that due to heat, the amount of excess depending upon the thickness and uniformity of the glass of the bulb. On our return, the late Professor W. A. Miller devised a plan of defending the bulb from external pressure by inclosing it in an outer shell of glass, with fluid and a bell of vapor between. With this construction the outer wall bears the whole of the pressure, compressing in turn the included bell of vapor and relieving entirely the inclosed thermometer bulb. This "Miller-Casella" modification of Six's registering thermometer has given to deep-sea temperature determinations the element of accuracy previously unfortunately wanting.

Public interest was now fairly aroused in the new field of research. The rapid development of ocean telegraphic communication made all these results which affected telegraphy in any way—the precise depth, the nature and composition of the bottom, the presence or absence of animals capable of making inroads into hemp or gutta-percha, the temperature of the water through which telegraph cables might have to pass—of the highest practical value; while the novelty and peculiarity of many of the observations awakened a wide-spread curiosity and interest in even the purely scientific bearings of the inquiry.

Our cousins across the Atlantic had been working along with us *pari passu,* and ere long several of the European States sent out deep-sea expeditions more or less effective. None of these were attended with any great amount of success, and it seemed evident that England must give, at all events, the first broad outline of the physical conditions of the bed of the ocean. How this was best to be done was a matter of the most serious consideration and frequent consultation among those to whom the earlier stages of the inquiry had been intrusted; and finally Dr. Carpenter addressed a letter to the First Lord of the Admiralty, urging the dispatch of a circumnavigating expedition thoroughly equipped, and with a competent scientific staff, to traverse the great ocean basins and prepare sections showing