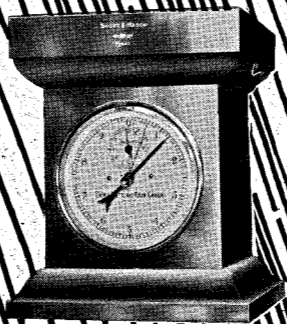


Facts about Rainfall



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Taylor Instrument Companies

ROCHESTER, N. Y., U. S. A.

RAIN, briefly speaking, is caused by the chilling of the air, which contains a certain amount of moisture. This chilling may take place through the rise of the air into higher or colder levels, through its contact with a colder surface, or from its meeting with a colder current of air.

Rain often results from the rushing of warm lowland air up a mountain side. Some of the heaviest known rains are on mountains lying near the sea.

The air over the ocean becomes thoroughly saturated with vapor which, while warm, it can carry. Then it suddenly comes against a mountain range, and has to pour upward, losing heat as it does so. Becoming fast colder, it can no longer contain its supply of hidden moisture. It is then the clouds of floating mist are formed, and torrents of rain result.

All over the earth water is vanishing and reappearing, going out of sight into the air and coming into sight out of the air, being evaporated and condensed, passing from the liquid to the gaseous form, and from the gaseous to the liquid. When, through condensation, actual drops of water appear whether as mist or fog, dew or rain, the process is described as precipitation. The vapor laden air gives out, or precipitates, some of its surplus moisture.

The sea surface evaporates into the air, the vapor becomes clouds, clouds

pour down rain, rain fills the rivers, and the rivers supply the sea; so, whether we start with mountain rivulets or clouds, the circle is complete, and we always come to our starting point.

Rainfall is usually expressed in inches or fractions of an inch, and the following facts will graphically illustrate its effect, both in weight and volume, upon the earth's surface. A gallon of water weighs ten pounds, and if spread out in a layer one inch thick will cover an area of two square feet. An inch of rain gives 100 tons of water to the acre, or 60,000 tons to a square mile.

The amount of rainfall is measured on the basis of the depth of water which would accumulate on a level surface, if all of it remained as it fell, without loss by evaporation, or otherwise. Snow and hail are measured by the actual depth of the precipitation, or, more accurately, by melting the snow or hail and obtaining the equivalent depth in water.

Such small amounts of water as are deposited in the gauge, by dew, hoarfrost and fog, should also be taken account of when calculating the total precipitation for a given period.

Rain Gauges made of copper are far superior to the galvanized iron or japanned tin ones, and the "Glaisher" pattern is the best all-around gauge, as, due to the curved tube in the funnel, no evaporation can take place.

INSTRUCTIONS FOR THE USE OF RAIN GAUGES

Setting-Up

The exposure of a rain gauge is of great importance. A position in the open, not obstructed by large trees, buildings or fences, is an ideal one. Low bushes or walls that will break the force of the wind in the vicinity of the Gauge are desirable *if at a distance not less than their height*. The Gauge should be sunk in the ground several inches so that it cannot be blown over by the wind or knocked over accidentally. As an alternative to making a hole and sinking the Gauge in the ground it can be held in position by four sticks. Just put the Gauge on the ground and drive the sticks in the ground around the Gauge at regular intervals.

Measuring Rainfall

The rain will be caught in the funnel at the top and will be conducted down into the inner receiving can. When ready to measure the amount, the top of the Gauge can be lifted off and the inner can removed, leaving the outer can on or in the ground. The contents of the inner can should then be poured into the graduated glass measure. This glass is subdivided in hundredths of an inch up to 50. The top graduation represents fifty hundredths or half an inch of rainfall. Each sub-division represents .01 of an inch. Every ten hundredths (0.1 inch) is figured. Before reading the glass measure it is desirable to place it on a table or some other level surface for

steadiness and to insure having it level. The observer should be careful to place his eye on a level with the water in the measure, so as to avoid errors of parallax. The reading should be taken at the bottom of the meniscus or curved surface of the water.

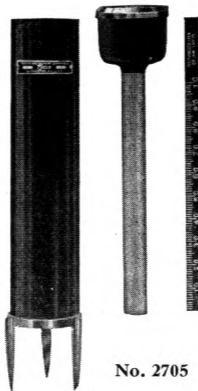
In Winter

In the event that the water in the gauge gets frozen, it can be melted by pouring in a small quantity of hot water, Care should be taken to measure the quantity of water added in this manner, and to deduct the amount from the total measured in the gauge.

Snow can be melted by adding hot water and following the same procedure.

NOTE—Care must be taken after pouring the rain from the gauge to the graduated measure, to hold the measure quite vertical, or an inaccurate reading will result.

NOTE—Such small amounts of water as are deposited in the gauge by dew, hoarfrost and fog should be taken into account also when calculating the total precipitation for a given period.



No. 2705

No. 2705 *Tycos* Rain Gauge. Blue-bronzed metal cylinder 13½ inches high, with brass rim three inches in diameter inside; three pointed feet three inches long, which when forced into the ground hold the gauge upright. Care in manufacture makes this a most satisfactory instrument. Has two graduated measuring sticks to show from .01 to 1.0 inch of rainfall. Packed in special felt-lined shipping container . . \$12.00



No. 2715

No. 2715 *Tycos* Glaisher's Rain Gauge. Originally designed by Mr. James Glaisher, Fellow of the Royal Society. Japanned-metal receiver with 8-inch-diameter funnel with brass rim, terminating in a curved tube, which, retaining a small portion of water, prevents evaporation. Complete with metal cup and graduated measuring glass showing from .01 to .50 of an inch of rainfall. ~~212.00~~ \$20.00

NOTE—The receiver being sunk into the ground to within eight inches of the top, no evaporation will take place even in the warmest season.

No. 2716 Same as No. 2715, except copper with brass rim \$26.00



No. 2721

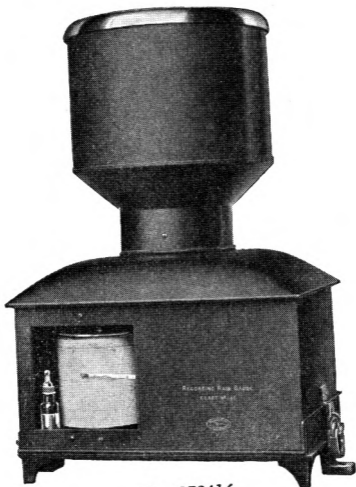
Zero-Setting Registering Rain Gauge

No measurement in a graduated glass is necessary. The rain is collected in an 8-inch receiver, passes through a small pipe, and drops into one side of a bucket. When 0.01 of an inch of rain has collected, its weight causes the bucket to overbalance and the hand moves mechanically 0.01 of an inch on the dial. The rain, still passing through the receiver, is collected in the opposite bucket, and when that has received the given amount the operation is repeated.

With this gauge it is possible to keep a record of rainfall by the month or week,

as with the zero-setting device no calculation is necessary. The dial registers one inch in 1-100th of an inch; the second, or smaller dial reading upwards to 12 inches.

- | | | |
|-----------|--|------------------------|
| No. 2721 | S. & M. <i>Tycos</i> Zero-Setting
Rain Gauge, Japanned
metal case, 10 by 8 inches. | Each
\$60.00 |
| No. 2721A | Same as No. 2721, except
copper case | 72.00 |



No. 2721½

Recording Rain Gauge

This gauge operates with tilting buckets, and also records on a chart the amount of rainfall. When the rainfall during the time period covered by the chart reaches the full amount of the chart range the mechanism automatically trips itself and the pen returns to zero and continues its record.

They are furnished (listed below) with 24-hour charts scaled to one-half of an inch divided to .01 of an inch, and also with 7-day charts scaled to one inch of rain divided to .02 of an inch, with mechanism arranged to operate according to the increased range of the chart. Padlock and key are provided, to prevent tampering while rainfall is being recorded.

Insurance companies find this instrument admirably adapted to their requirements, and prefer No. 2724 $\frac{1}{2}$ N, with 24-hour charts.

No. 2724 $\frac{1}{2}$ N S. & M. *Tycos* Recording Rain Gauge. Japanned metal case; funnel 8 inches in diameter and 6 inches deep; recording on No. 145, 24-hour chart scaled to $\frac{1}{2}$ inch, divided to .01 inch. Complete with 100 charts and bottle of ink. . . . **\$160.00**

No. 2724 $\frac{1}{2}$ S. & M. *Tycos* Recording Rain Gauge. Same as No. 2724 $\frac{1}{2}$ N, except with No. 121, seven-day chart, scaled to 1 inch, divided .02 inch. Complete with a year's supply of charts and bottle of ink. . . . **160.00**

Extra For Recording Rain Gauges

Set (100 charts) of No. 145 charts.....	\$5.00
Set (years supply) of No. 121 charts....	3.00
Ink, plain bottle.....	.50
Ink, stoppered bottle.....	1.00
V-Shape Pens.....	1.00

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