

ment.¹ A modification of Phillip's maximum thermometer devised by Sir William Thomson, in which the thermometer is entirely encased in an outer shell of glass partly filled with alcohol, appears to have the smallest error of all.

A neat modification of Breguet's metallic thermometer was designed by Joseph Saxton, Esq., of the U.S. Office of Weights and Measures, for the use of the U.S. Coast Survey. A riband of platinum and one of silver are soldered with silver solder to an intermediate plate of gold, and the compound riband is coiled round a central axis of brass, with the silver within. Silver is the most expansible of the metals under the influence of heat, and platinum nearly the least. Gold holds an intermediate place, and its intervention between the platinum and silver moderates the strain, and prevents the coil from cracking. The lower end of the coil is fixed to the brazen axis, while the upper

¹ In Messrs. Negretti and Zambra's list of meteorological instruments published in 1864, a deep-sea thermometer on this plan is mentioned (p. 90): "The thermometers constructed for this purpose do not differ materially from those usually made under the denomination of Six's thermometers, except in the following most important particulars:—The usual Six's thermometers have a central reservoir or cylinder containing alcohol; this reservoir, which is the only portion of the instrument likely to be affected by pressure, has been, in Negretti and Zambra's new instrument, superseded by a strong outer cylinder of glass, containing mercury and rarefied air. By this means the portion of the instrument susceptible of compression has been so strengthened, that no amount of pressure can possibly make the instrument vary." Some obscurity is introduced into this passage by the use of the word 'superseded;' but I am assured by Messrs. Negretti and Zambra that in principle this instrument was exactly the same as that devised by Professor Miller and constructed by Mr. Casella.