sun during the day, since his rays are not intercepted at their entrance, but suffered partially to descend into the mass, and to waste their calorific power on a liquid stratum of ten or twelve feet in thickness.

"But the surface of deep collections of water is kept always warmer than the ordinary standard of the place, by the operation of another cause, arising from the peculiar constitution of fluids. Although these are capable, like solids, of conducting heat slowly through their mass, yet they transfer it principally in a copious flow by their internal mobility. The heated portions of a fluid being dilated, must continue to float on the surface; while the portions which are cooled, becoming consequently denser, will sink downwards by their superior gravity. Hence the bed of a very deep pool is always excessively cold, since the atmospheric influences are modified in their effects by the laws of statics.

"Through the friendship of Mr James Jardine, civil engineer, we are enabled to give the results of his observations on some of the principal Scottish lakes, which, as might be expected from him, were conducted with the most scrupulous accuracy. The instrument which he employed for exploring the temperature at different depths, was free from the ordinary objection; being a register thermometer, let down in a horizontal position, which could acquire the impression in not many seconds, and might be drawn up leisurely, without risk of subsequent alteration. It would appear that the variable impressions of the seasons do not penetrate more than 15 or 20 fathoms; that below this depth, an almost uniform coldness prevails. Thus in the deepest part of Loch Lomond, on the 8th September 1812, the temperature of the surface was 59°.3 of Fahrenheit; at the depth of 15 fathoms, 43°.7; at that of 40 fathoms, 41°.3; and from that point to about 3 feet from the bottom, at 100 fathoms, it decreased only the fifth part of a degree. Again on the preceding day, the superficial water of Loch Katrine being at 57°.3, the thermometer, let down to 10 fathoms, indicated  $50^{\circ} \cdot 6$ ; at the depth of 20 fathoms it marked 43°·1; at the depth of 35 fathoms it fell to 41°·1; and on the verge of the bottom, at 80 fathoms, it had only varied to 41°. At the same place, on the 3rd September 1814, the heat of the surface was  $56^{\circ}.4$ ; at the depth of 10 fathoms,  $49^{\circ}.2$ ; at that of 20 fathoms, 44°; at that of 30 fathoms, 41°.9; and at that of 80 fathoms, 41°.3."

Jardine's observations stand by themselves in Scotland for a period of nearly sixty years, although the study of lake temperatures was engaging attention on the Continent and in America; but Sir Robert Christison revived interest in the matter by describing, in