(54.) It will be observed, that, in the above statement, the inherent power of fuel is, of necessity, greatly underrated. It is not pretended by engineers that the economy of fuel is yet pushed to its utmost limit, or that the whole effective power is obtained in any application of fire yet devised; so that, were we to say 100 millions instead of 70, we should probably be nearer the truth.

(55.) The powers of wind and water, which we are constantly impressing into our service, can scarcely be called latent or hidden, yet it is not fully considered, in general, what they *do* effect for us. Those who would judge of what advantage may be taken of the wind, for example, even on land (not to speak of navigation), may turn their eyes on Holland. A great portion of the most valuable and populous tract of this country lies much below the level of the sea, and is only preserved from inundation by the maintenance of embankments. Though these suffice to keep out the abrupt influx of the ocean, they cannot oppose that law of nature, by which fluids, in seeking their level, insinuate themselves through the pores and subterraneous channels of a loose, sandy soil, and keep the country in a constant state of infiltration from below upwards. To counteract this tendency, as well as to get rid of the rain water, which has no natural outlet, pumps worked by windmills are established in great numbers, on the dams and embankments, which pour out the water, as from a leaky ship, and in effect preserve the country from submersion, by taking advantage of every wind that blows. To drain the Haarlem lake* would seem a hopeless project to any speculators but those who had the steam-engine at their command, or had learned in Holland what might be accomplished by the constant agency of the desultory but unwearied powers of wind. But the Dutch engineer measures his surface, calculates the number of his pumps, and, trusting to time and his experience of the operation of the winds for the suc-

* Its surface is about 40,000 acres, and medium depth about 20 feet. It was proposed to drain it by running embankments across it, and thus cutting it up into more manageable portions to be drained by windmills