

ment of Sir John Herschel that the heat received by the earth from the sun is equally divided between the winter and summer seasons has given rise to an entirely erroneous impression. Although "it is certainly true that during the summer in one hemisphere the heat received on the whole earth is equal to the heat received on the whole earth during the ensuing winter on the same hemisphere," yet on any given hemisphere almost twice as much heat can be demonstrated to be received during summer as during winter.⁴⁶ The law is thus stated: "Of the total amount of heat received from the sun on a hemisphere of the earth in the course of a year, 63 per cent is received during the summer, and 37 per cent is received during the winter."⁴⁷ It is obvious that while, under the operation of this law, the total amount of heat received and the ratio of its distribution between summer and winter would remain unchanged, enormous differences in terrestrial climate might result according as the seasons varied in length with changes in the eccentricity of the orbit.

Inter-Glacial Periods.—Allusion has already been made to the accumulating evidence that changes of climate have been recurrent, and to the deduction from this alternation or periodicity that they have probably been due to some general or cosmical cause. Dr. Croll ingeniously showed that every long cold period arising in each hemisphere from the circumstances sketched in the preceding pages, must have been interrupted by several shorter warm periods.

"When the one hemisphere," he says, "is under glaciation, the other is enjoying a warm and equable climate.

⁴⁶ "The Cause of an Ice Age," London, 1891, p. 120.

⁴⁷ *Ibid.* p. 90.