

GRASSHOPPERS AT SEA.

By WILLIS EDWIN HURD.

[Dated: Weather Bureau, Washington, Feb. 3, 1917.]

On October 7, 1916, the Norwegian bark *Robert Scrafton*, Capt. B. Morthensen, bound toward Pensacola from Liverpool, encountered a swarm of grasshoppers in latitude 20° 57' N., longitude 39° 28' W., therefore about 1,200 nautical miles from the African coast. In the daily journal attached to this vessel's marine weather report of October 7, 1916, appears the following entry:

[Wind], steady east and ENE., force 3-4. Clear blue sky. A lot of grasshoppers of a yellowish color, with brown spots on their wings, some 4 inches long, came aboard. Wonder where they have come from? They fly around very lively.

On his arrival at Pensacola Capt. Morthensen handed a bottled specimen of the grasshoppers to William F. Reed, jr., Local Forecaster in charge of the Weather Bureau office there, whence it was mailed to the central office at Washington, and from there forwarded to Dr. L. O. Howard, Chief of the Bureau of Entomology, for identification and comment. The accompanying is an excerpt from Dr. Howard's reply:

This is one of the large migratory grasshoppers of the genus *Schistocerca*. Mr. A. N. Caudell, of this bureau, who is an expert on this group of insects, says that it is *Schistocerca tartarica*, a species which occurs in southern Europe, Africa, Ceylon, and also in Central America and northern South America. It is a tremendous flier, and has been taken far at sea on previous occasions. The observation, then, is not novel, but it is rare enough to be well worth recording.

From the meager reports at hand concerning the weather conditions prevailing over the area of probable migration, during early October, it is gathered that an area of high pressure overspread the region during the entire period, and that the Northeast Trades were blowing with little interruption from the African coast to the longitude where the insects were observed. In fact, so long-sustained a flight would doubtless never have been accomplished had it not been for the favoring trades.

An incident of this nature makes intensely interesting the fact that the bodies of insects which are capable of extended migrations are furnished with large air sacs in addition to the breathing tubes common to all insects. These air sacs so buoy the winged creature that it is enabled to sustain itself in the air for hours or even days at a time, using as little effort in the act as it would expend on land in a few short hops. Its speed during flight varies from 3 to 20 miles an hour.

The African grasshopper in particular has long been storied on account of its great flights at sea. It has crossed the Red and Mediterranean seas in large and destructive swarms, and occasionally flies to the Canary Islands and other regions to the westward of the coast, its masses alighting on the water if rest is required. A case that parallels the one in hand is found in Badenoch's "True Tales of the Insects":

On November 2, 1865, a ship on the voyage from Bordeaux to Boston, when 1,200 miles from the nearest land, was boarded by a swarm, the air being filled and the sails of the ship covered with them for two days.

NATIONAL METEOROLOGICAL SERVICE OF COLOMBIA.

The United States chargé d'affaires ad interim at Bogotá, Perry Belden, Esq., transmitted to the State Department on December 30, 1916, clippings from the *Diario Oficial* which give the text of Law 74 of December 16, 1916, establishing a national meteorological service for Colombia.¹ As article 1 of this new law states, Colombia, for her part, thus puts into effect the resolution embodied in article 6 of the final act of the Second Pan-American Scientific Congress.² An abstract of the law follows.—C. A. jr.

Article 1 directs the Government to organize the national meteorological service in a manner conforming to the needs of the country and to the practices followed by other American Republics.

Article 2 authorizes the Government to decide on means for securing the effective cooperation of meteorological stations already existing or to be established at missions, schools of agriculture, and other institutions adapted to the work.

Article 3 directs that the general program of observations at present followed by the National Astronomical Observatory in studying the climate of Bogotá, shall be the pattern for the national survey after such modifications as may be needed to meet the requirements of agricultural and hydrographic (river) statistics for the whole country, always striving to adopt a plan homogeneous for Spanish-American countries.

Article 4 creates a central meteorological office in charge of a chief who shall be the Director of the Astronomical Observatory. He will be assisted by an adjunct engineer (un ingeniero adjunto) and a clerk, receiving monthly salaries of 80 pesos and 40 pesos, respectively.

The Central Meteorological Office will compile the data gathered throughout the country and will plot it at least twice a month on suitable maps and diagrams in accordance with the provisions of the latest meteorological conventions.

Article 5 authorizes the publication of the maps, diagrams, etc., together with the observations at Bogotá relating to solar activity and electric potential, and such other scientific contributions as the Chief of the Central Office may deem worthy of publicity. This publication will be in the *Revista del Ministerio de Agricultura y Comercio*, which will be distributed gratuitously to domestic cities, centers of secondary and professional instruction, agricultural stations, navigation companies, and canal boards and agricultural insurance companies; abroad the *Revista* will be sent to meteorological and astronomical observatories.

Article 6 directs the Government to supply necessary instruments to the National Astronomical Observatory and such other institutions and organizations as the Government calls on for meteorological and fluviometric observations. It appropriates 8,000 pesos (gold) for this purpose and adds this sum to the current and subsequent budgets.

¹ See "Diario Oficial," Bogotá, sábado 23 de diciembre, 1916. Año LII, No. 15977, p. 1722.

² See MONTHLY WEATHER REVIEW, Dec. 1915, 43: 606, for a copy of the resolution.