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? WHY THE WEATHER ?

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DUST IN THE AIR

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All kinds of dust are heavier than air and never actually float in it, but fine particles sink very slowly through still air, unless they are washed down by rain, and slight rising currents suffice to carry them upward. Far above the levels attained by soil material minute particles of volcanic or meteoric dust may hover in the atmosphere for months or years.

How does the wind raise particles of soil to great heights? And why does it raise them at all? We are familiar with the action of water in draining soil down slopes. Why does the wind have an opposite effect?

If the air always flowed in a smooth horizontal stream over the earth, its friction would drag dust along with it but would not lift it. Such surface drifting, due to the horizontal component of the wind's motion, does, of course, occur, and its effects are seen in the shifting dunes that often form over a broad tract of sand or snow.

One key to the mystery is that all winds near the earth's surface are full of waves and eddies. The incessant ups and downs are made evident by the smoke from a chimney. Thus the wind blowing over dry soil churns it up and makes the lower air dusty. More extensive lifting is the result of strong air currents that ascend vertically or obliquely. There are often approximately vertical updrafts over hot bare ground, and there are winds that slope upward on a vast scale along the "fronts" between adjacent air-masses; the operations of which have lately achieved so prominent a place in the philosophy of weather.

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