

A Science Service Feature

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? WHY THE WEATHER ? Mailed March 22, 1928

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EFFECTS OF THE ATMOSPHERE ON PROJECTILES

Experience acquired early in the world war showed that old-fashioned methods of correcting the aim of artillery for atmospheric influences were entirely inadequate as applied to modern guns, the projectiles of which rise in some cases to altitudes of from 10,000 to 20,000 feet and encounter conditions quite different from those prevailing near the ground.

Some modern projectiles remain in the air as long as 70 seconds. In such a case a moderate wind blowing across the path of the projectile may deflect it half a mile or more from its course. The range is also affected by the density of the air, which, at a given altitude, varies from time to time. One of the duties of the military meteorological units during the war was to supply all the meteorological information required for the accurate sighting of big guns. Ingenious methods were devised for computing what was named the "ballistic wind" - something previously unheard of. This is a fictitious wind which, if affecting the projectile throughout its flight, would produce the same total deflection and affect the range to the same extent as the various winds that the projectile actually encounters. Detailed weather observations were also an essential factor in the process of sound-ranging, since the speed with which sound travels is affected by both wind and temperature.

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