The sixth for the motions of one muscle of the eye.

The seventh for the voluntary and involuntary motions of the muscles of the face.

The eighth is the great respiratory nerve.

The ninth, for the voluntary motions of the tongue.

The nerve sometimes enumerated as the tenth of the brain, is properly the first spinal nerve : like those of the spine it has a distinct double root, and is a nerve both of sensation and of motion.

In the end of the paper certain conclusions are drawn, which have reference to the subjects of the preceding papers of the same author. And here the author advocates the importance of anatomical investigation as superior to experiments on living animals, affirming that erroneous opinions in physiology have been sometimes strengthened instead of corrected by such experiments.

An Account of Experiments made with an Invariable Pendulum at New South Wales, by Major-General Sir Thomas Brisbane, *K.C.B. F.R.S. Communicated by Captain* Henry Kater, *F.R.S., in a Letter to Sir* Humphry Davy, *Bart. P.R.S.* Read June 19, 1823. [*Phil. Trans.* 1823, *p.* 308.]

In this communication, laid before the Royal Society at the request of Sir Thomas Brisbane, Captain Kater gives the results of experiments made by Sir Thomas Brisbane and Mr. Dunlop, at Paramatta, in New South Wales ; and by Sir Thomas Brisbane, Captain Kater, and Mr. Rumker, in Portland Place, London, with an invariable pendulum belonging to the Board of Longitude.

The number of vibrations made by this pendulum in a mean solar day at London, in latitude $51° 31' 8''$ 4, at the temperature of $60°$, and reduced to a vacuum, was found to be $86090{\cdot}17$: at Paramatta, in latitude $33° 48' 43''$ S., by Sir Thomas Brisbane's experiments $86021{\cdot}59$; and by those of Mr. Dunlop $86022{\cdot}21$.

Captain Kater, after detailing these observations, proceeds to deduce the compression, and finds it, by comparing the vibrations at London with those resulting from Sir Thomas Brisbane's experiments at Paramatta, to be $\frac{1}{271{\cdot}13}$; by Mr. Dunlop's $\frac{1}{291{\cdot}33}$.

By the comparison of the vibrations at Unst with those at Paramatta, Sir Thomas Brisbane's experiments give $\frac{1}{301{\cdot}03}$, and those of Mr. Dunlop $\frac{1}{301{\cdot}09}$ for the compression.

But the author remarks that these numbers are not to be deemed conclusive, as a small alteration in the number of vibrations made by the pendulum would occasion a considerable difference in the fraction indicating the compression.