

fathoms from the surface. This distribution of temperature proves that there must be a transference of cold polar water toward the equator, for in the first place, the temperature of the great mass of the ocean is much lower than that which is normal to each latitude, and in the second place, it is much lower than that of the superficial parts of the earth's crust underneath. On the other hand, the movement of water from the poles to the equator requires a return movement of compensation from the equator to the poles, and this must take place in the superficial strata of the ocean. Apart therefore from those rapid river-like streams which traverse the ocean, and to which the name of Currents is given, there must be a general drift of warm surface-water toward the poles. This is doubtless most markedly the case in the North Atlantic, where, besides the current of the Gulf Stream, there is a prevalent set of the surface-waters toward the northeast. As the distribution of life over the globe is everywhere so dependent upon temperature, it becomes of the highest interest to know that a truly arctic submarine climate exists everywhere in the deeper parts of the sea. With such uniformity of temperature, we may anticipate that the abysmal fauna will be found to possess a corresponding sameness of character, and that arctic types may be met with even on the ocean-bed at the equator.

But besides this general drift or set, a leading part in oceanic circulation is taken by the more defined currents. The tidal wave only becomes one of translation as it passes into shallow water, and is thus of merely local consequence. But a vast body of water, known as the Equatorial Current, moves in a general westerly direction round the globe. Owing to the way in which the continents cross its path, this current is subject to considerable deflections. Thus, that