

with it of the waters of the river Amazon, it rises to one hundred miles (6·5 feet in a second), but it soon falls off again when it gets into the Caribbean sea. Flowing slowly through the whole length of this sea, it reaches the Gulf of Mexico through the Strait of Yucatan, when a part of it sweeps immediately round Cuba; but the main stream "having made the circuit of the Gulf of Mexico, passes through the Strait of Florida; thence it issues as the 'Gulf-stream' in a majestic current upwards of thirty miles broad, two thousand two hundred feet deep, with an average velocity of four miles an hour, and a temperature of 86° Fahr. (30° C)." ¹ The hot water pours from the strait with a decided though slight north-easterly impulse on account of its great initial velocity. Mr. Croll calculates the Gulf-stream as equal to a stream of water fifty miles broad and a thousand feet deep flowing at a rate of four miles an hour; consequently conveying 5,575,680,000,000 cubic feet of water per hour, or 133,816,320,000,000 cubic feet per day. This mass of water has a mean temperature of 18° C. as it passes out of the gulf, and on its northern journey it is cooled down to 4°·5, thus losing heat to the amount of 13°·5 C. The total quantity of heat therefore transferred from the equatorial regions per day amounts to something like 154,959,300,000,000,000 foot-pounds. ²

This is nearly equal to the whole of the heat

¹ Physical Geography. From the 'Encyclopædia Britannica.' By Sir John F. W. Herschel, Bart., K.H.P. Edinburgh, 1861, p. 49.

² On Ocean Currents. By James Croll, of the Geological Survey of Scotland. Part I. Ocean Currents in relation to the Distribution of Heat over the Globe (Philosophical Magazine. February 1870.)