

below its dew-point, or point of saturation—a result which follows upon the union or collision of two aerial currents of different temperatures, or the rise of the air into the upper cold regions of the atmosphere, where it is chilled by expansion, by radiation, or by contact with cold mountains. According to recent researches, condensation appears only to take place on free surfaces, and the formation of cloud and mist is explained by condensation upon the fine microscopic dust of which the atmosphere is full.⁴¹ At first minute particles of water-vapor appear, which either remain in the liquid condition, or, if the temperature is sufficiently low, are frozen into ice. As these changes take place over considerable spaces of the sky, they give rise to the phenomena of clouds. Further condensation augments the size of the cloud-particles, and at last they fall to the surface of the earth, if still liquid, as rain; if solid, as snow or hail; and if partly solid and partly liquid, as sleet. As the vapor is largely raised from the ocean-surface, so in great measure it falls back again directly into the ocean. A considerable proportion, however, descends upon the land, and it is this part of the condensed vapor which we have now to follow. Upon the higher elevations it falls as snow, and gathers there into snow-fields, which, by means of glaciers, send their drainage toward the valleys and plains. Elsewhere it falls chiefly as rain, some of which sinks underground to gush forth again in springs, while the rest pours down the slopes of the land, feeding brooks and torrents, which, swollen further by springs, gather into broader and yet broader rivers that bear the accumulated drainage of the land out to sea.

⁴¹ Coulier and Mascart. *Naturforscher*, 1875, p. 400. Aitken, *Proc. Roy. Soc. Edin.* Dec. 1880.