

cut that were as wide at the bottom as at the top, although two or three feet deep. A drain two feet deep, should be at least four feet wide at the top, and only the width of the shovel at the bottom, and in the same proportion for deeper drains. Even after forming them on this scale the corners should be rounded off and all the earth excavated, carted away to the compost heap. These improvements would not cost so much as may be imagined, and would be a certain benefit to the farmers who would introduce them.

METEOROLOGY.

Much light has lately been thrown on climate; and our own, which was once so much complained of, is found to be the best in the world for healthful exercise, and, as I believe, for farming also; because it enjoys the most temperate summer, combined with the mildest winter, and, on the whole, a steady downfall of rain. No one can have returned from Calais to Dover without admiring the refreshing verdure of the English downs. This we owe to our frequent showers, to our clouded sky, shielding off the scorching sunshine, and to invisible vapor diffused in our air. The excess of vapor is shown by the difficulty of growing in French green-houses the heath, a plant requiring moist air, and the difficulty of working the English electric telegraph. This moisture arises partly from our neighborhood to the sea on all sides, partly to the prevalence of western winds arriving from a wide ocean. Hence comes our grazing husbandry. Our equable distribution of warmth through the year gives us our peculiar farming, mixed husbandry, the extensive growth of roots upon corn land, producing meat largely as well as bread, the maintenance of stock thus supporting the production of corn. If our summers were hotter, we could not grow turnips; if cooler, they would not ripen wheat. If our winters were colder, turnips would perish. Our fore-fathers, indeed, did not practise root husbandry. On the eastern side of England they took two corn-crops and a naked fallow, which is the three-course shift still lingering in Cleveland, and prevailing in Prussia. This is the corn side of England. On the west side, you may still find, in secluded parts of Wales, or in Devonshire, three or four oat crops grown in succession, and the land left as many years covered with grass. This is the grassy side; and though the turnip has now overspread England, one side of the island is still best suited for corn, the other for herbage. This difference of produce rests on a difference of climate, the causes of which are well understood, but are

found in very remote parts of the globe. Heat and cold, long continued, accumulate in regions removed from water, because the land there becomes constantly hotter or colder whilst the influence of the sun remains strong or weak, and the wind from the sea, which varies less in temperature, scarcely reaches these inland tracts to mitigate the fierce extremes. Hence the coldest part of the Old World is in the centre of Siberia. As you recede from that point westward you approach the sea, and hence in winter our cold comes with north-east winds from Siberia, the great deposit of cold. But we have happily a distant, yet effective source of warmth, also, in the Gulf of Mexico, from which the Gulf Stream washes our western shores. This great warm-water apparatus of nature, passing even beyond us, stretches northward of the north cape of Europe, and there, accordingly, though so near the pole, the coldest wind of winter comes actually from the south-east. Hence the line of equal cold during December runs in Great Britain due north and south. Hence, the meadows are brown in Essex, while the grass grows till Christmas in Devonshire. Englishmen, indeed, do not know the mildness of an English winter. London, though on the cold side of England, is less cold in January than Paris or Milan; and though they go for warmth to the south of France or to Italy, deserted Mayo and Connemara, and the shores of Killarney, covered with arbutus, are warmer than Montpellier, or Genoa, or Florence. Such is our winter climate. But as spring advances, a new cause of warmth arises. The sandy deserts of Africa and Arabia, gathering heat, begin to glow like a furnace, and dart warmth northwards across Europe. Germany lying nearer to the centre of this burning wilderness, becomes warmer than England, which is now, also, cooled comparatively by the sea that warmed it before. So that whereas, in winter, the more you advanced east towards Russia the deeper became the snow, now you find it more and more sultry. Hence, Hock is grown in the latitude of Cornwall. The lines of equal temperature now run up to the north-east. Stockholm and Petersburg, in June, are as warm as London. Hence, the east side of England, being the warmest in summer, is the best side for wheat. But, besides the mild winter on one side, and the warmer summer upon the other, there is a yet greater difference, as to moisture, visible and invisible. In Devonshire you find fern growing on the limbs of the oak, and oaks themselves thriving on the top of high, narrow hedge-banks. The air, though clear, being moist, probably absorbs less water from the surface of leaves, which, therefore, require a less supply of water through the roots. The difference, too, as to visible moisture, rain, is very great indeed; for the westerly winds arriving from the warm Gulf Stream, charged with vapor,