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WHAT IS ENTROPY AND HOW TO PRODUCTIVELY EMPLOY THIS CONCEPT

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ABSTRACT

This note discusses benefits a thoughtful thermodynamic analysis might in fact bring to generalize scientific research methodology. Not only engineers but also specialists in natural and social sciences are interested in cooperative phenomena in many-body systems. To thoughtfully analyze the pertinent mechanisms, we need first to clarify, what ought to be the relevant driving/livening forces. To manage describing the latter, Carnot's Thermodynamics or, in other words, energetics does allow for Intensity of the Energy Form in question.

Above is the necessary first step. Next, it is important to realize what ought to be the realistic forces to effectively counteract the dynamics the driving/livening forces under study tend to cause. Thanks to Carnot's genius, we know now: Overcoming ubiquitous obstacles/hindrances/resistances ought to be the actual general essence both inanimate and animate branches of Nature functioning, that is, experiencing their truly eternal dynamics. Carnot's actual problem has been to grasp why natural dynamics eternal indeed does never allow us to invent any kind of *Perpetuum Mobile*?

Carnot's answer has been ingenious: Even if we do imagine an ideal heat machine whose working cycle is cyclic – and whose apparent technical difficulties: frictions, heat exchange, etc., are striving for zero – we would never arrive at 100% of the energy efficiency ratio. Why? Because of counteraction's ubiquity of an action, just as Isaac Newton taught us. Thanks to geniuses of Clausius and Lord Kelvin, we know that the eternal action-counteraction struggle is describable by energy transformation, which is, in fact, energy devaluation, as the Intensity of the Energy Form at work diminishes due to the eternal action-counteraction struggle. Entropy is then synonymous to sum of counteractions, which might never be infinite, for it always reaches its maximum.

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