average of thirty-two observations upon water at a sufficient distance from land to be unaffected by local disturbances was 1·02779, the maximum being 1·0284 and the minimum 1·0270.

It was almost always noticed that, during a high wind, the specific gravity of surface-water was *above* the average.

The average of thirty observations upon the specific gravity of intermediate water was 1·0275, the maximum being 1·0281 and the minimum 1·0272.

The specific gravity of bottom-waters at depths varying from 77 to 2,090 fathoms, deduced from an average of forty-three observations, was 1·0277, the maximum being 1·0283 and the minimum 1·0267.

It will be noticed that the average specific gravity of bottom-water is slightly less than that of surface-water. In several instances the specific gravities of surface- and of bottom-waters taken at the same place having been compared, that of the bottom-water was found to be appreciably less than that of the surface-water. Thus—

At 1425 fathoms' depth (Station 17) it was . .	1·0269
Surface at the same	1·0280

And

At 664 fathoms' depth (Station 26 *b*) it was . .	1·0272
Surface at the same	1·0280

According, however, to a series of observations made at the same spot (Station 42) at intervals of fifty fathoms, from 50 to 800, the specific gravity increased with the depth from 1·0272 at 50 fathoms to 1·0277 at 800 fathoms.

Several series of specific-gravity observations were made near the mouths of rivers and streams; showing the gradual mixture of fresh and salt water, and the floating of lighter portions above the denser sea-water, as well as the reverse effect produced by the influence of tidal currents. Thus outside Belfast Lough a rapid stream of water of specific gravity 1·0270 was found above water which, at a depth of seventy-three fathoms, had a specific gravity of 1·0265.

Gases of Sea-water.—The analyses of the gaseous constituents of sea-water may be divided into two groups: (1) Analyses of