the Andes, where the rain rarely ceases, to ... not a hundred miles distant, around Lima ... rain is almost unknown.

In our quarter of the globe, the annual rain-... varies with different countries, altitudes, and ...sures to moist westerly currents. At Ma... which is placed on an elevated plateau, the ...nual rainfall is only about 10 inches. At Co..., in Portugal, a fall of more than 200 in... has been recorded. Extraordinary rainfalls ... occurred occasionally in the South of En... On October 25, 1825, 32 inches fell at ..., and October 9, 1827, at Joyeuse, in the ...th of France, 31 inches fell. In the East ...es 13.06 inches fell at Mahabuleshwur, Sep...ber 2, 1833; but 11 or 12 inches is not rare. ...July, 1840, 134.42 inches fell at that station. Bombay, July 1, 1844, 7.44 inches fell in ...nty-four hours, 2 inches falling in seventy ...utes (*ibid*, p. 366). In England our rain... do not nearly approach amounts like these. ...E. J. Lowe has recorded the most rainy ...ths and days at Beeston, near Nottingham, ...1843 to 1857:—

MOST RAINY MONTHS.

	Inches.
1852, November	7.0
1252, September	5.3
1849, September	5.0
1847, May	5.0
1853, June	5.0

MOST RAINY DAYS.

843, August 9	1.095
846, October 19	1.300
847. May 8	1.645
848, June 18	1.055
848, September 28	1.155
849, July 25	1.084
850, July 24	1.106
851, July 26	2.063
852, September 6	2.044
853, August 17	1.502
855, July 14	1.060
857. June 30	1.590
857. August 13	8.010

...our country, the smallest rainfall is in Es..., which hardly averages 20 inches. The ...st is in the westerly counties, where it ...es from 35 to 46 inches. On some of the ...ntains in Westmorland 108 to 148 inches ...e been recorded in one year.

ITS ORIGIN AS VAPOUR.

...ving noted the fall of rain—seen it descend ... the clouds—the next portion of our in... is. How did that rain water get into the ...sphere? We need hardly be reminded that ...s by the evaporation of water from the ...'s surface. "To evaporate," observes ..., in his valuable work on the Physical ...raphy of the Sea, "water enough annually from the ocean to cover the earth to a depth of five feet with rain-water, to transport it from one zone to another, and to precipitate it in the right places at suitable times and in due proportions, is one of the grand offices of the atmosphere." This water is evaporated chiefly from the torrid zone. Supposing it all to come thence, to raise as high as the clouds, and to lower down again, all the waters in a lake sixteen feet deep, three thousand miles broad, and twenty-four thousand long, of the annual business of this invisible machinery. Well may we exclaim, What a powerful engine is the atmosphere! And how nicely adjusted must be all its cogs, and wheels, and springs, and compensations, that it never wares out, or fails to do its work at the right time and in the right way! "According to Laidly," adds Maury," the evaporation at Calcutta is about 15 feet annually; between the Cape of Good Hope and Calcutta it averages in October and November, nearly three-quarters of an inch daily; between 10 and 20 degrees in the Bay of Bengal it was found to exceed an inch daily. The South Seas then should supply the atmosphere with watery vapour, while the northern hemisphere condenses it. We should therefore have more rain in the northern hemisphere. The rivers tell us that we have, for the great water courses of the globe, and half the fresh water in the world, are found on our side of the equator. The rain gauge also tells us the same story. The average fall of rain in the north temperate zone, according to Johnstone, is 36 inches: he gives but 26 inches in the south temperate. The observations of mariners corroborate this conclusion. Rains, fogs, thunder, calms, and storms, all occur much more frequently, and more irregularly on this side, than they do on the other side of the equator.

Let us begin our examination by finding out the ordinary amount of vapour present in the air, and with what gases it is mixed. The composition of the atmosphere, at a mean temperature and pressure, is as follows:—

	By measure.	By weight.
Nitrogen gas	77.5	75.55
Oxygen gas	21.0	23.32
Aqueous vapour ..	1.42	1.03
Carbonic acid gas..	0.08	0.10

Whoever wishes to see that aqueous portion of the atmosphere made apparent to his senses, need only to introduce a glass of very cold water into a warm well-tenanted room—the vapour of its atmosphere is immediately condensed on the glass. It is not as is commonly said, the *heat* of the air, but its warm aqueous vapour, that *strikes*, that is condenses upon the glass.

The state in which water exists in the atmosphere seems now pretty well determined. It was formerly supposed, by the majority of philosophers, that it was in a state of chemical combination with the atmospheric gases; but later researches seem to show that it is in a state of