still that we could work with the current-meters from deck, but the strain on the wire was enormous. Double staying is much too difficult at great depths, although a single line may sometimes do. At Station 58, south of the Azores, we had the trawl out in about 900 metres of water, when it caught on something and stuck fast on the bottom, holding the ship practically still (the compass was carefully observed the whole time); we improved the occasion by making a series of current-observations, and the results, which will be discussed farther on, prove the drift or the swing to have been insignificant, so that the observations are fairly reliable.

In the deep ocean, where current-measurements would be of special interest, it is impossible to anchor the ship on the bottom, but the drift of the vessel may, when exactly known, be allowed for, and measurements may be made at any depth. We tried this two or three times. At Station 19, in the Mediterranean, all the nets and young-fish trawls were towed at the same time. The speed of the vessel then just balanced the surface current; the motion appeared to be quite steady, and some observations were made at different depths to determine the deeper currents in comparison with the surface current.

Current-measurements to the west of the Canaries.

Again, at Station 49 C, west of the Canaries, we employed the large bag-net (3 metres in diameter) with the wire as a drift-anchor. The net was lowered to a depth of 1000 metres and held there for many hours; the drift of the vessel was fairly steady, and the compass showed the swing to be trifling. The depth of water was about 5000 metres, and measurements were made at different depths down to 1830 metres (1000 fathoms) with two Ekman current-meters, the results being indicated in Fig. 178. It may be interesting to see how an attempt at determining the currents above so great a depth turned out.

The cardinal points of the compass are shown by dotted crosses, and arrows are used to indicate the velocity and direction according to the current-meters sent to different depths, a broken line for 915 metres (500 fathoms) and 1830 metres (1000 fathoms), and a thin line for 10 metres. Now, we know nothing directly about the currents in deep water in the open ocean between 500 and 1000 fathoms, but we must suppose the movements to be comparatively insignificant when the depth to the bottom is very great, say more than 2000 fathoms. Supposing there were no current at these depths, the apparatus would act as a log, showing the velocity and direction of the drift of the vessel. Granting this to have been the case, the