

which seemed destined only to amuse children, or, at best, to furnish a philosophic toy, may become a safeguard of human life, and a remedy for a most serious and distressing evil. In needle manufactories, the workmen who point the needles are constantly exposed to excessively minute particles of steel, which fly from the grindstones, and mix, though imperceptible to the eye as the finest dust in the air, and are inhaled with their breath. The effect, though imperceptible on a short exposure, yet, being constantly repeated from day to day, produces a constitutional irritation dependent on the tonic properties of the steel, which is sure to terminate in pulmonary consumption; insomuch, that persons employed in this kind of work used scarcely ever to attain the age of forty years.* In vain was it attempted to purify the air before its entry into the lungs by gauzes or linen guards; the dust was too fine and penetrating to be obstructed by such coarse expedients, till some ingenious person bethought him of that wonderful power which every child who searches for its mother's needle with a magnet, or admires the motions and arrangement of a few steel filings on a sheet of paper held above it, sees in exercise. Masks of magnetized steel wire are now constructed and adapted to the faces of the workmen. By these the air is not merely *strained*, but *searched* in its passage through them, and each obnoxious atom arrested and removed.

(47.) Perhaps there is no result which places in a stronger light the advantages which are to be derived from a mere knowledge of the *usual order of nature*, without any attempt on our part to modify it, and apart from all consideration of its causes, than the institution of life-assurances. Nothing is more uncertain than the life of a single individual; and it is the sense of this insecurity which has given rise to such institutions. They are, in their nature and objects, the precise reverse of gambling speculations, their object being to equalize vicissitude, and to place the pecuniary relations of nu-

* Dr. Johnson, Memoirs of the Medical Society, vol. v.