATHER BUREAU, HONOLULU, 1898-99.

Table with columns for Month, Barometer, Relative Humidity, Absolute Humidity, Temperature (Min, Max, Average), and Rainfall. Rows for months from July to June for years 1898, 1899, and 1900.

An annual precipitation of 221 inches as at Kaunama, or, as it is said, of 274 inches at Kilauea (1890), has certainly its drawbacks on any theory. Kilauea has been recommended as a health resort, and doubtless, in view of the rainfall, a disciple of Priessnitz might commend it as a watering-place. Yet, a rainy climate is not necessarily a damp climate. Nearly all the Hawaiian towns and villages are on or near the seacoast; but they stand for the most part on slopes of more or less gentle declivity, and this insures a rapid discharge of the heaviest rainfall into the stream channels or directly into the sea. "The Waikiki road was, one night, so far under water that the trams could not run, and boats could have been employed; yet in less than thirty-six hours the dust was blowing in the middle of the road. The soil is porous coraline, through which the rain runs like a sieve." (Nottage.)

The rapid discharge of the rainfall on the eastern coast of Hawaii is a sight to behold. I have stood upon the bank of a deep canon in the Hilo district, while the heavy rain-bour was deluging the slopes of Mauna Kea. Far below, a pure mountain stream easily fordable by leaping from one lava rock to another, was foaming seaward. Presently the noise of unobscured water came from the mountain side, growing momentarily louder, and soon the torrent, yellow and turbid, was thundering down the rocky valley, with no less force and fury than if a great dam had broken in the mountains; and suddenly the little stream was magnified into a roaring and impassable torrent, a hundred times the volume of a few moments before. For days afterward, and for miles around, the sea would be discolored by the turbid discharge, and the floating driftwood came ashore at distant points along the coast.

Under high temperatures neither this rapid drainage nor the absorbent power of the soil would prevent the overloading of the air with moisture. But, as we have seen, there is no excessive heat, and without excessive heat, excessive dampness is unusual. What constitutes dampness? Not, by itself, the actual amount of the vapor or water in the air, for this may vary considerably in a dry atmosphere at different temperatures; but the degree of saturation of the air. A difference of only two degrees between the dry and the wet bulb means excessive dampness; a difference of four or five degrees is a comfortable average, neither moist nor dry; a difference of eight or nine degrees means excessive dryness. Now in Honolulu the difference is four or five degrees, with a variation in the monthly mean of absolute humidity of from 5.76 grains (January, 1899) to 7.03 grains (June, 1900). But equality, whether of dryness or of humidity, is a more important factor of health in a climate than the actual amount of humidity, whether this be more or less. Excessive variability of the temperature and the course of the American climate, and of climates generally on the western aspect of the great continents.

From the experience of a long residence in Hawaii, I can say that while extreme wetness prevails in many regions, the humidity is not oppressive, still dampness or high saturation is not the rule. There is confirmation of this in the fact that fogs and mist at the sea level are unknown in the Islands. When there it nor rain, there is sunshine; that belong to our hot summer days with high saturation are not known except sometimes, as already said, during the prevalence of the warm southerly storms.

Except at Honolulu, few meteorological observations other than those of rainfall have been recorded. The table on page 236, for the two years from July, 1898, to June, 1900, will show a uniformity in temperature, pressure, and humidity, almost as noticeable as are the range and character of the rainfall in other parts of the group. Equally accurate observations are much needed for the outlying stations.

DISEASE AND MORTALITY. In Honolulu, with an estimated population of 30,000, a total of 1585 deaths was reported for the years 1897-98. One hundred and sixty-one deaths were from phthisis, 135 from old age, 103 from diarrhoea, 88 from pneumonia, 54 from diphtheria, and 38 from cholera infantum. Of the total deaths, 788 were of Hawaiians, 259 of Chinese, 154 of Japanese, 141 of Portuguese, 108 of Americans, 42 of British, and 53 of other nationalities. These data are from the nationalities observed in Hawaii, but the disease is promptly isolated, and foreigners are seldom attacked by it. The Hawaiian government expended more than \$2,000,000 on the leprosy colony on Molokai, and its present cost is about \$500,000 annually.

The safety of living is complete—there are no noxious beasts, no snakes, no poisonous vermin save the centipede and the scorpion, and these are seldom, if at all, hurtful, as in hotter climates. The only deadly creature is the mosquito. Introduced from San Blas, Mexico, at Lahaina, in the year 1826, by the careless skipper of the ship "Wellington," they speedily became a troublesome pest, and throughout the group the protection of mosquito-bars is required.

service, generally Chinese, is good but expensive; and indeed, the islands generally, since their annexation to the United States, have become a costly place to live in. The town has an excellent water supply, brought from the mountains; the roads and other public works are in a high state of perfection. The conveniences of foreigners are well built, beautiful, and many of them very expensive; the suburbs are charming. The general aspect of the place suggests wealth; indeed, the foreign community, since the great development of the sugar industry, has become one of the richest for its members, in the world. The society is excellent, and is all the more interesting because very composite, the American element, however, predominating. Many of the luxuries, as well as the comforts, of older communities may here be enjoyed, in conjunction with the benedict and restfulness of the semitropical climate.

Hilo, the second largest town on the Islands, aspires to rival Honolulu commercially. In spite of its heavy rainfall, it offers attractions to the resident or tourist. It is a place of extraordinary beauty, is on the most frequented route to the volcano, Kilauea, and has comfortable accommodations for the tourist or invalid. The most vaunted climate is that of the Kona uplands, on the west side of Hawaii, a region famed for its fine coffee. For a philosophic retirement from the stress of the world that quiet region deserves all praise; but the invalid who desires variety in his surroundings would find Kona monotonous. On Maui may be found attractive upland homes; and nothing can be more beautiful than the quiet villages of Kauai.

The civilization of Hawaii is American and European, modified by the tropic conditions and even by the Polynesian character. The equable climate is not the only attraction—the scenery is beautiful and varied, the tours are interesting, although laborious, the conditions of home life are genial, and at the less rainy seasons an almost continual outdoor life may be led. But it should be borne in mind that while physicians abound in Hawaii and good hospitals are not lacking, there are no sanitoriums as yet, and few hotels, save at Honolulu and Hilo; indeed, the traveler must still often depend upon the hospitality that is freely offered. However, the following indications may be given:

THERAPEUTIC INDICATIONS.

1. The invalid who seeks a region that is never cold and never oppressively hot, and in which any of the Hawaiian climates while lower temperatures may be enjoyed at the inland stations, as in the districts of Hamakua or of Kona, on the large island. The Hawaiian expects to live at a temperature of about 75 degrees F., and enjoys exemption from all the climatic excesses of a nature, except, as we have seen, from the heavy rainfall of many places.

2. Patients who here find indemnity from malarious diseases. These, in spite of the introduction of mosquitoes, have never been endemic in the Islands.

3. For patients suffering from pulmonary tuberculosis, except in its very early stages, this is not a suitable climate. Under Dr. Frousseau, of Honolulu, has known of some recoveries in the second stages.

4. For those suffering from overwork or exhaustion, victims of labor or of pleasure, the Islands offer an ideal place for recuperation.

5. For persons of feeble resisting power, as the aged and young children, the innocent Hawaiian climate is especially favorable; and also for child-growth and development generally. The mild temperature permits outdoor existence and exercises of the most various kinds—riding, boating, swimming, games, mountain excursions. The rains are never cold, nor is there any chill at nightfall, so that even to be lost in the mountains is hardly a dangerous experience.

Auction Sale - Valuable Property!

SATURDAY, JAN. 18th, 1902, AT 12 O'CLOCK NOON. At my salesroom, 65 Queen street, I will sell at public auction, a valuable parcel of business property in Honolulu, and situated on the corner of Kekaulike and Pauahi streets. Property has a frontage of 93 1/2 feet on Pauahi street, 99 feet on Kekaulike street, 12 1/2 feet on an angle, 50 feet on narrow end, 85 feet rear width of main lot, 79 feet on lane at Waikiki side, containing 6,000 square feet, more or less. The sum of \$5,300 will be loaned on the property for two years at 8 per cent. Title perfect. Plans can be seen at my office.

Terms—Cash, United States gold coin. Deeds at purchaser's expense.

JAS. F. MORGAN, AUCTIONEER.



Compare the Quality

We want you to compare our 6-Year Old Bourbon Whiskey with any similar liquor. We know its quality, and recommend it on its merits. We know you'll like it, because of its smoothness, as well as for its medicinal excellence. A gallon, for use in sickness, should always be in your house, price \$3.50

HOFFSCHLAEGER CO. LIMITED. The Pioneer Wine and Liquor Exporters. 25 King Street, - near Bethel.

Hazelwood Market Co. Retail Family Grocers, Cigars, Tobacco, Etc. Islands' Fruits, also Taro and Sugar Cane.

We ship Bananas to Seattle and San Francisco on commission. 1281 Fort Street. Tel 223.

City of Paris Dry Goods Co. NEW YORK 486 Broadway. PARIS 2 Faubourg Poissonniere. Southeast cor. Geary and Stockton Sts. SAN FRANCISCO. Orders by Mail Promptly Delivered.

G. H. IRBY & CO. Practical and Scientific HORSE SHOERS. California Horses and Mules Always on Hand. KING AND PUNCHBOWL STREETS. Telephone Main 138.

WM. G. IRWIN & CO., LTD. Wm. G. Irwin, President and Manager. Claus Spreckels, First Vice President. W. M. Giffard, Second Vice President. H. M. Whitney, Jr., Treasurer and Sec. George W. Ross, Auditor. SUGAR FACTORS - AND - Commission Agents.

AGENTS FOR THE Oceanic Steamship Company Of San Francisco, Cal. NOTICE ANY WOMAN OR GIRL NEEDING help or advice, is invited to communicate, either in person or by letter, with Missen Hattie E. Larrabee, matron of the Salvation Army Women's Industrial Home, 483 King street, Honolulu. 6058

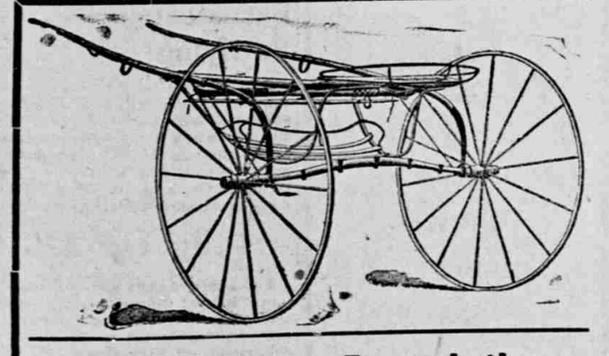
MISS WYNN Has made arrangements with John F. Snow & Co. the well known DYERS AND CLEANERS of San Francisco, to act as their agent for these Islands. All orders will be promptly attended to by telephoning 521 Blue, the Gedge Cottage, Richards street, near Hawaiian Hotel. 5961

Advertisement for RUPTURE CURED for TEN DOLLARS. Includes text about the cure and a small illustration of a person.

Perfumes Dressing Cases, Manicure Cases, Military Brushes, ETC., ETC. Finest Line in the City. Good Place to Rest and Refreshment AT OUR FOUNTAIN. HONOLULU DRUG CO. McInerney Building. 912-916 Fort Street.

Metropolitan Meat Co., Ltd. FRESH MEATS AND FISH. By Every Steamer from the Coast that has Cold Storage. Choice Beef, Veal, Mutton, Lamb and Pork always on hand, also Poultry, Salmon and Halibut. FOR SALE AT The Metropolitan Meat Co., King Street; Telephone 65. The Booth, Fishmarket; Telephone 379. Central Market, Nuuanu Street; Telephone 104.

Phone White 3271. P. O. Box 883. SAYEGUSA 1120 NUUANU AVENUE. Importer and Dealer in Japanese and American Dry Goods and Provisions, Gentlemen's Furnishing Goods, Hats, Curios, Crepe, Silk and China Ware. BRANCH STORE: Corner King and Liliha Streets.



Carts of Every Description. Large Assortment to choose from. Solid Rubber and steel tires. Light, speed and heavy road carts. Special Prices for Thirty Days. All Mail Orders Filled Under Guarantee. G. SCHUMAN, LTD, Merchant Street.

Read the Advertiser.