



THE EVAPORATION AT MANILA

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Evaporation is an important factor in the study of a climate and plays an essential part in problems connected with agriculture, irrigation, hydraulics, industry, public works, and hygiene. The object of this paper is to derive the characteristics of the evaporation at Manila from the observations at present available.

Instrument.—Any instrument that measures evaporation may be called atmometer or atmidometer. The amount of evaporation depends, not only on the climatological conditions of the place, but also on the instrument used. Intercomparisons of observations over vast areas are meaningless, unless the instruments used be the same and set up in the same way. Among the many types of atmometers, one of the more common, more practical and less troublesome is the Piche evaporimeter. The Practical Instructions and Regulations issued by the Bureau in 1917 describe the form and use of the instrument in the following way: "The Piche atmidometer, or evaporimeter, consists of a cylindrical glass tube, 25 centimeters long and 1.5 centimeters wide, closed above and provided with a loop for suspending the instrument. The lower end is ground flat and closed by means of a circular disk of blotting paper, twice the diameter of the tube, and held in place by the pressure of a wire spring, fastened to the lower end of the instrument. The tube carries a graduation marked in millimeters and tenths, but, owing to the fact that the surface from which evaporation takes place is the total area of the disk minus the cross section of the tube, and not merely the cross section of the tube, the linear value of these divisions is greater; in fact, 10.9 millimeters correspond to 1 millimeter as marked. Hence, it is evident that only the disks supplied with the instrument, or, at most, other blotting paper of exactly the same thickness and cut to exactly the same size, can be used."¹

The performance of the Piche evaporimeter has elicited from meteorologists various, opposing, at times very severe, statements regarding its merits. Davis states that the Piche installed at Cordoba, Argentine Republic, has been found "to record an amount so greatly in excess of those given by other forms that it could not be relied upon".² Abbe, commenting on the performance of the Piche evaporimeter, reminds us that "evaporation as measured by any form of apparatus, thus far devised, corresponds to artificial conditions so far removed from nature that it can at best give only a crude representation of the actual natural evaporation, by which moisture is thrown into the atmosphere from the ocean, the lakes, and the land".³ According to Keeling, the Piche is less sensitive to differences of ventilation than the Wild evaporimeter. Sutton while admitting that the Piche evaporimeter gives much higher readings than those given by the Wild exposed under the same conditions, states that the Piche pattern replaced the

¹ Practical Instructions and Regulations for the Observers of the Weather Bureau, 1917, p. 37.

² Davis, Climate of the Argentine Republic, Buenos Aires, 1910, p. 66.

³ Monthly Weather Review, 1905, pp. 253-255.