

end is attached to the base of a short cylinder. Any variation of temperature causes the coil to wind or unwind, and its motion acts to rotate the axial stem. This motion is magnified by multiplying wheels, and is registered upon the dial of the instrument by an index which pushes before it a registering hand, moving with sufficient friction merely to retain its place when thrust forward by the index hand of the thermometer. The instrument is graduated by trial. The brass and silver portions are thickly gilt by the electrotype process to prevent the action of sea-water upon them. The box which covers the coil and indicatory part of the thermometer is merely to protect it from accidental injury, and is open so as to permit the free passage of the sea-water. This instrument appears to answer tolerably well for moderate depths, its error up to 600 fathoms not greatly exceeding  $0^{\circ}5$  C.; at 1,500 fathoms, however, the error rises to  $5^{\circ}$  C., quite as great as that of the unprotected Six's thermometers, and the error is not so constant. It is evident that under great pressure little confidence can be placed upon instruments which give their indications through metal machinery.

Before H.M.S. 'Porcupine' started on her summer cruise in 1869, a valuable series of experiments were made upon the effect of pressure on various registering thermometers at Woolwich, under the superintendence of the Hydrographer and of the Deep-Sea Committee of the Royal Society. The object was to subject all the forms of deep-sea thermometers in use to pressures in a hydraulic press, equivalent to the pressures which they would encounter at different