

*On the Difference in the Appearance of the Teeth and the Shape of the Skull in different Species of Seals.* By Sir Everard Home, Bart. V.P.R.S. Read February 28, 1822. [*Phil. Trans.* 1822, p. 239.]

In this paper, which is illustrated by three drawings, Sir Everard brings before the Society an account of some peculiarities in the skull and teeth of different species of Seals, in order to prevent mistakes being made when fossil remains of that animal are met with. The first drawing is of the skull of the large seal, from the South Seas; the second, from a seal shot near the Orkneys; and the third, from a seal's skull in the Museum of the College of Surgeons, from New Georgia, near the ice towards the South Pole. In all these the teeth differ in form, which the author suggests may arise from the shell fish on which they live being of different kinds.

*Experiments and Observations on the Development of Magnetical Properties in Steel and Iron by Percussion.* By William Scoresby, Jun, Esq. Communicated by Sir Humphry Davy, Bart. P.R.S. Read March 7, 1822. [*Phil. Trans.* 1822, p. 241.]

The result of the experiments detailed in this paper are, that merely hammering a bar of soft steel upon pewter and upon stone, gives it a feeble magnetic power; but that the same bar hammered vertically upon a poker, became much more powerfully magnetic. On inverting the bar a single blow nearly destroyed its magnetism, while the effect of two blows was to change the poles. Several blows upon the end of the bar when in the plane of the magnetic equator, also destroyed polarity. Increase in the length of the bars augmented the magnetism thus given by percussion. A strong magnet properly tempered was uniformly injured by hammering, but most rapidly when the north pole was upwards; after the magnetism, however, had been thus reduced to a certain extent, the power became nearly stationary, so that striking it in any position with the same hammer, occasioned scarcely any change of intensity.

The strong magnetizing effect of percussion on soft steel, induced Mr. Scoresby to apply the property to the formation of magnets, and he succeeded in giving to them considerable lifting powers, every care being taken to exclude all magnetic substances, and especially to free the bars of magnetism before the experiment.

The author also examined the effects of percussion upon soft steel magnets, and upon cast iron.

A soft steel magnet, lifting 1000 grains, when placed vertically upon a poker, with its north pole upwards, had its magnetism destroyed by five blows.

A bar of soft iron hammered vertically upon the poker could not be made to lift more than between 6 and 11 grains. A cast iron bar of the same size, and similarly treated, lifted 37 grains, and, having acquired this power, its magnetism was nearly destroyed by five blows with the north pole upwards.