

has already produced a large number of very satisfactory pictures.

Hundreds of miles of line, of strength and material suited to different purposes, are reeled and coiled in every available spot on the forepart of the main-deck and elsewhere. When we left England, we were provided with 25,000 fathoms of bolt-rope for the dredge, 10,000 fathoms 3-inch rope, 10,000 fathoms $2\frac{1}{2}$ -inch, and 5000 fathoms 2-inch, and the supply has since been renewed. The methods of sounding and dredging, and the appliances used, are very much the same as those which we employed in the *Porcupine*, and which I have described fully in a former volume.* For deep sounding we now very generally use a neat modification of the "hydra" machine, devised by Navigating-Lieutenant C. W. Baillie. The "Baillie" sounding instrument is represented in perspective in the position in which it is let go in Fig. 14, A, and in section in the same position at B. The tube *a* is about 5 feet 6 inches in length by $2\frac{1}{2}$ inches in diameter. The bore is 2 inches, so that the wall is $\frac{1}{4}$ inch thick. The principal part of the tube is of iron. It is bored near its upper end with a number of holes to let out the water; it unscrews into two at *e*, and at its lower end, *f*, there is a pair of butterfly-valves working inward. A strong brass cylinder, *b*, with a diameter equal to that of the tube, is firmly attached to the upper end; a heavy piece of iron, *c*, works in the brass cylinder like a piston to the extent of the length of the slots, *d*, in the sides of the cylinder, in which it is retained by a strong square bolt. The piston-iron is flattened, and it is provided at *c* with a projecting shoulder, which, when the piston is drawn out—the bolt being at the top of the slot as in the figure—is well above the top of the cylin-

* "The Depths of the Sea: an Account of the General Results of the Dredging Cruise of H. M. Steamships *Porcupine* and *Lightning* during the Summers of 1868, 1869, and 1870, under the Scientific Direction of Dr. Carpenter, F.R.S., J. Gwyn Jeffreys, F.R.S., and Dr. Wyville Thomson, F.R.S." London: Macmillan and Co., 1878.