pound process, to distinguish it from the mere hammering of the wire upon the rod, as practised by him formerly, and which he terms the *simple process*. He then enters into extended details of his several experiments, of which the following are the principal results: first, that the *compound* process is more effectual in the production of magnetism than the *simple one*, though the ratio of augmentation does not appear determinate. In one experiment, the maximum effect of the simple process was an attractive force capable of lifting between 186 and 246 grains, while the *compound process* augmented the lifting power to 326 grains. In another, the *simple process* gave a lifting power of 246 grains, the *compound* of 345 grains. Moreover, the efficacy of the compound process is much less manifest upon long than short wires, and is greatly impaired by diminishing the size of the rods.

In respect to the influence of the temper of the wire upon the degree of magnetism developed, Mr. Scoresby found that the softer the wire the more susceptible it became of this magnetic condition.

The author concludes this paper with some theoretical remarks respecting the influence of percussion in disposing the particles of iron to acquire and retain magnetism, which he thinks may tend to explain some otherwise obscure phenomena; and which seem to render it probable that the process of percussion may be applied, in connexion with other modes of magnetizing, for giving increased power to magnets.

On Semi-decussation of the Optic Nerves. *By* William Hyde Wollaston, *M.D. V.P.R.S.* Read February 19, 1824. [*Phil. Trans.* 1824, *p.* 222.]

In the human brain, the optic nerves, after passing forward to a short distance from their origin in the thalami, become incorporated; and from the point of union two nerves are sent off, one to each eye. To this united portion the term Decussation has been applied, under the supposition that though the fibres do intermix, they still continue onward in their original direction; and that those from the right side cross over wholly to supply the left eye, while the right eye is similarly supplied by fibres from the left thalamus. Anatomists have considered this opinion as confirmed, by the circumstance of the nerves actually crossing each other as two perfectly distinct cords in some fish; the author, however, from a species of blindness under which he has more than once suffered, concludes that a different distribution of the nerves takes place in the human subject. This peculiar state of vision consisted in seeing only half of every object, the loss of sight being in both eyes towards the left, and of short duration only. In reflecting upon this subject, a certain arrangement of the optic nerves, not consistent with the generally received hypothesis of their decussation, occurred to him. Since the corresponding points of the two eyes, he observes, sympathize in disease,

their sympathy is evidently from structure, and not from mere habit of feeling together. Any two corresponding points must be supplied with a pair of filaments from the same nerve; and the seat of a disease in which similar parts of both eyes are affected, must be considered as situated at a distance from the eyes, at some place in the course of the nerves where these filaments are still united, and probably in one or other thalamus. It is plain, he continues, that the cord which comes finally to either eye, under the name of optic nerve, must be regarded as consisting of two portions, one half from the right thalamus, and the other from the left. Upon this supposition, decussation will take place only between the adjacent halves of the two nerves. That portion of nerve which proceeds from the thalamus to the right side of the right eye, passes to its destination without interference; and in a similar manner the left thalamus will supply the left side of the left eye with one part of its fibres, while the remaining halves of both nerves, in passing over to the eyes of the opposite sides, must intersect each other with or without intermixture of their fibres. The crossing of the entire nerves to the opposite eyes in fishes, Dr. Wollaston observes, is in conformity with this view of the arrangement of the human optic nerves; for in the sturgeon, for instance, the eyes are placed so exactly back to back, that there are no corresponding points of vision requiring to be supplied with fibres from the same nerve. In this animal, an injury to the left thalamus might be expected to occasion entire blindness of the right eye alone; in ourselves a similar injury would occasion blindness to all objects situated to our right, owing to insensibility of the left half of the retina of both eyes. Dr. Wollaston states some other facts, illustrating his view of this peculiar distribution of the human optic nerves, remarking that in common vision also the sympathy of corresponding points, which receive similar impressions from the same object, is dependent upon the same arrangement of nerves to which the term Semi-decussation may be applied. In conclusion, Dr. Wollaston remarks, that so long as our consideration of the functions of a pair of eyes is confined to the performance of healthy eyes in common vision, when we remark that only one impression is made upon the mind, though two images are formed on corresponding parts of the retina, we may rest satisfied in ascribing the apparent unity of the impression to habitual sympathy of the parts; but when we regard sympathy as arising from structure, and dependent on connexion of nervous fibres, we therein see a distinct origin of that habit, and have presented to us a manifest cause why infants first begin to give the corresponding direction to their eyes, and clearly gain a step in the solution, if not a full explanation, of the long-agitated question of single vision with two eyes.