

the sun; while, according to Fourier's celebrated computation, the heat radiated from the earth's surface is only sufficient to melt a layer of ice ten feet thick in one hundred years.

The most conservative of these results may be regarded as showing that our earth is actually losing heat to a perceptible and measurable extent. Neither is the amount of heat escaping at Paris to be taken as the measure of the reduction of the temperature of the mass of the earth in general. There are three hundred active volcanoes in existence, from the craters of which enormous quantities of heat are permitted to waste. The ocean, too, carries off vastly larger quantities than the land. The floor of the ocean is generally overlaid by a stratum of ice-cold water setting southward from the polar regions. This cold stream is overlaid by a warmer one moving northward from the tropics. Water being a better conductor of heat than atmospheric air, this cold stratum must necessarily abstract terrestrial heat with vastly greater rapidity than the average atmosphere of the temperate zone. Many observations indicate that the temperature of the solid crust beneath the waters of the ocean is much higher than that of continental surfaces, and hence imparts its warmth in larger quantities. Throughout all that part of the Frozen Ocean north of Europe and Asia, the temperature is found to increase at considerable depths, contrary to the well-known laws of hydrostatics. [See Appendix, Note X.] The same phenomenon has been observed on the coast of Australia, in the Adriatic, and Lago Maggiore. Horner asserts that in the deep soundings of the Gulf Stream, off the coast of the United States, the lead, when drawn up, "used to be hotter than boiling water."

These facts, with others, seem to demonstrate that our planet is wasting its warmth many times faster than the