cation of his book, namely, in the first report to the British Association on electrical standards (see report of the Newcastle meeting of the Association in 1863, p. 160) called attention, in a "Note on the Table of Dimensions," to the provisional character of the electrostatic and electromagnetic series recommended by the committee, and since widely adopted.

He there points out that "if we take into account the coefficient of magnetic induction of the medium in which we work," this quantity, μ, will enter into the dimensional equations; and he gives an illustration of this under a particular hypothesis. The whole note is worthy of very careful attention.

This pregnant note, so far as my memory serves me, was omitted from the reprint, by Prof. Fleeming Jenkin, of the British Association reports on electrical standards, and may now be easily overlooked. It seems, therefore, well to call attention to it. G. JOHNSTONE STONEY.

8 Upper Hornsey Rise, N., February 26.

Experiments in Elementary Physics.

I NOTICE on p. 379 a description of a new form of Boyle's tube used by Dr. J. Joly. The following, which I have now used for about six or seven years, I have found very convenient for school use, where it is a disadvantage to have much pouring to or fro of mercury.

A piece of Sprengel tube about 1 m. long is fastened along a metre scale, one end having been previously closed. The metre scale is then mounted so as to be capable of rotating about a horizontal axis, and a thread of mercury about 30 cm. long is introduced into the tube so as to leave an air space 20 to 30 cm. long at the closed end. The volume of air is read off along the scale, and the pressure varied by rotating the tube about its axis, and measuring the vertical height of the mercury column. By this means pressures greater or less than one atmosphere can be easily obtained, and the product v.p. shown to be constant with considerable accuracy if ordinary precautions are taken.

To show that when the volume is constant the pressure of a gas varies with the absolute temperature, I use a vertical tube about 40 cms. long, surrounded in the upper part by a water jacket. The upper end is closed, and the lower connected by stout rubber tubing to a long tube fixed to a wooden arm—the end of this arm nearest to the vertical tube being hinged to the base board. The two tubes are filled with mercury, so that it rises to a certain mark on the vertical tube, and nearly fills the long tube when the surfaces are about the same level. The air in the vertical tube is heated by passing steam into the water in the jacket, and when the desired temperature is reached, the wooden arm with its tube is raised till the air resumes its former volume. The pressure is then the height of barometer + diff. in height of the two mercury surfaces.

A method of illustrating magnetic lines of force, which I have found useful, is to thrust a magnetised knitting-needle through a cork so that it can float vertically in a large vessel of water. If now a magnet is supported just above the water surface, the needle moves along a line of force. The lines due to two or more magnets may easily be traced out on this plan.

Blairlodge School, Stirlingshire. W. RHEAM.

Spectacles for Double Vision.

MANY years ago, on recovering consciousness twelve hours after a railway accident in which my jaw was broken, I saw everything double in this position:—

The image seen by one eye was lifted above that seen by the other to the extent of about one-eighth the distance of the object, and was shifted a little to one side, while the two images were inclined to each other at an angle of about twelve degrees. This double vision still continues. It produced little inconvenience until I had to use spectacles for reading and writing; but the forcible bringing of the two images together then injured one eye so much that it soon became of little use. I found that to use one eye alone was equally bad; a white fog seemed to rise before the one not in use, and it speedily became almost blind. A five weeks' sea voyage, where I had nothing to read, improved the weak eye wonderfully. After consulting some of the best oculists and opticians, I got a pair of spectacles made with prismatic lenses, which brought the centres of the two images together, but left them still inclined at the same angle. Rotating these lenses simply shifts the images parallel to themselves. After two years' use the spectacles had produced a beneficial effect; but the improvement stopped half-way—like the half-remedy.

Fortunately, I met Mr. C. Vernon Boys, F.R.S., of South Kensington, explained my difficulty, and he at once pointed out the remedy, as follows:—A pair of right-angled prisms are placed in the form of a rhombus, and a small distance apart. When one is turned relatively to the other about the common visual axis, the image is turned through double the angle. When one is turned relatively to the other about a direction perpendicular to that axis in a horizontal plane, if the greater face of the prism is horizontal the image is raised or lowered. If the two prisms are turned together about the common visual axis, the image is shifted to the right or left. The images seen by the two eyes can thus be made to coincide exactly in every respect.

I have had a pair of prisms mounted in this fashion on common spectacles in front of the stronger eye. The prisms have facets only seven-sixteenths of an inch square; they are very light, and although small, yet give a sufficient field of view. There being now absolutely no strain on the weak eye in reading or writing, I have no doubt an improvement will soon set in.

I think this information should be disseminated among oculists and opticians, as the contrivance might be useful to others similarly afflicted. T. I. DEWAR.

Recent Local Rising of Land in the North-west of Europe.

DURING January of 1894 the local papers of Sweden, Norway, and Finland reported the occurrence of underground shocks or tremblings of the ground, accompanied with noises. The zone seems to be east and west on about 60° of latitude, from about Drammen in Norway across Sweden to Hangö on the southern part of Finland.

In Norway shocks were felt at the beginning of this year in several places. On the night of January 2, tremblings of the ground were felt at Navnaa, in Grue (lat. 60° 28′), and at several places in Solör, throughout the whole night and also on the following night. Loose things in the houses were much shaken, and an examination of the earth surface showed cracks about 2 cm. wide in several places.

On the night of January 3, three strong shocks were felt at Lower Eker in Mjöndalen (lat. 59° 38′). The last one shook the houses and all loose things.

In Sweden, on the night of January 3, a shock and underground noise was heard at Hedemora (lat. 60° 20′), and lasted two seconds. A shock was also felt at Mora in Dalarne (lat. 61°), and a crack in the ground, 2 cm. wide and one kilometre long, was found to have resulted from it. On January 24 a shock was felt in Dalarne at Stora Tuna (lat. 60° 27′). It lasted only two seconds. The same trembling was also felt at Uddnäs (about thirty English miles to the west from Tuna).

An underground noise, not very strong, was heard at Finspong (lat. 58° 40′). It lasted one and a half minutes.

A strong underground shock was felt on February 1 at Wilhelmsberg in Asker (lat. 59° 35′). It appeared to pass from north-west to south-east, and gave rise to a sound like thunder in the Iron mine department, and was felt at a distance of two miles from this place.

In the town of Ekenäs (lat. 60°), in the south-west corner of Finland, underground shocks were felt on the evening of January 2, and repeated until 2 o'clock in the morning. The shock was felt strongest in an open field to the west of the town, where three cracks in the ground were visible; one of these rents had a length of 240 feet, and crossing this was another running west, and of 400 feet length. Some people believed that the ground was raised. The following day two more shocks were felt, but they were not so strong as the preceding ones.

Stockholm, February 18. C. A. LINDVALL.