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A Science Service Feature

? WHY THE WEATHER ?

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WHY WINDS BLOW FROM HIGHS TO LOWS

The way of the wind is simple, but it is somewhat more complex than the following version of it written by a small boy:

"In a high pressure area the air is heavy, but in a low pressure area the air is light. In a high pressure area the air is so heavy that it pushes out the air next to the ground and makes wind. The air goes to a place where the air is light, in a low pressure area. The winds come into the low pressure area on all sides, so when the winds come together they have to go up, because they can't go any other way. Up in the air it is colder than down at the ground, so when the winds go up they get colder, and reach the dewpoint and there forms a cloud, and it makes it rain or snow. But in a high pressure area the winds don't rise, so it is fair."

So far so good, But our young friend has forgotten two things. One is that the earth turns under the moving wind. Thus the wind starting from a high cannot go directly to a low. Instead it turns off to the right, and enters the low slantwise. The other point is that the air in rising is cooled mostly by expansion and but little by mixing with the colder air aloft. These two points can readily be shown by experiment. Roll a ball or marble across a table, and at the same time turn the table to the left, the way the earth turns north of the equator. The ball is deflected to the right. Pump up a tire rather hard, and feel of the pump. It is hot. The tire also is warmed somewhat by the air made hot by your work in compressing it. Then open the valve and feel cool air come out. The air has been cooled by the work done in expanding again.

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