

difference is less than 0.5 per cent. In the month of October, 1923, when the weather was fine at both stations almost every day, it ran as low as 0.2 per cent. * * *

Work at the two solar-radiation stations.—The results just discussed are, of course, the fruit of the zealous work of our observers in Arizona and Chile. Mount Harqua Hala continues under the direction of Mr. A. F. Moore * * *. At Montezuma, Chile, the station continued in charge of Mr. L. B. Aldrich * * *.

Many comforts and observing improvements have been added at both stations at small expense owing to the ingenuity and hard manual labor of the observers. At both stations all possible days for solar-constant work have been utilized, and with very high accuracy of observation. About 75 per cent of all days were observed in Arizona and above 80 per cent in Chile. The months of July, August, and September, however, were very unfavorable at Harqua Hala, because of unusual cloudiness which prevailed all over that section of the United States. This abnormal state of the sky was indeed made specially prominent by the almost complete failure of all the California observations of the total solar eclipse of September 10, 1923. Many observations of these months must be rejected on account of unfavorable sky.

Mr. W. H. Hoover assisted Mr. Moore for a few weeks in May, 1923. While Mr. and Mrs. Moore were away in Australia setting up near Sydney, a solar-radiation outfit ordered by Rev. E. F. Pigot, of Riverview College, for a committee of interested Australians, Mr. and Mrs. Hoover relieved them at Harqua Hala from July until September. Mr. Hoover was thus prepared by actual field experience to be director of the Argentine Government's new solar-radiation station at La Quiaca.

The outfit for this station was prepared at the Smithsonian Institution after designs of the writer, and the finer parts, such as those of the bolometer and galvanometer, were constructed by Mr. Hoover. Shipment was made in January, 1924, and the station at La Quiaca made ready for solar observing in June, 1924. Thus the Argentine Government is the first agency outside the Smithsonian Institution to undertake regular determinations of the variation of the sun. Their official weather service still receives daily telegraphic reports from our station at Montezuma, Chile, and it will supplement these by its own solar-radiation measurements at La Quiaca.

WOLFER RELATIVE SUNSPOT NUMBERS, 1920-1924

Year	January	February	March	April	May	June	July	August	September	October	November	December	Annual
1920	57.3	50.9	71.9	14.3	33.7	33.8	26.5	18.6	33.7	48.8	24.6	39.9	39.7
1921	28.6	27.6	27.5	30.5	32.3	34.5	42.4	20.9	16.7	16.1	13.4	15.7	24.7
1922	10.1	27.9	60.0	11.4	7.7	5.8	9.7	5.3	5.2	8.1	6.7	13.7	14.7
1923	5.3	1.6	4.0	5.4	3.2	9.0	3.7	0.5	13.7	11.5	7.3	1.1	5.5
1924	0.7	5.7	2.2	11.5	30.7	24.8	23.3	20.0	24.0	25.7	24.5	13.4	16.7

REPORT OF CAPT. F. H. SWAIN ON THE WEST INDIAN HURRICANE OF AUGUST 28-SEPTEMBER 6, 1924

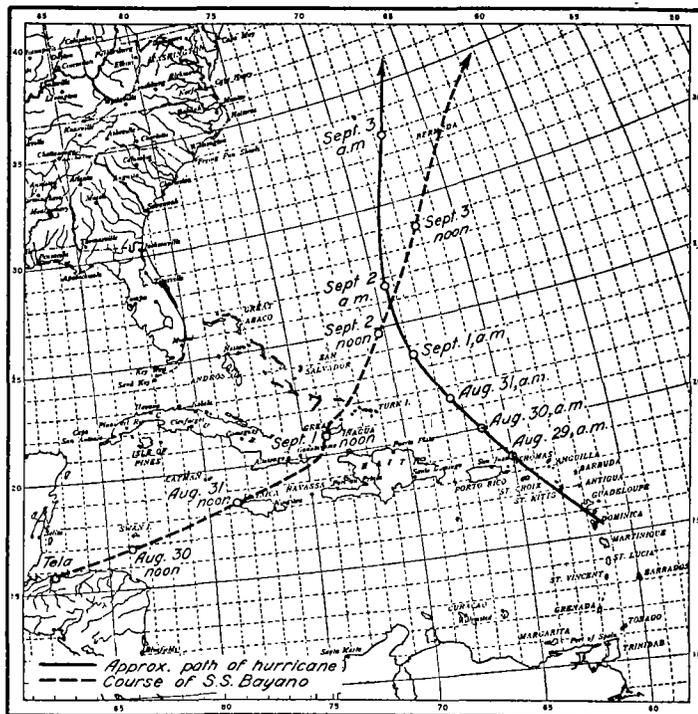
In connection with the West Indian hurricane which prevailed from August 28 to September 6, 1924, Capt. F. H. Swain, master of the British Steamship *Bayano* and a valued observer for the Weather Bureau, rendered a very complete report of weather conditions as observed on board his vessel during the progress of the storm.

The hurricane was first reported in the vicinity of the island of Dominica during the day of the 28th, and in the early morning of the 29th the center passed near the island of St. Thomas, moving slowly in a northwesterly direction. Its intensity was such that severe losses were sustained on several of the smaller islands of the Lesser Antilles.

The *Bayano* was due to sail from Tela (Spanish Honduras) on August 29 for Avonmouth via Bermuda. Captain Swain, receiving radio telegraphic advices regarding the hurricane, doubtless realized that his course might bring him into close proximity to the center unless changed through the exercise of good judgment and seamanship. Fortunately, it happened that the hurricane, although moving but slowly, recurred and passed ahead of the *Bayano* at some distance, so that it was not necessary to maneuver the vessel to avoid the center.

During the days when the course of events was yet uncertain Captain Swain, assisted by his officers, made

and recorded a series of weather observations that might well serve as a model for other seamen finding themselves in a similar situation. The Weather Bureau is very glad to publish herewith the major part of this series of observations. A small map is appended on which are shown the respective positions of vessel and storm center on successive days.



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NOTE.—From August 28 to September 4 received storm warnings from Washington and various sources.
August 30:

2:15 a. m. Very heavy rain with thunder and lightning until 2:35 a. m., when rain ceased and wind veered to E. by N. and quickly increased to force 9 to 10; first in fierce gusts, then steadily.

3:20 a. m. Wind veering slowly and gradually decreasing.

6 a. m. Continuous light rain. Sky clear to N. and NW.

8 a. m. Extreme visibility over land.

8 p. m. Small Nb. clouds at low altitudes.

Midnight. Wind inclined to back; clouds around horizon.

August 31:

2 a. m. Stars very brilliant; occasional small detached Cu. from ESE.

6 a. m. Very clear; Small detached Nb. from ENE.

4 p. m. Cu.-St. in SW. quadrant.

6 p. m. Cu.-Nb. around horizon.

8 p. m. Streaks of Ci.-St. over sun at sunset.

10 p. m. Squalls of rain working from eastern quadrants.

Midnight. Thin St. around horizon.

September 1:

NOTE.—From 8 p. m. 31st to 5 a. m. September 1 stars showing very brilliant, appearing enlarged with halos around them or as having blurred appearance. Cuban land extraordinarily clear; visible at long distances, although appearing close at hand. Stars reflected in water. Weather appeared hazy, yet land and stars showed through brilliantly. Heavy clouds over Cuban mountains at sunrise; small detached Ci.-St. to eastward.

8 a. m. Wind increasing and backing to N. by E. when clearing the land.

2 p. m. Cumulus (low) all parts of horizon.

3:30 p. m. Wind dog to NE.; swell rising; Cu.-Nb. to W. and SE.

6 p. m. Ci.-St. and Cu.-Nb. from NE.; swell increasing.

Sunset. Small streaks of St. over sun; occasional light showers.

10 p. m. Cu.-Nb over southern horizon.

Midnight. Wind backing.

2 a. m. Lightning to NE.