

SCIENCE

A WEEKLY JOURNAL DEVOTED TO THE ADVANCEMENT OF SCIENCE, PUBLISHING THE OFFICIAL NOTICES AND PROCEEDINGS OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

FRIDAY, JANUARY 20, 1905.

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THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

A TENTATIVE THEORY OF THERMO-ELECTRIC ACTION.*

LET the lines (1)-(1) and (2)-(2) in Fig. 1 be the lines representative respectively, of two metals M_1 and M_2 in the ordinary thermo-electric diagram. We may, if we please, think of these metals as copper and iron, respectively. The lowest horizontal line is the temperature coordinate and begins at the absolute zero.

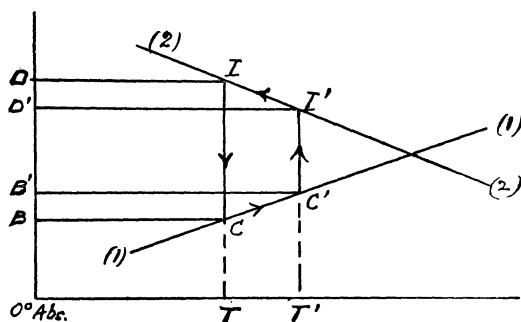


FIG. 1.

The diagram is so constructed that the area $CC'I'C$ is equal to the net thermo-electromotive force, E , counterclockwise, in the circuit indicated by Fig. 2, in which the left-hand junction is kept at temperature T and the right-hand junction at temperature T' . We will suppose that E is expressed in mechanical units, as the

* Address of the vice-president and chairman of Section B—Physics, American Association for the Advancement of Science, Philadelphia, December, 1904. [The theory here given is certainly incomplete, and I fear that it is not entirely self-consistent. It is intended to be suggestive rather than conclusive or exhaustive.—E. H. H.]

Science

21 (525)

Science 21 (525), 81-120.

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