carbonic acid and diminution of the oxygen, as the depth increases, the percentage of nitrogen varying but slightly.

These general results appear to show that the oxygen diminishes and the carbonic acid increases with the depth until the bottom is reached; but that *at* the bottom, whatever the depth from the surface, the proportions of carbonic acid and of oxygen do not conform to this law, bottom-water at a comparatively small depth often containing as much carbonic acid and as little oxygen as intermediate water at a greater depth. No instance occurred during the first two cruises in which (where samples of surface and intermediate or bottom-waters were taken at the same place) the quantity of carbonic acid was less and of oxygen greater than at the surface; the only exception occurred in the third cruise, at a place where, it is believed, currents of water were meeting.

It was frequently noticed that a large percentage of carbonic acid in bottom-water was accompanied by an abundance of animal life, as shown by the dredge; and that where the dredge-results were barren, the quantity of carbonic acid was much smaller. The greatest percentage of carbonic acid ever found was accompanied by an abundance of life; while at a short distance (62 fathoms) above the bottom, the proportion of carbonic acid was conformable to the law of variation with depth before referred to :—

	Bottom, 862 fms.	800 fms.	750 fms.
Oxygen	17·22	17·79	18·76
Nitrogen	34·50	48·46	49·32
Carbonic acid . . .	48·28	33·75	31·92
	100·00	100·00	100·00

The lowest percentage of carbonic acid (7·93) ever found in bottom-water, occurring at a depth of 362 fathoms, was accompanied by a "very bad haul."

In crossing the wide channel from the north-west of Ireland towards Rockall, where the water for some distance is over 1,000 fathoms depth, so that the other circumstances varied very little, if at all, the proportion of carbonic acid appeared to vary with the dredge-results; so that the analyst ventured to predict