osote, mercury, and sea-water were mixed up in the outer case of the large bulb with the débris of the inner bulb, and one of the steel indices lay uninjured across the centre of it.

It now becomes an important question, why the thermometer should give way at that particular point, and one still more important, how the defect is to be remedied. At first sight it is difficult to imagine why the small bulb should give way rather than the outer shell of the large one. The surface exposed to pressure is smaller, the glass is thicker, and it is somewhat better supported from within, as the tube is nearly filled with fluid under the pressure of an atmosphere. I believe the cause must be that the end of the small bulb is the last point of the instrument heated and sealed after the tube is filled with liquid, and that, consequently, the annealing is imperfect at that point. It is evidently of no use to protect the small bulb in the same way in which the large bulb is protected. The outer shell is merely a precaution to prevent the indications being vitiated by the action of pressure on the elastic bulb. Against crushing, it is no protection; it is rather a source of weakness, from its greatly increasing the exposed surface. The only plan which seems to be feasible is to thicken the small bulb itself, and, if possible, to improve its temper. It is only fair to say that these thermometers were tested and guaranteed to only three tons on the square inch, and that the pressure to which they were subjected was equal to four tons. The water-bottle appeared to have answered its purpose, although the wooden plug closing an air-vent in the tube had succumbed to the pressure, and had been washed in its contracted state out of its place.

Mr. Buchanan finds that the bottom water has a specific gravity slightly greater than usual at great depths (see Appendix C to Chapter V.), but not materially so. The amount of carbonic acid is somewhat in excess.

As this was the deepest sounding which we had taken, we