

SPIRITUAL DEPICTION OF THERMAL ENGINEERING

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ABSTRACT:

In this paper spiritual significance of basic laws of Thermodynamic has been explored. Spritual concept of Brhmakumaris Ishwariya Vishwavidyalaya is the chief source of this investigation. It has been found that the laws of thermodynamics and teachings of Brhmakumaris Ishwariya Vishwavidyalaya (BIVV) together explain the chaos in present society as well as in the life of individual Human beings. This paper is an effort to explain spiritual meaning of laws of Thermodynamic.

KEY WORDS:

Spiritual; BIVV; Laws of Thermodynamics.

1. INTRODUCTION

The Brahma Kumaris, originally called *Om Mandali*, started in Hyderabad, Sindh in north-west India It received this name because members would chant "Om" together, before having discourse on spiritual matters in the traditional satsang style. The original discourses were closely connected to the Bhagavad Gita. [1]

The founder, Dada Lekhraj Khubchand Kripilani (who became known in the group as "Om Baba") was a wealthy jeweller who was respected in the community for his piety. He reported what he said were a series of visions and other transcendental experiences that commenced around 1935 and became the basis for the discourses. He said he believed there was a greater power working through him and that many of those who attended these gatherings were themselves having spiritual experiences.[1]

After about three years of meetings it became clear that *Om Mandali* was giving very special importance to the role of women, and was not adhering to the rigid caste system. The group had named a 22-year-old woman, Radhe Pokardas Rajwani (then known as "Om Radhe") as its president, and her management committee was made up of eight other women.¹ People from any caste were allowed to attend meetings. The group also advocated that young women had the right to elect not to

marry and that married women had the right to choose a celibate life. In tradition-bound patriarchal India, these personal life decisions were the exclusive right of men.[1]

In May 1950 Om Mandali moved to Mount Abu in Rajasthan India. From the beginning, the organization's focus had been on education, not worship, and for this reason it renamed itself as Brahma Kumaris World Spiritual University.

In 1980 the Brahma Kumaris became affiliated to the United Nations Department of Public Relations as a Non-Governmental Organization. In 1983 when the Brahma Kumaris achieved consultative status with the Economic and Social Council at the United Nations. The Brahma Kumaris now has a permanent office space in New York for their work with the United Nations.[1]

Thermodynamics is the science that deals with the interaction between energy and material systems.

Thermodynamics, basically entails four laws or axioms known as

Zeroth, First, Second and Third law of thermodynamics.

The Zeroth law deals with thermal equilibrium and establishes a concept of temperature. The First law throws light on concept of internal energy.

The Second law indicates the limit of converting heat into work and introduces the principle of increase of entropy. The Third law defines the absolute zero of entropy.

These laws are based on experimental observations and have no mathematical proof. Like all physical laws, these laws are based on logical reasoning.[6]

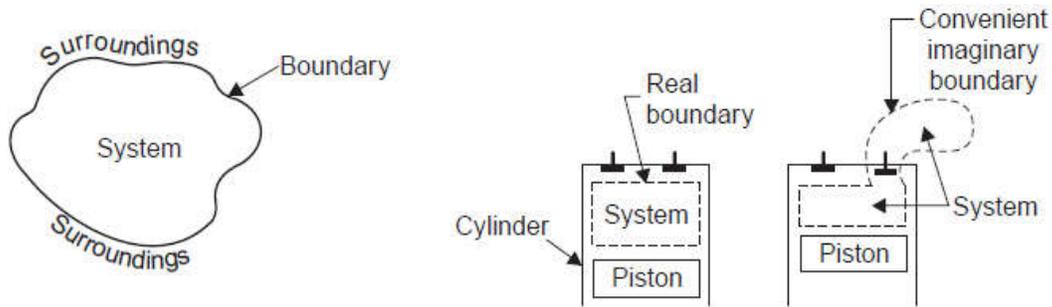
In this paper an effort is made to bring awareness in the society about spiritual significance of these laws which will ultimately lead the society towards betterment.

2. TERMINOLOGY AND BASIC LAWS OF THERMODYNAMIC (Spiritual Point of View)

2.1 System, Boundary and Surroundings

System. A system is *a finite quantity of matter or a prescribed region of space* (Refer Fig.)

Boundary. The *actual or hypothetical envelope enclosing the system* is the boundary of the system. The boundary may be fixed or it may move, as and when a system containing a gas is compressed or expanded. The boundary may be *real* or *imaginary*. It is not difficult to envisage a real boundary but an example of imaginary boundary would be one drawn around a system consisting of the fresh mixture about to enter the cylinder of an I.C. engine together with the remnants of the last cylinder charge after the exhaust process[6]



In spirituality every individual is considered as system. Outer body line is system boundary which may be real and imaginary.



2.1.1 Closed System

Refer to Fig. *If the boundary of the system is impervious to the flow of matter, it is called a closed system.* An example of this system is mass of gas or vapour contained in an engine cylinder, the boundary of which is drawn by the cylinder walls, the cylinder head and piston crown. Here the boundary is continuous and no matter may enter or leave.[6]

2.1.2 Open System

Refer to Fig. An open system is one in which *matter flows into or out of the system.* Most of the engineering systems are open.

2.1.3 Isolated System

An isolated system is that system *which exchanges neither energy nor matter with any other system or with environment.*

2.2 MACROSCOPIC AND MICROSCOPIC POINTS OF VIEW

Thermodynamic studies are undertaken by the following two different approaches.

1. Macroscopic approach—(*Macro* mean *big* or *total*)
2. Microscopic approach—(*Micro* means *small*)

In Spiritually if one is interacting with other individuals considering them as body, or his approach of interaction with others is body consciously then his approach will be Macroscopic.

In Microscopic point of view every individual is considered as source of energy, tiny point of light situated in the fore head of every individual.

2.3 PURE SUBSTANCE

A pure substance is one that has a homogeneous and invariable chemical composition even though there is a change of phase. In other words, it is a system which is (a) homogeneous in composition, (b) homogeneous in chemical aggregation. Examples : Liquid, water, mixture of liquid water and steam, mixture of ice and water. The mixture of liquid air and gaseous air is not a pure substance.

In spiritual language pure soul retains its original properties in every situation and it behaves perfectly even in most adverse condition.

2.4 CYCLE

Any process or series of processes whose end states are identical is termed a cycle.[4]

Brhmakumaris Ishwariya Vishwavidyalaya explains cyclic process of Time, accordingly Time passes in four Era's Golden Era , Silver Era, Copper era and Iron era and then returns to golden era gaining its original properties of Purity, Peace, Love and compassion.

2.4.1 The Scientific Outlook on Eternal World Drama

This creation is an interplay of infinite space and cyclic time with three point sources of energy, viz: the atom (physical energies of nature), the soul and the supreme soul (metaphysical energies). During the cycle of 5000* years the physical energy of nature and the metaphysical energy of the souls pass through three stages of existence: the Sato or pure stage, the Rago or mixed stage and the Tamo or impure stage. The cycle starts with Golden Age when the physical energy in the form of elements of nature, the biological energy in the deities and the other living beings, and spiritual (metaphysical) energy of the deities were at their highest potential.[2]

When the sentient metaphysical energy is at its highest potential, the human soul, the sentient master, is able to command and control all the insentient sources of energies at its will. When this spiritual energy gets depleted as per the law of Entropy through motion and vibration of thought and sound the 'master' is no longer able to command the physical/biological energy at its will. Gradually the weakened soul becomes a prisoner, so to say, trapped within the body which gains dominance over the former. This reversal of control leads to widespread disorders in the entire world where corruption, violence vices of lust, ego, anger, attachment and greed have their free play. It is at this juncture of utter chaos that the energy cycle have to be renewed for the drama to go on eternally.[1]

2.4.2 The Eternity:

The interplay between souls, nature and God the supreme soul, goes on eternally because the time and space for the play are infinite. The symbol for infinity(∞) suggest something that has no beginning or end. When we see time as a cycle with no beginning or end, the law of cause and effect, or action or reaction operates for ever. The World drama goes on eternally because each point in the

cycle flow of events gives cause to the next point that it begins from. Cyclic time implies that there can neither be a beginning nor an end to anything because everything exists in this world with time.[1]

2.5 FIRST LAW OF THERMODYNAMICS

In the early part of nineteenth century the scientists developed the concept of energy and hypothesis that it can be neither created nor destroyed ; this came to be known as the *law of the conservation of energy*. The first law of thermodynamics is merely one statement of this general law/principle with particular reference to heat energy and mechanical energy *i.e.*, work.[5]

Soul (energy) cannot be created nor it can be destroyed, it leaves one body and goes in to other body is the spiritual significance of First Law of Thermodynamics as explained by Brhmakumaries, which is also mentioned in srimat bhagwat Geeta. (Hindu Mythology). In this regard, it is important to consider that the shape, texture and movement of things are made up of energy; the human body, an automobile and a candle are made up of various concentrations and forms of energy. The energy required for these was not created, but was only transformed from potential state to kinetic so that the total content of the energy in the universe remains constant.

2.6 STATEMENTS OF SECOND LAW OF THERMODYNAMICS

The second law of thermodynamics has been enunciated meticulously by Clausius, Kelvin and Planck in slightly different words although both statements are basically identical. Each statement is based on an *irreversible process*. The *first considers transformation of heat between two thermal reservoirs* while the *second considers the transformation of heat into work*.

2.6.1 Clausius Statement

“It is impossible for a self acting machine working in a cyclic process unaided by any external agency, to convey heat from a body at a lower temperature to a body at a higher temperature”.[4]

In other words, heat itself, cannot flow from a colder to a hotter body.

Spiritual significance of second law of thermodynamics soul once loses its purity cannot regain its purity until it comes in contact with supreme soul or

Loss of energy of soul (higher purity order to lower purity order) is automatic

2.6.2 Kelvin-Planck Statement

“It is impossible to construct an engine, which while operating in a cycle produces no other effect except to extract heat from a single reservoir and do equivalent amount of work”. Amount of heat converted in to useful work depends on irreversibility involved in conversion process.[4]

All energy (Time) received by the soul is not converted in to useful work. Amount of time utilized in development of self as well as society reflects the purity of soul.

2.6.3 Law of Degradation of Energy

Quality of energy deteriorates with time, as energy conversion process is irreversible, all real processes are irreversible, irreversibility leads to increase in entropy of Universe. Once the quality of energy deteriorates its capability of producing positive work diminishes.[6]

Soul(energy) losses its purity(quality) with time, at the beginning of cycle soul is hundred percent pure,(Satopradhan) during its journey when soul interact with surrounding and other soul's it loses its PURITY, hence become IMPURE (Tamopradhan) .Impure (Tamopradhan) soul is not able to perform as well as not able to move in positive direction, Hence entropy(chaos) in society increases.[2]

The second law of thermodynamics, the Law of Entropy, says that every time energy is transformed from one state to another state, there is a loss in the amount of that form of energy which becomes available to perform work of some kind. This loss in the amount of available energy is known as entropy. When the potential energy of coal is transformed in to kinetic energy by burning some part of coal remains the same but, during the process of burning, some part of the coal[6]

CONCLUSION

This paper is an effort to relate Science and spirituality. An effort has been made so that reader may feel that there is some subtle or visible connection of one with the other. The idea of this paper is not to give a very comprehensive spiritual or scientific world view but to arouse the interest of the readers to know further on the subject. This paper is intended to provide some spiritual food and nutrition to persons with scientific bent of mind.

Entropy is the measure of disorder within a system. High entropy means that there is greater disorder and less energy is available for use, while low entropy means that there is a large amount of energy available for use.

Each action or interaction within the system would increase entropy and so, in any non living system, more and more energy would become un-recoverable and so greater and greater will be the disorder. Universe will ultimately meet 'heat death' because higher and higher entropy and loss of heat.

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