

THE SENSE OF TOUCH, AND THE TEACH-
ING OF THE BLIND.

THE sense of touch is one of the most complex which we possess, and one not well understood. Recent physiological studies have shown its independence of others that have long been associated with it. The senses of heat, cold, pain, and touch, bear intimate relations, but nevertheless are distinct; and a more perfect knowledge of their different phases must lead to a better understanding of many peculiarities among the blind.

Professor Soret, says the *Spectator*, taking up the psychological branch of the subject, has tried to find out how far the sense of touch may be made to convey to the sightless an idea of the beautiful: for as a deaf musician may enjoy music despite his deafness, so may a blind man find pleasure in beauty of form notwithstanding his blindness. In the one case, the pleasure comes from the rhythm, or rather from sonorous vibrations in the air, produced by the playing; in the other, from the symmetry and regularity of the object handled. "When music is going on, I feel something here," said to M. Soret a deaf-mute who enjoyed operas, putting his hand on his stomach. The blind, even those born blind, as Professor Soret has ascertained by inquiries among the inmates of the blind-asylum of Lausanne, have the same love of symmetry as the deaf. The girl-embroiderers attach much importance to the perfect regularity of the designs which they are required to repeat in their work. The basket-makers insist on the willow withes they use being all straight and of the same length. Imperfections in the things they handle are, to the blind, indications of ugliness. They like evenness of surface, and regularity of shape: a cracked pot, a rough table, or a broken chair causes them positive discomfort.

But to create in the mind of a person born blind an artistic idea, involves a measure of psychological development which it is very difficult to impart, and requires from both teacher and scholar great patience and long-sustained effort. The imagination,—the faculty of representation, as it has been called,—though partly inborn, is much more the result of a long series of automatic experiments in which all the senses co-operate, mutually controlling and correcting each other. This faculty is naturally less developed with the sightless than the seeing. If even many educated people, who from their youth upwards have been reading books and seeing pictures, find it hard to realize to themselves scenes they have never beheld, how much harder must it be for the blind to identify this or that outline

with beauty, or the reverse! At the sight of a picture or a design, we straightway and without effort represent to ourselves the object delineated in all its three dimensions. It never occurs to us to think that the horse, or the man, or the mountain, is nothing more than a combination of colors laid on a flat piece of canvas. The mere feeling of a picture, albeit in relief, cannot convey the same impression as an ordinary painting; for, to the blind, perspective and foreshortening must be mysteries so profound as to be hardly capable of comprehension. Nevertheless the difficulty is not insurmountable. Professor Soret mentions the case of a blind rustic, accustomed to horses, who, without help, succeeded in selecting from a number of other designs, in relief, the figure of the animal with which he was most familiar. A youth of quick apprehension, and vivid though undeveloped imaginative power, he had handled horses in his father's or his master's stable until he had mentally created an ideal horse so like the original, that he was able to recognize by his fingers its counterfeit presentment. Another boy, born blind, but thoroughly educated, was able to pick out a bird; yet he admitted, that, unless he had previously handled a stuffed specimen, he would have had great difficulty in identifying the figure, and realizing what the original was like. In other words, mere description is not enough: a blind man cannot mentally see a thing, or even recognize it when laid in a touchable form before him, unless he has first familiarized himself, by actual experience, with its outward shape.

It would thus seem that the faculty we call 'imagination' depends nearly altogether on the sense of sight. If we have seen a hill, we may have an idea of what a mountain is like; by seeing a lake, we get a notion of the sea: but, if we never saw either a tree or the picture of one, not all the word-painting that was ever penned would convey any true or adequate idea of an ordinary wood, much less of the wondrous beauty and bewildering grandeur of a tropical forest. We should be so far blind; and the blind can image to themselves only that which they can feel with their hands. All the same, thanks to their innate love of rhythm and regularity, they can be taught, through the sense of touch, to appreciate shapeliness, to find an aesthetic pleasure in sculptures, in certain of the decorative arts, and in raised pictures. They may even learn not only to recognize their friends by feeling their features, but to single out a pretty woman and a handsome man. As to this, Professor Soret relates an amusing and suggestive anecdote. Some time ago, three professors made a visit to the Lausanne asylum. One was a stalwart and handsome Swede, with a

splendid head; the second, an exceptionally ugly Swiss, with a head 'that left a good deal to be desired;' the third, an average mortal of ordinary appearance. Among the inmates of the asylum was a poor deaf-mute of the name of Meystre, blind from his birth, but highly impressionable, and quick to distinguish between shapes that conformed to his ideal of the beautiful and those that did not. The feeling of a deformed or mutilated man, for instance, would sometimes draw from him signs of compassion and sympathy; at others, strange grimaces and mocking laughter. On being told to examine the three visitors, Meystre showed great admiration for the Swede; but, on passing to the Swiss, he seemed greatly amused, indulged in his usual mocking laughter, and by his gestures made it understood that he thought the man had no back to his head, which he seemed to consider an excellent joke. The result of the third examination was negative. It produced no sign either of satisfaction or displeasure.

These facts seem to show, and in Professor Soret's opinion prove beyond a doubt, that, so far as the 'human form divine' is concerned, the blind possess the same ideal of beauty as those who see, and that this ideal is innate; and he is anxious that those who have charge of the sightless should make every effort to cultivate their aesthetic taste; that by means of cardboard models in relief, and other expedients, they should be familiarized with the highest types of human beauty, which occupy so large a place in all literatures. By this widening of their conceptions, they would be enabled to understand allusions and descriptions in poetry and elsewhere, which at present they must find utterly incomprehensible. The better to accomplish this object, Professor Soret has drawn up a complete programme; and seeing how hard life is for the blind, and from how many pleasures they are debarred, we may heartily applaud this effort to ameliorate their sufferings by opening to them new horizons, and wish it every success.

PUBLIC HEALTH IMPROVEMENT IN ENGLAND.

THE death-rate in England and Wales in 1885 again fell, says the *Lancet*, to 19.0 per 1000 of the estimated population, and excepting only the year 1881, when it was 18.9, was lower than in any previous year since civil registration came into operation in 1837. The registrar-general's quarterly return, relating to the last three months of 1885, calls attention to the fact that the death-rate in each of the five years 1881-85 was considerably lower than the rate recorded in any year

prior to 1881. The mean rate in the first half of the current decennium (1881-90) did not exceed 19.3 per 1000, showing a further decline from 20.8, the mean rate in the preceding five years 1876-80; whereas, in the preceding forty years of civil registration, the mean annual death-rate was 22.3, and the lowest rate in any quinquennium was 21.4 in 1841-45. This marked reduction in the English death-rate has now been maintained for ten years, and has been much greater in the second than in the first half of that period. It cannot, in the interest of further health progress, be too constantly borne in mind that the commencement of this period of reduced death-rate was coincident with the coming into full operation of the public health acts of 1872 and 1875.

The effect of this reduced death-rate upon the numbers and longevity of the English people is phenomenal. The registrar-general points out that the reduction in the last five years implies that "more than 281,000 persons in England and Wales survived that period, whose deaths would have been recorded had the mean rate of mortality been equal to that prevailing in the ten years 1871-80," in the latter half of which period the improvement in the public health had already set in. With regard to the increased longevity of the population, Mr. Noel Humphreys, in a paper read before the Statistical society in 1883, showed that the effect of a reduction in the mean death-rate from 22.5 in 1838-54, to 20.8 in 1876-80, would be to add two years to the mean duration of life of every male, and three years and a half to that of every female born.

PROFESSOR GRABER has made an extensive series of experiments on the degree and localization of the sense of smell in insects, etc., from among the results of which the following will be found of interest (*Journ. roy. micr. soc.*). Odors are perceived by many invertebrates, such as mollusks, insects, etc., with extreme rapidity, sometimes in one-third of a second, and even through an intervening layer of water a half-millimetre in thickness. This sensitiveness is very much greater than was exhibited by the vertebrates experimented upon (reptiles, birds). Insects deprived of their antennae are still able to smell, but in varying degrees in different insects and for different odors, some fine odors being apparently perceptible only through the antennae. Perception of smell through the stigmata or respiratory organs is not rapid nor important, though such has often been maintained. In some cases the palpi of the mouth-organs are more sensitive than the antennae, and therefore the latter cannot be considered as being alone the organs of smell.