

INSTRUCTIONS RE MOUNTING RAIN-GAUGES AND TAKING RAINFALL OBSERVATIONS.

Issued by the Commonwealth Meteorologist.

Unscrew the lid from the side of the box, and remove the lid and the gauge. If obtainable in your town, give the part of the box to be sunk into the ground, also the lid, a coating of anti-white-ant preservative, and paint the part of the box to be exposed above ground. The lid should then be dropped on to the beading in the bottom of the box, and the gauge placed in the box, when the receiving surface will be found to be about 3 inches above the top of the box. The box should then be sunk into the ground, so that the receiving surface of the gauge is just 1 foot above the level of the ground. Use a spirit level in order to see that the top of the gauge is placed perfectly level.

This rain-gauge is used for measuring any form of precipitation, be it rain, hail, or dew. A gauge of special pattern is supplied for measuring snow.

The exposure of the rain-gauge is a very important matter. A too-sheltered position is as objectionable as a too-exposed one.

The wind is the most serious disturbing influence. Driving rain will fail to reach the opening of the gauge, if it is placed too close to buildings or trees. On the other hand, if it is in a very open position, the wind blowing against the gauge causes eddies, which occasionally carry away considerable quantities of rain; as much as 20 per cent. has been known to be lost at times.

The site selected, should, if possible, be an open one, unobstructed by high trees or fences. Low fences, structures, or hedges are, however, an advantage, if at a distance not less than the height of the surrounding objects.

The British Rainfall Organization has framed rules for securing uniformity in recording rainfall on which the following are based, and observers are requested to adhere to them where practicable.

1. *Selection of Site.*—A rain-gauge should be placed on a level piece of ground, not upon a slope or terrace, and certainly not on a wall or roof. It should be at a distance from every object higher than itself and should never be nearer to a wall or house than a distance equal to the height of that object, nor nearer to a growing shrub or tree than a distance equal to twice that height. Care should be taken to keep flowers or vegetables away from the gauge for a distance of at least 3 feet all round. The height above sea-level should be determined, if possible, by levelling from the nearest bench mark. The approximate height may be easily ascertained in many cases by reference to the maps of the official survey department. A specific name should be selected by each observer for his station.

2. *Mountain and Moorland Sites.*—Care should be taken that mountain or moorland gauges are not unduly exposed to the sweep of the wind. A level patch of ground or a very slight hollow should be selected, and a turf wall about 2 feet high, surrounding the gauge at a distance of from 6 to 10 feet, is recommended.

3. *Placing the Gauge.*—The gauge should be fixed so firmly that it will neither be blown over nor tilted by the strongest wind, and it is best to be surrounded by short grass. The gauge should be occasionally examined, and repaired if any leakage or other defect is detected, and a report made of the circumstances to the Central Bureau.

4. *Change of Gauge.*—When an old established gauge has to be discontinued for any reason a new gauge should be established on a proper site one year, or, if possible, two years, before the old one is removed, so that the readings of both may be compared and the continuity of the record ensured. This rule does not apply to the substitution for an old gauge, which has become defective, of a new gauge of the same size and pattern on the same site. It is most convenient to start a new gauge on 1st January. The fact of a change, with date, distance, and direction from former site, should be reported to the Central Bureau when it is made.

5. *Absence of Observer.*—An assistant should, if possible, be trained to measure the rainfall in the absence of the observer. When no such provision can be made it should be arranged to have the gauge visited at the usual hour, and the water bottled and labelled, to be kept until the observer returns.

6. *Hour of Observation.*—Rainfall should be measured at 9 a.m. daily, and the amount entered against the date on which it is measured.

7. *Reading the Rain Glass.*—In measuring rain by means of the graduated glass the observer must pour the water carefully from the gauge into the glass measure. The reading should be taken by holding it upright or setting it on a level slab, then bringing the eye opposite the level of the water so as to fix the nearest line on the scale to the water surface, not necessarily the line next above or the line next below the surface, but the one of these which is nearer. Each division represents one point. If there is more water in the gauge than can be measured at once, the glass should be filled up to the 50 mark, emptied into a jar, and filled up again as often as necessary, counting the number of times, and finally measuring the residue in the usual way. The water in the jar may be measured again roughly to make sure that no mistake has been made in counting the number of half-inches. The amount should be written down before the water is thrown away. Every measuring glass supplied by the Central Bureau is certified.

8. *Heavy Rains.*—Although a self-recording gauge affords the fullest information as to heavy rains in short periods, an ordinary gauge can also be utilized. The gauge should be examined immediately on the cessation of heavy rain, the amount and the time of commencement and cessation noticed, and the water returned to the gauge, so as not to interfere with next morning's reading. As a fall of 4 inches or more may occur in one day in any part of Australia or New Guinea (though few observers believe this until they experience it), no gauge of less capacity should be used. If after heavy rain there appears to be any likelihood of the gauge overflowing, it should be measured and emptied, and the amount added to the next morning's reading.
