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Freedom, Creativity, Education: Exploring Children's Psyche in Tagore's Short Stories

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Abstract

Tagore's philosophy of education defies all those conventions of imparting education that hinder the natural development of a child's personality, and, by not allowing freedom necessary for proper vernalization of the inherent talent in a child, defeat the very purpose of education. Education, according to Tagore, must encourage / promote free imagination and creativity in children so as to enable them to have a sense of fulfillment in life and making them humane and most potent leaders of humanity. The present paper aims at exploring the children's psyche and its actual needs, requirements and aspirations through an analysis of select short stories of Rabindranath Tagore. The stories in discussion include "The Parrot's Training", "The Exercise-Book" and "The Homecoming", which quite perceptively delve into the highly sensitive psyche of children and very subtly suggest the ways to deal with it. Tagore's concept of schooling embarks on recognition and promotion of creativity in children by giving individualized attention to their talents and aptitudes, instead of imposing a curriculum that lay emphasis on rote-learning and does not provide space for their natural ability and creative expression. The short stories chosen for analysis and discussion amply and substantially offer the material for working out Tagore's stance on education for children.

A child's mind is highly fertile with imagination and curiosity, which are quintessential for the development of hidden talent and creative skills. A child does need freedom to imaginative thinking and creativity besides pedagogical tutoring for wholesome development of his or her personality. Rabindranath Tagore has quite charily dealt with these psychological issues in several of his writings *for* or *about* children. His viewpoint of education for children cannot be had in any single volume, but rather it can be assayed in diverse genres of his literary oeuvre. Particularly, Tagore's plays and short stories, which are serious explorations into the children's psyche and its basic needs and requirements, have to be examined intensively for his stance on education for children. The present paper focuses on two of Tagore's short stories including "The Parrot's Training" (alternatively titled as "The Parrot's Tale" by some translators) and "The Exercise-Book". Tagore's philosophy of education defies all those conventions of imparting education that hinder the natural development of a child's personality, and, by not allowing freedom necessary for proper vernalization of the inherent talent in a child, defeat the very purpose of education.

Education, according to Tagore, must encourage / promote free imagination and creativity in children so as to enable them to have a sense of fulfillment in life and making them humane and most potent leaders of humanity. The stories in discussion quite perceptively delve into the highly sensitive psyche of children and very subtly suggest the ways to deal with it. Tagore's concept of schooling embarks on recognition and promotion of creativity in children by giving individualized attention to their talents and aptitudes, instead of imposing a curriculum that lay emphasis on rote-learning and does not provide space for their natural ability and creative expression. The short stories chosen for analysis and discussion amply and substantially offer the material for getting at Tagore's stance on education for children.

"The Parrot's Training", originally written in Bengali in the form of a fable, translated into English by the author himself, is highly critical of the contemporaneous education system, especially the methodology of instruction for children. Although Tagore particularly refers to the schooling system of his times, but it is relevant even today. The issue of understanding and dealing with children's psyche is still alive. Policy makers have hardly seen through the actual needs of the highly sensitive and delicate minds of children while framing the curricula in schools, colleges and universities. "The Parrot's Training" is an astringent satire on the system of education, which, with its callous formality and lumber of information, suppresses and stifles the creative impulse of a child. It ridicules rote-learning and reinforces a methodology of instruction that is capable of stimulating a response or reaction and imaginative rejoinder in a child's mind. And it is possible only when a child is allowed freedom to interact with nature and experience and understand his surroundings on his or her own terms.

At the very outset, the story denounces the imposition of accepted beliefs on a child's mind without realizing the actual requirements of children's psyche. The author recounts the tale of a parrot who "sang all right, but never recited scriptures" and "hopped pretty frequently, but lacked manners". Here, the author lampoons conditioning of a child with orthodoxy, instead of allowing creative self-determination and independent thinking. 'Singing' and 'hopping' are natural instincts of a parrot, but in an effort to educate and sophisticate it, its natural disposition has been completely ignored, which eventually leads to the death of its real self. But, without any considerate concern for the inherent propensities of a bird, the kingship is intent on training the parrot with its own yardstick. Raja considers those singing and hopping creatures as foolish, ignorant and inutile. He opines, "Ignorance is costly in the long run. For fools consume as much food as their betters, and yet give nothing in return." And, so he ordered his nephews to get the parrot educated. The nephews engage "the pundits" to detect the cause of the parrot's ignorance and idiotic behaviour. After long discussions, they reach a conclusion that "the ignorance of birds was due to their natural habit of living in poor nests" and told the king that "the first thing necessary for this bird's education was a suitable cage." Therefore, according to the advice of the pundits, "A golden cage was built with gorgeous decorations," and "Crowds came to see it . . ." Some grudgingly remarked, "Culture, captured and caged!" while others extolled, "Even if culture be missed, the cage will remain, to the end, a substantial fact. How fortunate for the bird!" Also, a large number of men were employed and several supervisors were appointed for proper execution of the king's orders. The pundits did their best to train the bird and the people praised the progress. All

teachers, supervisors and others deputed for the job got ample rewards from the king and became affluent and raised palatial buildings for themselves.

But, the fault-finders among the common masses "went about saying that every creature remotely connected with the cage flourished beyond words, excepting only the bird." When Raja heard such a comment, he visited "the great Hall of Learning" to inspect how his Education Department busied itself with the little bird. He was impressed by the splendid arrangements. But, again, the fault-finder, from behind the bush, cried out, "Maharaja, have you seen the bird?" Listening to that, the king desired to see the bird. He was shown the bird and he was immensely impressed to see that the bird was enjoying superb amenities. In point of fact, as the author comments, "The method was so stupendous that the bird looked ridiculously unimportant in comparison." Nobody bothered for what the bird actually needed. As for the bird, it could not articulate its complaint inasmuch as "its throat was so completely choked with the leaves from the books that it could neither whistle nor whisper." However, the bird did try to register its complaint by pecking at the bars of the cage with its feeble beak. Its unwarranted flapping of wings was taken as a sign of bad behavior, and therefore, it was put in iron fetters and its wings were clipped. Further, the teachers made the process rigorous: "With text-book in one hand and baton in the other, the pundits gave the poor bird what may fitly be called lessons!" One day the bird died. The rumor was spread first spread by the fault-finder, and soon it reached the king. When the king asked his nephews about the legitimacy of the news, they informed him it was false and rather the bird's education had completed. Raja wanted to confirm and so he asked –

> "Does it hop?" the Raja enquired.
> "Never!" said the nephews.
> "Does it fly?"
> "No."

The bird was brought before the king. To see whether the bird really became sophisticated, when he "poked its body with his finger," it made no sound, no movement; "Only its inner stuffing of book-leaves rustled". Raja exacted this refinement and composure from the bird, and he was happy to see that his plan was successful. He rewarded the nephews, the pundits, the attendants, and all the sycophants.

With this fable, Tagore satirizes the system and method of teaching, besides criticizing the apathy of teachers and concerned authorities toward the actual needs of children. The methodology of teaching is, in fact, teacher-oriented, not pupil-oriented. The authorities' view is lopsided. A child's brain is fed with printed word only, without due and proper illustration and without duly allowing a child to learn the way he or she wants. Such a mechanical form of education impairs the growth of the child's mind.

Here, the "cage" also reminds of the British colonial policy of education, imposing their ostentatious ways of sophistication on the indigenous Indians. The "cage" is a metaphor for the school that becomes overbearing, colonizing and coercive on a child's psyche, thereby marring the natural abilities, aptitudes and flairs of a child. The parrot's death signifies ejection of the blithe spirit of a child. What a child needs first and foremost is freedom, quenching of his thirst for knowing the things as he sees them and ample space for creative

exploration and understanding of his milieu. In his essay entitled "A Poet's School", Tagore lays emphasis on a method of education that may generate in the mind of a child a sense of empathy with the surrounding world and help him or her understand the bond of symbiosis between nature and human beings:

> The highest education is that which does not merely give us information but makes our life in harmony with all existence. But we find that this education of sympathy is not only systematically ignored in schools, but it is severely repressed. From our very childhood habits are formed and knowledge is imparted in such a manner that our life is weaned away from nature and our mind and the world are set in opposition from the beginning of our days. Thus the greatest of educations for which we came prepared is neglected, and we are made to lose our world to find a bagful of information instead. We rob the child of his earth to teach him geography, of language to teach him grammar. His hunger is for the Epic, but he is supplied with chronicles of facts and dates . . . Child-nature protests against such calamity with all its power of suffering, subdued at last into silence by punishment. (*Personality*: 116-17).

Tagore rejected rote-learning. He opined, "If exams are passed by learning by rote, is it not cheating? If we take the book concealed within our clothes it is cheating. But isn't it also cheating if we take the matter in our brain without understanding it?" (*The Nectar of Life*, p. 21). He believed, "Whichever route we follow, we will arrive at the conclusion that teaching is imparted by a teacher and not by a method." (*The Nectar of Life*, p. 22). Also, "Getting an education does not depend solely on the educational institution. It depends primarily on the student. Many students go to the university and get degrees but they do not get an education." (Ibid.) He observed that the reason for the development of distaste for education in students was not primarily because the subject was difficult, but because the method of instruction was dull. Tagore was in favour of a method that put children in close propinquity with nature that has its own educational value. He suggests:

> Children need nature in their growing years while they are learning. Trees, clear blue skies, the breeze, clean water and panoramic views are as important as school benches, books and examinations. (*The Nectar of Life*, p. 21)

Besides, Tagore has a high regard for creativity and imagining strength in children. He feels that the imaginative freedom given to children may help bring out the best of them. He maintains that

> The joy of children is the purest form of joy. They can take a trivial incident and turn it into something important using their imagination. They can breathe life into an ugly, ragged doll with their own joys and sorrows. One who can retain this power as an adult is said to be imaginative." *The Nectar of Life*, p. 55).

In his story entitled "The Exercise-Book", Tagore deals with the imaginative and creative prowesses in children. He delves into a girl-child's psyche, bringing out her woes and

latent wishes, dreams and yearnings that remain unfulfilled, un-understood and un-communicated. In an attempt to condition a girl child in conformity with the societal norms, her natural urges and aspirations are repressed. This story quite perceptively explores the status and role of the Indian woman, particularly in the pre-Independence period, who had a strong urge to read and write, but had to strive hard against pressures of patriarchy to get a space for themselves in the world governed by men. The opening line of the story depicts the status of woman in the male-dominated social setup: "Uma became a nuisance as soon as she learned to write." Uma, a little girl and protagonist of the story, shows a strong urge for reading and writing, but she is snubbed and humiliated earlier by her brother and later by her husband. The author beautifully narrates how Uma, having a passionate desire to write, scribbled on the walls, on the new almanac, and right "in the middle of the credit columns in her father's account book". But, her brother and husband disapprove of her writing as they believe that women's reading and writing might obliterate the whole rubric of the traditional family system by bringing in clash of views between men and women. Thus, as a feminist, Tagore underscores the subdued existence of a young woman, trapped in child marriage and not finding an outlet for her pent-up feelings.

Tagore depicts Uma squiggling her subconscious thoughts and feelings anywhere she finds a space. But, her writing is taken as intrusion into the space owned by men, and therefore, called "a great nuisance". But the little girl is oblivious of what she writes and what reaction it would evoke in the minds of the others. One day she writes on the wall with a piece of coal: "Rain drops on tree tops" – which reflects deep romantic aspirations and ambitions of the girl child to go on top of the world with realization of her dreams and hopes. It is not just Uma, but even other women in the family who wish to read and write, but cannot express their desires. For instance, in the beginning of the story, the narrator mentions about Uma's sister-in-law, under whose pillow Uma "hunted out" the copy of *Harida's Secrets*, a sensational novel by Bhubanchandra Mukhopadhyay, which was popular, but at the same time, a 'forbidden' reading for Bengalis in the 19th century. Uma does not lose the opportunity even to write in that book. She writes in pencil on every page of it – "Black water, red flower", which seems to signify her wild and weird imagination and her mysterious and hidden desires effervescing in her heart. Her spontaneous expressions bespeak of a wellspring of creativity trying to find out an outlet in her words. But, every time she is discouraged by the elders in the family. One can find in her ambition and longing for a life of emotional freedom, autonomy and authority, achievable only by getting education, as is evident in the lines she inscribes "Right in the middle of the credits column in her father's account book:

> He who writes and studies hard
> Will one day ride a horse and cart

These lines beginning with the pronoun "He" clearly shows that education was primarily for boys; the girls yearned for education but their wishes remained repressed. In another instance, when her brother presented her with a "bound, ruled, stout exercise book", Uma carefully writes a line in it – "The birds sing, the night is past", wherein on can find her celebration of the departure of the night of ignorance and hopelessness and her keen anticipation of a bright

prospect of an opening to education, expression and creative freedom. In her exercise book, she finds a space that is all hers, and where she might create a world of her own. She is shown as clutching her exercise book close to her breast, scribbling in it and keeping it with her most of the time. It becomes her most precious possession. Before her marriage, her brother snubs her badly, and after her marriage, her husband does not allow her to write at all when he discovers her exercise book. She is filled with a sense of guilty for trying to read and write, and therefore, apologizes to her husband, taking a pledge that she would never do that again. But, in all, a child's natural instincts and talents are suppressed.

Tagore strongly felt that education for women is as much necessary as for men. Owing to his close experience of the women's quarters, mainly his association with his older sisters-in-law had enabled him to realize the bondage, moderation and claustrophobia of women in his milieu. This experience founded in him feminist proclivities with a strong appeal to social reforms, especially with regard to the positions and roles of women and children. That's why, freedom became the hallmark of his philosophy of education. And it is not freedom in the physical sense, but rather emotional and spiritual kind of freedom. As he states elsewhere in his prose writings: "There is no independence outside of the independence of the soul." (*The Nectar of Life*, p. 25). In both the stories in discussion, Tagore depicts the trouble, suffocation and psychological problems that children undergo because of the faulty education system and social evil like gender bias.

According to Tagore, "Freedom is not an external thing, but a thing of the mind. Therefore, we cannot get it from someone else. Until we get that independence through our inner, natural strength, external powers will bind us, harness and dominate us." (*The Nectar of Life*, p. 27). Therefore, children ought to be encouraged and propped in a way that enables them to utilize their potentials and energies creatively with unreserved freedom of imagination, thought and expression. He holds that children's subconscious minds are always at work; constantly imbibing something from the environment, and therefore, they need to be allowed freedom for interacting with nature to the fullest. Thus, founding education in the matrix of freedom, creativity and imagination, Tagore lays emphasis on harmonious and holistic development of a child's personality.

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Bounds for the Complex Growth Rate in Rivlin-Ericksen Viscoelastic Fluid in the Presence of Rotation in a Porous Medium

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ABSTRACT

The thermal instability of a Rivlin-Ericksen viscoelastic fluid acted upon by uniform vertical rotation and heated from below in a porous medium is investigated. Following the linearized stability theory and normal mode analysis, the paper through mathematical analysis of the governing equations of Rivlin-Ericksen viscoelastic fluid convection with a uniform vertical rotation, for the case of rigid boundaries shows that the complex growth rate σ of oscillatory perturbations, neutral or unstable for all wave numbers, must lie inside the right half of the semi-circle

$$\sigma_r^{\,2} + \sigma_i^{\,2} \langle T_A \left(\frac{\varepsilon P_l}{P_l + \varepsilon F} \right)^2 ,$$

in a σ-plane, where T_A is the Taylor number, F is the viscoelasticity parameter, ε is the porosity, P_l is the medium permeability; which prescribes the upper limits to the complex growth rate of arbitrary oscillatory motions of growing amplitude in a rotatory Rivlin-Ericksen viscoelastic fluid heated from below. The result is important since it hold for all wave numbers and for rigid boundaries of infinite horizontal extension at the top and bottom of the fluid, and the exact solutions of the problem investigated in closed form, is not obtainable.

Key Words: Thermal convection; Rivlin-Ericksen Fluid; Rotation; PES; Rayleigh number; Taylor number.

MSC 2000 No.: 76A05, 76E06, 76E15; 76E07.

1. INTRODUCTION

Stability of a dynamical system is closest to real life, in the sense that realization of a dynamical system depends upon its stability. Right from the conceptualizations of turbulence, instability of fluid flows is being regarded at its root. The thermal instability of a fluid layer with maintained adverse temperature gradient by heating the underside plays an important role in Geophysics, interiors of the Earth, Oceanography and Atmospheric Physics, and has been investigated by several authors and a detailed account of the theoretical and experimental study of the onset of Bénard Convection in Newtonian fluids, under varying assumptions of hydrodynamics and hydromagnetics, has been given by Chandrasekhar [1] in his celebrated monograph. The use of

Boussinesq approximation has been made throughout, which states that the density changes are disregarded in all other terms in the equation of motion except the external force term. There is growing importance of non-Newtonian fluids in geophysical fluid dynamics, chemical technology and petroleum industry. Bhatia and Steiner [2] have considered the effect of uniform rotation on the thermal instability of a viscoelastic (Maxwell) fluid and found that rotation has a destabilizing influence in contrast to the stabilizing effect on Newtonian fluid. In another study Sharma [3] has studied the stability of a layer of an electrically conducting Oldroyd fluid [4] in the presence of magnetic field and has found that the magnetic field has a stabilizing influence. There are many elastico-viscous fluids that cannot be characterized by Maxwell's constitutive relations or Oldroyd's [4] constitutive relations. Two such classes of fluids are Rivlin-Ericksen's and Walter's (model B') fluids. Rivlin-Ericksen [5] has proposed a theoretical model for such one class of elastico-viscous fluids. Kumar et al. [6] considered effect of rotation and magnetic field on Rivlin-Ericksen elastico-viscous fluid and found that rotation has stabilizing effect; where as magnetic field has both stabilizing and destabilizing effects. A layer of such fluid heated from below or under the action of magnetic field or rotation or both may find applications in geophysics, interior of the Earth, Oceanography, and the atmospheric physics. With the growing importance of non-Newtonian fluids in modern technology and industries, the investigations on such fluids are desirable.

In all above studies, the medium has been considered to be non-porous with free boundaries only, in general. In recent years, the investigation of flow of fluids through porous media has become an important topic due to the recovery of crude oil from the pores of reservoir rocks. When a fluid permeates a porous material, the gross effect is represented by the Darcy's law. As a result of this macroscopic law, the usual viscous term in the equation of Rivlin-Ericksen fluid motion is replaced by the resistance term $\left[-\frac{1}{k_1}\left(\mu+\mu'\frac{\partial}{\partial t}\right)q\right]$, where μ and μ' are the viscosity and viscoelasticity of the Rivlin-Ericksen fluid, k_1 is the medium permeability and q is the Darcian (filter) velocity of the fluid. The problem of thermosolutal convection in fluids in a porous medium is of great importance in geophysics, soil sciences, ground water hydrology and astrophysics. Generally, it is accepted that comets consist of a dusty 'snowball' of a mixture of frozen gases which, in the process of their journey, changes from solid to gas and vice-versa. The physical properties of the comets, meteorites and interplanetary dust strongly suggest the importance of non-Newtonian fluids in chemical technology, industry and geophysical fluid dynamics. Thermal convection in porous medium is also of interest in geophysical system, electrochemistry and metallurgy. A comprehensive review of the literature concerning thermal convection in a fluid-saturated porous medium may be found in the book by Nield and Bejan [7]. Sharma et al [8] studied the thermosolutal convection in Rivlin-Ericksen rotating fluid in porous medium in hydromagnetics with free boundaries only.

Pellow and Southwell [9] proved the validity of PES for the classical Rayleigh-Bénard convection problem. Banerjee et al [10] gave a new scheme for combining the governing equations of thermohaline convection, which is shown to lead to the bounds for the complex growth rate of the arbitrary oscillatory perturbations, neutral or unstable for all combinations of dynamically

rigid or free boundaries and, Banerjee and Banerjee [11] established a criterion on characterization of non-oscillatory motions in hydrodynamics which was further extended by Gupta et al. [12]. However no such result existed for non-Newtonian fluid configurations in general and in particular, for Rivlin-Ericksen viscoelastic fluid configurations. Banyal [13] have characterized the oscillatory motions in couple-stress fluid.

Keeping in mind the importance of non-Newtonian fluids, the present paper is an attempt to prescribe the upper limits to the complex growth rate of arbitrary oscillatory motions of growing amplitude, in a layer of incompressible Rivlin-Ericksen viscoelastic fluid heated from below in a porous medium in the presence of uniform vertical rotation opposite to force field of gravity, when the bounding surfaces are of infinite horizontal extension, at the top and bottom of the fluid are rigid.

2. FORMULATION OF THE PROBLEM AND PERTURBATION EQUATIONS

Here we Consider an infinite, horizontal, incompressible Rivlin-Ericksen viscoelastic fluid layer, of thickness d, heated from below so that, the temperature and density at the bottom surface z = 0 are T_0 and ρ_0, and at the upper surface z = d are T_d and ρ_d respectively, and that a uniform adverse temperature gradient $\beta\left(=\left|\frac{dT}{dz}\right|\right)$ is maintained. The gravity field $\vec{g}(0,0,-g)$ and uniform vertical rotation $\vec{\Omega}(0,0,\Omega)$ pervade on the system. This fluid layer is assumed to be flowing through an isotropic and homogeneous porous medium of porosity ε and medium permeability k_1.

Let p, ρ, T, , α, g and $\vec{q}(u,v,w)$ denote respectively the fluid pressure, fluid density temperature, thermal coefficient of expansion, gravitational acceleration and filter velocity of the fluid. Then the momentum balance, mass balance, and energy balance equation of Rivlin-Ericksen fluid through porous medium, governing the flow of Rivlin-Ericksen fluid in the presence of uniform vertical vertical rotation (Rivlin and Ericksen [5]; Chandrasekhar [1] and Sharma et al [6]) are given by

$$\frac{1}{\varepsilon}\left[\frac{\partial \vec{q}}{\partial t}+\frac{1}{\varepsilon}\left(\vec{q}.\nabla\right)\vec{q}\right]=-\left(\frac{1}{\rho_0}\right)\nabla p+\vec{g}\left(1+\frac{\delta\rho}{\rho_0}\right)-\frac{1}{k_1}\left(\nu+\nu'\frac{\partial}{\partial t}\right)\vec{q}+\frac{2}{\varepsilon}\left(\vec{q}\times\vec{\Omega}\right), \qquad (1)$$

$$\nabla.\vec{q}=0, \qquad (2)$$

$$E\frac{\partial T}{\partial t}+(\vec{q}.\nabla)T=\kappa\nabla^2 T, \qquad (3)$$

Where $\frac{d}{dt}=\frac{\partial}{\partial t}+\varepsilon^{-1}\vec{q}.\nabla$, stand for the convective derivatives. (4)

Here $E = \varepsilon + (1-\varepsilon)\left(\frac{\rho_s c_s}{\rho_0 c_i}\right)$, (5)

is a constant and while ρ_s, c_s and ρ_0, c_i, stands for the density and heat capacity of the solid (porous matrix) material and the fluid, respectively, ε is the medium porosity and $\vec{r}(x, y, z)$.

The equation of state is

$$\rho = \rho_0[1 - \alpha(T - T_0)], \quad (6)$$

Where the suffix zero refer to the values at the reference level z = 0. In writing the equation (1), we made use of the Boussinesq approximation, which states that the density variations are ignored in all terms in the equation of motion except the external force term. The kinematic viscosity ν, kinematic viscoelasticity ν', thermal diffusivity κ, and the coefficient of thermal expansion α are all assumed to be constants.

The steady state solution is

$$\vec{q} = (0,0,0), \rho = \rho_0(1 + \alpha\beta z), T = -\beta z + T_0, \quad (7)$$

Here we use the linearized stability theory and the normal mode analysis method. Consider a small perturbations on the steady state solution, and let $\delta\rho, \delta p, \theta$ and $\vec{q}(u, v, w)$ denote respectively the perturbations in density ρ, pressure p, temperature T and velocity $\vec{q}(0,0,0)$. The change in density $\delta\rho$, caused mainly by the perturbation θ in temperature is given by

$$\delta\rho = -\rho_0(\alpha\theta). \quad (8)$$

Then the linearized perturbation equations of the Rinlin-Ericksen fluid reduces to

$$\frac{1}{\varepsilon}\frac{\partial \vec{q}}{\partial t} = -\frac{1}{\rho_0}(\nabla \delta p) - \vec{g}(\alpha\theta) - \frac{1}{k_1}\left(\nu + \nu' \frac{\partial}{\partial t}\right)\vec{q} + \frac{2}{\varepsilon}\left(\vec{q} \times \vec{\Omega}\right), \quad (9)$$

$$\nabla . \vec{q} = 0, \quad (10)$$

$$E\frac{\partial \theta}{\partial t} = \beta w + \kappa \nabla^2 \theta, \quad (11)$$

3. NORMAL MODE ANALYSIS

Analyzing the disturbances into two-dimensional waves, and considering disturbances characterized by a particular wave number, we assume that the Perturbation quantities are of the form

$$[w,\theta,\varsigma]=[W(z),\Theta(z),Z(z)]\exp\left(ik_x x+ik_y y+nt\right), \tag{12}$$

Where k_x, k_y are the wave numbers along the x- and y-directions, respectively, $k=\left(k_x{}^2+k_y{}^2\right)^{\frac{1}{2}}$, is the resultant wave number, n is the growth rate which is, in general, a complex constant; $\varsigma=\frac{\partial v}{\partial x}-\frac{\partial u}{\partial y}$ denote the z-component of vorticity, $W(z),\Theta(z)$ and Z(z) are the functions of z only.

Using (12), equations (9)-(11), within the framework of Boussinesq approximations, in the non-dimensional form transform to

$$\left[\frac{\sigma}{\varepsilon}+\frac{1}{P_l}(1+\sigma F)\right]\left(D^2-a^2\right)W=-Ra^2\Theta-T_A DZ\,, \tag{13}$$

$$\left[\frac{\sigma}{\varepsilon}+\frac{1}{P_l}(1+\sigma F)\right]Z=DW\,, \tag{14}$$

And

$$\left(D^2-a^2-Ep_1\sigma\right)\Theta=-W\,, \tag{15}$$

Where we have introduced new coordinates (x',y',z') = (x/d, y/d, z/d) in new units of length d and $D=d/dz'$. For convenience, the dashes are dropped hereafter. Also we have substituted $a=kd,\sigma=\frac{nd^2}{\nu}$, $p_1=\frac{\nu}{\kappa}$ is the thermal Prandtl number; $P_l=\frac{k_1}{d^2}$ is the dimensionless medium permeability, $F=\frac{\nu'}{d^2}$ is the dimensionless viscoelasticity parameter of the Rivlin-Ericksen fluid; $R=\frac{g\alpha\beta d^4}{\kappa\nu}$ is the thermal Rayleigh number; and $T_A=\frac{4\Omega^2 d^4}{\nu^2\varepsilon^2}$ is the Taylor number. Also we have Substituted $W=W_\oplus,\Theta=\frac{\beta d^2}{\kappa}\Theta_\oplus$, $Z=\frac{2\Omega d}{\nu\varepsilon}Z_\oplus$ and $D_\oplus=dD$, and dropped $(\oplus)$ for convenience.

We now consider the case where both the boundaries are rigid and are maintained at constant temperature and then the perturbations in the temperature is zero at the boundaries. The appropriate boundary conditions with respect to which equations (13)-(15), must possess a solution are

$$W = DW = 0, \Theta = 0 \text{ and } Z=0, \text{ at } z = 0 \text{ and } z = 1. \tag{16}$$

Equations (13)--(15), along with boundary conditions (16), pose an eigenvalue problem for σ and we wish to characterize σ_i, when $\sigma_r \geq 0$.

4. MATHEMATICAL ANALYSIS

We prove the following lemma:

Lemma 1: For any arbitrary oscillatory perturbation, neutral or unstable

$$\int_0^1 |Z|^2 dz < \frac{1}{|\sigma|^2 \left(\frac{1}{\varepsilon} + \frac{F}{P_l}\right)^2} \int_0^1 |DW|^2 dz \quad .$$

Proof: Further, multiplying equation (14) with its complex conjugate, and integrating by parts each term on both sides of the resulting equation for an appropriate number of times and making use of appropriate boundary conditions (16), we get

$$\left[|\sigma|^2 \left(\frac{1}{\varepsilon} + \frac{F}{P_l}\right)^2 + \frac{1}{P_l^2} + \frac{2\sigma_r}{P_l}\left(\frac{1}{\varepsilon} + \frac{F}{P_l}\right)\right] \int_0^1 |Z|^2 dz = \int_0^1 |DW|^2 dz \ , \qquad (17)$$

Now F $\rangle$ 0 and $\sigma_r \geq 0$, therefore the equation (17), give

$$\int_0^1 |Z|^2 dz < \frac{1}{|\sigma|^2 \left(\frac{1}{\varepsilon} + \frac{F}{P_l}\right)^2} \int_0^1 |DW|^2 dz \ , \qquad (18)$$

This completes the proof of lemma.

We prove the following theorems:

Theorem 1: If R $\rangle$ 0, F $\rangle$ 0, $T_A \rangle 0$, $P_l \rangle 0$, $p_1 \rangle 0$, $\sigma_r \geq 0$ and $\sigma_i \neq 0$ then the necessary condition for the existence of non-trivial solution (W, Θ, Z) of equations (13) – (15), together with boundary conditions (16) is that

$$|\sigma|^2 < T_A \left(\frac{\varepsilon P_l}{P_l + \varepsilon F}\right)^2 .$$

Proof: Multiplying equation (13) by W^* (the complex conjugate of W) throughout and integrating the resulting equation over the vertical range of z, we get

$$\left[\frac{\sigma}{\varepsilon} + \frac{1}{P_l}(1 + \sigma F)\right] \int_0^1 W^* \left(D^2 - a^2\right) W dz = -Ra^2 \int_0^1 W^* \Theta dz - T_A \int_0^1 W^* DZ dz \ , \qquad (19)$$

Taking complex conjugate on both sides of equation (15), we get

$$\left(D^2 - a^2 - Ep_1\sigma^*\right)\Theta^* = -W^*, \tag{20}$$

Therefore, using (20), we get

$$\int_0^1 W^*\Theta dz = -\int_0^1 \Theta\left(D^2 - a^2 - Ep_1\sigma^*\right)\Theta^* dz, \tag{21}$$

Also taking complex conjugate on both sides of equation (14), we get

$$\left[\frac{\sigma^*}{\varepsilon} + \frac{1}{P_l}(1+\sigma^* F)\right]Z^* = DW^*, \tag{22}$$

Therefore, using (22) and making use of appropriate boundary conditions (16), we get

$$\int_0^1 W^* DZdz = -\int_0^1 DW^* Zdz = -\left[\frac{\sigma^*}{\varepsilon} + \frac{1}{P_l}(1+\sigma^* F)\right]\int_0^1 Z^* Zdz, \tag{23}$$

Substituting (21) and (23), in the right hand side of equation (19), we get

$$\left[\frac{\sigma}{\varepsilon} + \frac{1}{P_l}(1+\sigma F)\right]\int_0^1 W^*\left(D^2 - a^2\right)Wdz = Ra^2\int_0^1 \Theta\left(D^2 - a^2 - Ep_1\sigma^*\right)\Theta^* dz$$

$$+ T_A\left[\frac{\sigma^*}{\varepsilon} + \frac{1}{P_l}(1+\sigma^* F)\right]\int_0^1 Z^* Zdz, \tag{24}$$

Integrating the terms on both sides of equation (24) for an appropriate number of times and making use of the appropriate boundary conditions (16), we get

$$\left[\frac{\sigma}{\varepsilon} + \frac{1}{P_l}(1+\sigma F)\right]\int_0^1 \left(\left|DW\right|^2 + a^2\left|W\right|^2\right)dz = Ra^2\int_0^1 \left(\left|D\Theta\right|^2 + a^2\left|\Theta\right|^2 + Ep_1\sigma^*\left|\Theta\right|^2\right)dz \quad - T_A\left[\frac{\sigma^*}{\varepsilon} + \frac{1}{P_l}(1+\sigma^* F)\right]\int_0^1 \left|Z\right|^2 dz \quad ,$$

(25)

Now equating the imaginary parts on both sides of equation (25), and cancelling $\sigma_i (\neq 0)$ throughout, we get

$$\left[\frac{1}{\varepsilon}+\frac{F}{P_l}\right]\int_0^1\left(|DW|^2+a^2|W|^2\right)dz=\left[-Ra^2Ep_1\int_0^1|\Theta|^2\,dz+T_A\left\{\frac{1}{\varepsilon}+\frac{F}{P_l}\right\}\int_0^1|Z|^2\,dz\right], \tag{26}$$

Now R $\rangle$ 0, $\varepsilon\rangle 0$ and $T_A\rangle$ 0, utilizing the inequalities (18), the equation (26) gives,

$$\left[\frac{1}{\varepsilon}+\frac{F}{P_l}\right]\left[1-\frac{T_A}{|\sigma|^2}\left(\frac{\varepsilon P_l}{P_l+\varepsilon F}\right)^2\right]\int_0^1|DW|^2dz+I_1\langle 0, \tag{27}$$

Where

$$I_1=\left(\frac{1}{\varepsilon}+\frac{F}{P_l}\right)a^2\int_0^1|W|^2dz+Ra^2Ep_1\int_0^1|\Theta|^2\,dz,$$

and therefore , we must have

$$|\sigma|^2\langle T_A\left(\frac{\varepsilon P_l}{P_l+\varepsilon F}\right)^2 \tag{28}$$

Hence, if $\sigma_r\geq 0$ And $\sigma_i\neq 0$, then $|\sigma|^2\langle T_A\left(\frac{\varepsilon P_l}{P_l+\varepsilon F}\right)^2$. (29)

And this completes the proof of the theorem.

Theorem 2: For stationary convection the Rivlin-Ericksen viscoelastic fluid behaves like an ordinary Newtonian fluid i. e. for $T_A=0$ implies that $\sigma_r=0$ and $\sigma_i=0$, when both the bounding surfaces are rigid.

Proof: The inequality (32), can be written as

$$\sigma_r{}^2+\sigma_i{}^2\langle T_A\left(\frac{\varepsilon P_l}{P_l+\varepsilon F}\right)^2,$$

If $T_A=0$, then we necessarily have, $\sigma_r=0$ And $\sigma_i=0$,

Thus for stationary convection the Rivlin-Ericksen viscoelastic fluid in a porous medium behaves like an ordinary Newtonian fluid, when both the bounding surfaces are rigid and it mathematically establishes the result of Kumar et al [6].

This completes the proof.

5. CONCLUSIONS

The inequality (29) for $\sigma_r \geq 0$ and $\sigma_i \neq 0$, can be written as

$$\sigma_r{}^2 + \sigma_i{}^2 \langle T_A \left(\frac{\varepsilon P_l}{P_l + \varepsilon F} \right)^2 ,$$

The essential content of the theorem, from the point of view of linear stability theory is that for the configuration of Rivlin-Ericksen viscoelastic fluid in a porous medium of infinite horizontal extension heated form below, having top and bottom bounding surfaces rigid, in the presence of uniform vertical rotation parallel to the force field of gravity, the complex growth rate of an arbitrary oscillatory motions of growing amplitude, must lie inside a semi-circle in the right half of the $\sigma_r\ \sigma_i$ - plane whose centre is at the origin and radius is $\sqrt{T_A}\left(\frac{\varepsilon P_l}{P_l + \varepsilon F} \right)$, where T_A is the Taylor number, F is the viscoelasticity parameter, ε is the porosity and P_l is the medium permeability.

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The Growing Water Crisis in India

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Essential, reliable, invaluable, water – it's the thread that weaves together our daily lives. It nourishes us. It cleans us and sustains us. Water can be certified as the most important limited natural resource for mankind. Ever since the dawn of time humans have built their lives around this precious resource. Great civilizations like Harappa, Egypt and Mesopotamia have stood around water sources and crumbled in its absence. Perhaps it would not be an exaggeration if one says that there is no other public good than water which has down the ages influenced human civilization, sometimes to the extent of stirring human emotions, deeply and passionately. Water is a subject of a poet's imagination, a scientist's object of experimentation, and a necessary thing for the survival of human beings and also other living things; of late, it has been a politician's promise to win elections, a business establishment's vision to acquire more wealth and an environmentalist's concern to conserve. Water has been subjected to various interpretations at different points in history. Water also has deep symbolic and spiritual significance in many cultures – for example, the holiness attributed to it in the context of the Indian rivers such as the Ganga, Godavari and Narmada rivers in India.

Water provides the basis for agriculture and forestry and, thus affects the environment. It is used as a component of products in a large variety of industries, especially beverages. It is important for several industrial processes such as cooling, generating steam and cleaning. Water is used to generate electricity and acts as a medium for transportation. It is an essential ingredient of a clean and healthy life. Water, thus, cuts across all sectors; agriculture, industry, energy, domestic supplies, health, education etc. The survival of humanity, as that of the entire eco-system, depends on water. Because of the highly uneven distribution of water, people as well as flora and fauna tend to congregate near places where water is available in requisite quantity. That is why most cities and commercial centres as well as rural settlements have grown in and around dependable sources of water. The scientists searching for life outside our planet first look for the availability of water to understand if there is potential for sustaining life. Water resources should, therefore, be regarded as a national heritage to be passed on to future generations in good condition so as to ensure the continued development of human civilization.[1]

Realizing the importance of water as elixir of life, the National Water Policy of India (2002) has rightly recognized it as a primary natural resource, basic human need and a precious national asset. Such a resource has remained the same in the last 2000 years whereas our population has increased fifty fold. This is the reason for water becoming scarce.

Water Crisis and Water Stress

The concept of water stress is relatively simple. According to the World Business Council for Sustainable Development, it applies to situations where there is not enough water for all uses, whether agricultural, industrial or domestic. Defining thresholds for stress in terms of available water per capita is more complex, however, entailing assumptions about water use and its efficiency. Nevertheless, it has been proposed that when annual per capita renewable freshwater availability is less than 1,700 cubic meters, countries begin to experience periodic or regular water stress. Below 1,000 cubic meters, water scarcity begins to hamper economic development and human health and well being.[2]

The UN International Decade for Action: Water for life 2005-2015 Report points out that "lack of water and adequate sanitation is the world's single largest cause of illness. Two million people, most of them children, die every year from waterborne diseases such as diarrhea, and millions become seriously debilitated... In 2005, half a billion people lived in countries defined as water-stressed or water-scarce".[3] By 2025, 52 countries containing two-thirds of the global population are expected to be short of water. According to Asian Development Bank (ADB), China and India alone will have a combined shortfall of one trillion cubic meters in 2030. Bangladesh, Cambodia, Nepal, Pakistan, the Philippines, and Vietnam are at, or near, water stress conditions. When water is scarce, competition for limited supplies can lead nations to view access to water as a matter of national security.[4] History is replete with examples of competitions and dispute over shared fresh water resources.

The direct impact of climate change is not the only reason to be concerned about future water scarcity. The increasing global population, urbanization and more demand for agriculture and industries must be viewed alongside climate change.

Global Climate Change

Climate change could have significant impacts on water resources around the world because of the close connections between the climate and hydrological cycle. Rising temperatures will increase evaporation and lead to increase in precipitation, though there will be regional variations in rainfall. Both droughts and floods may become more frequent in different regions at different times, and dramatic changes in snowfall and snowmelt are expected in mountainous areas. Higher temperatures will also affect water quality in ways that are not well understood. Possible impacts include increased eutrophication. Climate change could also mean an increase in demand for farm irrigation, garden sprinklers, and perhaps even swimming pools. There is now ample evidence that increased hydrologic variability and change in climate has and will continue have a profound impact on the water sector through the hydrologic cycle, water availability, water demand, and water allocation at the global, regional, basin and local levels.[5]

Water flow in the Southern countries of Malawi, Zambia and Zimbabwe, in the Middle East's Tigris-Euphrates and Jordan rivers, and in several rivers in North Africa and part of Columbia, Venezuela, and Northeast Brazil may be reduced due to increased evaporation, according to the Intergovernmental Panel on Climate Change (IPCC 2007).

The Way Ahead

India ranks 41 among 181 countries so far as water stress is concerned and it is in the bracket of second high risk nations. The first ever global water stress rankings by World Resource Institute (WRI) reveals that 37 percent countries assessed by it experience high to extremely high baseline water stress. However, the report says that even extremely high water stress can be managed. The report mentions that though Singapore has the highest water stress ranking of 5 on a scale of 0-5 and has no freshwater lakes or aquifers, it has consistently held up as an exceptional water manager. Singapore invests heavily in technology, international agreements, and responsible management, allowing it to meet its freshwater needs. Advanced rainwater capture systems contribute 20% of Singapore's water supply, 40% is imported from Malaysia, grey water reuse adds 30% and desalination produces the remaining 10% of the supply to meet the country's total demand.[6]

In contrast to water conflicts, history of its resolution is much more impressive. Over 3,600 treaties have been signed historically over different aspects of international waters, out of which almost 150 have been signed in the last century that deal specifically with access to water control. These cooperative regimes are also very resilient over time, even when the riparians are otherwise hostile to each other. Examples of transboundary water-sharing from around the world reveal that various institutional mechanisms in the form of committees, councils, commissions and regulatory boards have been established to facilitate sharing of waters and conflict resolution through cooperative and coordinated approaches. Some of the notable examples in international cooperation in river basin water sharing are the lower Mekong River Basin and the Nile. Both the basins have created institutional spaces that promote the member nations to coordinate and contribute to regional water resource development in spite of environmental, political and economic constraints and tensions surrounding the basin.[7]

Peru and Bolivia share lake Titicaca and have taken steps to ensure joint management of the resource. The interesting aspect of the cooperation between the two countries is that they recognize the lake as an indivisible condominium, which is shared body of water owned by both the countries. Hence, the countries exercise exclusive and indivisible joint ownership over the surface water and the watershed of the lake region. This has reinforced high level of cooperation and political will.[8]

US and Canada share about 150 lakes and rivers most of which form the boundary between them. Due to reasons such as diversions by both the nations, as well as changing of the course of the water bodies, a need arose for the two countries to come to an arrangement on water sharing and water governance with respect to all the shared water bodies. Subsequently, in 1909, the two nations signed the Boundary Treaty which led to the establishment of the International Joint Commission. The commission has jurisdiction over all the shared water bodies between US and Canada. Russia and Finland share about 20 trans-boundary rivers. The cooperation between the two was consolidated through the 1964 Agreement for all rivers (Finnish Russian Agreement on the utilization of Trans-boudnary Watercourses). The agreement incorporates the principles of the International Law Associations Helsinki Rules (1966) and envisages the equitable and reasonable sharing of water resources.[9]

An example of cooperation in the context of inter-state trans-boundary water sharing in a federal system is the Murray-Darling River Basin in Australia. As India stares at the

mammoth task of cleaning the Ganga and looks for inspiration outside the country, it is the Murray-Darling River Basin. "As far as maintaining the ecological balance and overall development of the big river basin of Ganga is concerned, we are looking at Australia's example and it can be a big lesson for us" said the official of water resource ministry of India.[10]

The reasons for their success in promoting cooperation have been in their efforts to build confidence amongst the member countries at practical levels by focusing on common interests.

Depletion of aquifers

Due to the expanding human population, competition for water is growing such that many of the world's major aquifers are becoming depleted. This is due both for direct human consumption as well as agricultural irrigation by ground water. Millions of pumps of all sizes are currently extracting groundwater throughout the world. Irrigation in dry areas such as northern China, Nepal and India is supplied by groundwater, and is being extracted at an unsustainable rate. Cities that have experienced aquifer drops between 10 to 50 meters include Mexico city, Bangkok, Beijing, Madras and Shanghai.[11]

Population

Rapid increase in global and particularly urban populations poses one of the most serious threats to the earth's scarce resources, environment, and quality of life. According to United Nations (2011) estimates, world population will surpass 7 billion by the end of October 2011 and 10 billion by 2100 with the majority of growth in developing countries. This will put tremendous pressure on governments for municipal services to provide fresh, drinkable water. Some regions and countries will be more adversely affected than others. By 2050 India's population of 1.1 billion is expected to grow to almost 1.6 billion, China's population of 1.3 billion is likely to reach 1.4 billion. Similar growth trends are to take place in Bangladesh, Pakistan, Nepal, Northern Africa, and the Middle East. Current estimates indicate that the total global water consumption is likely to increase tenfold in the twenty first century. "Population growth creates water shortages not only by adding to the numbers of consumers but also by increasing population density beyond the level that nearby water supplies can serve... Population growth also exacerbates water shortages indirectly by contributing to land degradation and deforestation" (Environment and Population Growth, 1992). A World Bank Policy Paper on 'Water Resource Management' (1992) observed that "Water is an increasingly scarce resource requiring careful economic and environmental management. The situation is exacerbated by rapid population growth and urbanization in developing countries. As the demand for water for human and industrial use has escalated, so has the competition for water used for irrigated agriculture.

Even in more industrialized, western countries, including the United States of America, water scarcity is becoming a serious issue. In the United States the demand for water is increasing rapidly. Thirty six US states face a water shortage. Satellite data shows that water scarcity is a problem found in as disparate places as Northern India, Northeastern China and the Sacramento-San Joaquin Valley in California.[12] "Look, water has been a resource that has been plentiful" observed Famiglitti (Director of the University of California, Centre for Hydrologic X Modeling) "but now we have got climate change, population growth, we have

got widespread groundwater contamination, we have got satellite showing us we are depleting some of this stuff. I think that we have taken it for granted and we are probably not able to do that anymore."[13]

Agriculture

Agriculture is the largest user of the world's freshwater resources, consuming 70 percent.[14] As the world's population rises and consumes more food (currently exceeding 6%, it is expected to reach 9% by 2050), industries and urban developments expand, and the emerging biofuel crops trade also demands a share of freshwater resources, water scarcity is becoming an important issue. An assessment of water resource management in agriculture was conducted in 2007 by the International Water Management Institute in Sri Lank to see if the world had sufficient water to provide food for its growing population.[15] It assessed the current availability of water for agriculture on a global scale and mapped out locations suffering from water scarcity. It found that a fifth of the world's people, more than 1.2 billion, live in areas of physical water scarcity, where there is not enough water to meet all demands. A further 1.6 billion people live in areas experiencing economic water scarcity, where the lack of investment in water or insufficient human capacity make it impossible for authorities to satisfy the demand for water. The report found that it would be possible to produce the food required in future, but that continuation of today's food production and environmental trends would lead to crisis in many parts of the world. Regarding food production, the World Bank targets agricultural food production and water resource management as an increasingly global issue that is fostering an important and growing debate.[16]

In China, "Water scarcity is one of the more difficult issues facing the government of China. In rural areas over 82 million people find it difficult to procure water. In urban areas, the shortages are even worse... Future water needs in China are expected to continue growing at a rapid pace... And water scarcity in China will affect the entire world."[17] The same could be said about India, Pakistan and many other less developed predominantly agricultural economies. In the Middle East the availability of fresh water has always been a critical issue. Like everywhere else, irrigation consumes the largest share of water. In Saudi Arabia 90 percent of the nonrenewable fossil water supplies are used for irrigation.[18] Syria, Jordan, Israel and Iraq, along with Turkey, face acute water shortages. Mismanagement of these scarce water resources has further contributed to the already existing serious problem.

Urbanization

As the carrying capacity of the Earth increases greatly due to technological advances, urbanization in modern times occurs because of economic opportunity. This rapid urbanization happens worldwide but mostly in new rising economies and developing countries. Cities in Asia and Africa are growing fastest with 28 out of 39 megacities worldwide in these developing nations.[19] The number of megacities will continue to rise reaching approximately 50 in 2025, Megacity: a city or urban area with more than 10 million inhabitants. With developing economies water scarcity is a very common and very prevalent issue. Global freshwater resources dwindle in the eastern hemisphere either than at the poles, and with the majority of urban development millions live with insufficient freshwater.[20] This is caused by often polluted freshwater resources, over exploited ground water resources,

insufficient harvesting capacities in the surrounding rural areas, poorly constructed and maintained water supply system, high amount of informal water use and insufficient technical and water management capacities.[21]

Rising urban populations considerably strain water supplies for disposing of waste products. The sheer quantity of sewage alone is a major problem. Lack of financial resources, and modern technology and bureaucratic ineptitude further complicate the problem. Scarcity of water in urban areas is not only an issue in developing countries but also in many European countries and the United States. "People in the United States and Europe on average have a greater ecological footprint than people in the developing world. They use nearly twice as much fresh water, for example, and more than twice the cropland as people in low-income countries and they produce 17 times as many carbon emissions." (World Wildlife Fund, 2006)

Industrialization

Industries are one of the major consumers and polluters of water resources. They use water to produce energy, run steam turbo generators, and act as coolant. They also pollute water ways (lakes and rivers) by dumping waste materials. With rapid industrialization the demand for water is increasing in developing countries such as India and China. The absent, or more often lax, regulatory laws and bureaucratic mismanagement further exacerbate the water situation. Highway construction and mining also impact water quality. In India these activities "have damaged mountain slopes by covering large surface areas with debris, leading to greater run-off and an alarming rate of sedimentation, the combined impact of which has been to cause surface water drought even in high rainfall regions."[22]

Business activity ranging from industrialization to services such as tourism and entertainment continues to expand rapidly. This expansion requires increased water services including both supply and sanitation, which can lead to more pressure on water resources and natural ecosystem.

Conclusion

The study has observed that there is no single 'magic stick' to solve the water crisis. Increase in water supplies especially storage are needed but such platforms demand management, cost effective instruments and most importantly, education and awareness of people to change behaviour towards the utilization of natural resources. By incorporating appropriate technologies the institutions must play a key role in achieving the goal of planning and management of the water resources.

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3

Studies on Thermodynamic and Transport Properties of Potassium Chloride in Aqueous Solution of Lactose at Different Temperatures

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Abstract

Apparent molar volumes (ϕ_v) ,Viscosity *B*-coefficients and Walden product for potassium chloride in 2, 4 and 6 wt. % of lactose solutions have been determined from solution density, viscosity and conductance measurements at (303.15, 308.15, 313.15 and 318.15) K as a function of concentration. The standard partial molar volume (ϕ_v^0) and experimental slopes (S_v) obtained from the Masson's equation have been interpreted in terms of solute-solvent and solute-solute interactions, respectively. The viscosity data were analyzed using the Jones-Dole equation, and the derived parameters A and Bwere interpreted in terms of solute-solute and solute-solvent interactions, respectively. The structure making or breaking ability of potassium chloride has been discussed in terms of the sign of $[\partial^2 \phi_v^o / \partial T^2]_p$ and dB/dT. The activation parameters of viscous flow for the ternary solutions were also calculated and explained in terms of transition state theory.

Keywords: Density; Partial molar volume; Viscosity *B*-coefficient;Conductance.

Introduction:

Partial molar volume provided useful information about various types of interactions occurring in solutions. These studies are helpful to characterize the structure and properties of the solutions. The structure of solution is important to understand the nature of action of bio-molecules in body system [1-3]. The study of such interactions of electrolyte in solution is very significant and useful for investigating their physicochemical behavior. Most of the chemical and biological functions of biomolecules take place in aqueous medium. Important biomolecules are proteins, carbohydrates, fats, enzymes, vitamins, hormones and nucleic acids. Carbohydrates are the most abundant class of organic compounds found in living organism. They form numerous roles in living system from the storage and transport of energy to participation in immune-system. The study of carbohydrate has become subject of increasing interest, because of its, multidimensional physical, biomedical and industrial useful properties [4-5]. Electrolytes are expected to influence water structure and the importance of contribution from structural changes ofthe solvent to the thermodynamic properties of aqueous solutions of biological molecules is often stressed.An electrolyte when dissolved in water perturbs the

arrangement of water molecules with strongelectric field of its ions. This property of electrolytes is known as structure maker or structure breaker and has beenwidely used to understand the effect of electrolytes on the carbohydrates.Hence in this paper, an attempthas been made to unravel the various interactionsinthe ternary systems of potassium chloride + lactose + water at different temperatures.

Experimental:

Water used for solutions had specific conductance in range 0.1- 1.0 x 10^{-6} $\Omega^{-1}cm^{-1}$. PotassiumChloride and lactose (Anala R) were dried over anhydrous calcium chloride for more than 48h and used as such. All the solutions were prepared by weight and conversion of molality to molarity was done by using the standard expression [6]. The concentration range of potassium chloride 2, 4 and 6 wt. % of lactose solutions was 0.01 to 0.12 m. The density was measured with the help of DSA (Density and Sound Analyzer) 5000, Anton Paar, GmbH, Garz, Austria. Viscosity was determined with the help of capillary type Viscometer [7]. The conductance was measured with the help of calibrated Digital conductivity meter, CM 180, Elico Limited. All measurements were made in a water bath maintained at 30, 35, 40, 45°C (±0.05).

Results and discussion:

The apparent molar volume of potassium chloride in 2, 4 and 6 wt. % of lactose have been calculated from density data (Table-1) by using eq. (1)

$$\phi_v = \frac{M_2}{d^o} - \frac{1000\ (d - d^o)}{mdd^o} \qquad (1)$$

Where d^0 is the density of solvent, d is the density of solution, m the molality of solution and M_2 the molecular weight of potassium chloride.

Table 1: Densities, apparent molar volumes, viscosities and molar conductance of Potassium chloride in different compositions of lactose (2, 4 and 6%) solutions at different temperatures.

Molality (m)	**ρ x 10^{-3} (Kg m^{-3})**	**Φ_v (cm^3mol^{-1})**	**η (cP)**	**Λ_m ($\Omega^{-1}cm^2mol^{-1}$)**
Potassium chloride in 2% aqueous Lactose				
Temperature = 303.15K				
0.00	1.0030	-	0.8246	-
0.01	1.0035	17.46	0.8260	199.44

0.02	1.0041	19.83	0.8269	190.51
0.04	1.0050	22.99	0.8284	179.63
0.06	1.0059	25.54	0.8298	171.42
0.08	1.0067	27.53	0.8310	163.88
0.10	1.0075	29.29	0.8323	157.60
0.12	1.0082	30.88	0.8335	151.78
Temperature = 308.15K				
0.00	1.0013	-	0.7441	-
0.01	1.0019	19.19	0.7453	217.76
0.02	1.0024	21.37	0.7461	207.82
0.04	1.0033	24.04	0.7474	195.43
0.06	1.0042	26.49	0.7486	185.72
0.08	1.0050	28.23	0.7498	177.67
0.10	1.0058	29.86	0.7509	170.08
0.12	1.0065	31.47	0.7520	163.23
Temperature = 313.15K				
0.00	0.9994	-	0.6702	-
0.01	1.0000	20.52	0.6712	234.18
0.02	1.0005	22.41	0.6719	224.23
0.04	1.0014	25.21	0.6731	210.33
0.06	1.0023	27.29	0.6742	200.11

0.08	1.0031	29.04	0.6752	190.80
0.10	1.0038	30.56	0.6762	182.86
0.12	1.0045	32.06	0.6772	175.61
Temperature = 318.15K				
0.00	0.9973	-	0.6158	-
0.01	0.9978	21.35	0.6166	250.74
0.02	0.9983	23.20	0.6171	239.77
0.04	0.9992	25.91	0.6181	223.34
0.06	1.0001	27.87	0.6192	210.59
0.08	1.0009	29.53	0.6202	199.77
0.10	1.0016	31.15	0.6211	190.11
0.12	1.0023	32.41	0.6221	182.03
Potassium chloride in 4% aqueous Lactose				
Temperature = 303.15K				
0.00	1.0106	-	0.8483	-
0.01	1.0111	18.83	0.8498	190.03
0.02	1.0117	20.72	0.8507	183.14
0.04	1.0126	23.59	0.8521	172.34
0.06	1.0135	25.76	0.8535	163.86
0.08	1.0143	27.52	0.8548	157.69
0.10	1.0151	29.09	0.8560	151.45

0.12	1.0158	30.56	0.8571	145.67
Temperature = 308.15K				
0.00	1.0089	-	0.7631	-
0.01	1.0094	21.61	0.7644	208.20
0.02	1.0099	23.22	0.7652	200.32
0.04	1.0109	25.48	0.7665	188.52
0.06	1.0117	27.25	0.7677	179.04
0.08	1.0126	28.68	0.7688	170.88
0.10	1.0133	29.97	0.7699	164.24
0.12	1.0141	31.10	0.7710	157.36
Temperature = 313.15K				
0.00	1.0070	-	0.6875	-
0.01	1.0075	23.63	0.6885	224.49
0.02	1.0080	25.00	0.6892	215.60
0.04	1.0089	26.92	0.6904	202.81
0.06	1.0098	28.34	0.6915	191.99
0.08	1.0106	29.51	0.6925	183.66
0.10	1.0114	30.58	0.6935	175.52
0.12	1.0121	31.51	0.6945	168.63
Temperature = 318.15K				
0.00	1.0043	-	0.6299	-

0.01	1.0048	25.04	0.6307	241.03
0.02	1.0052	26.32	0.6313	229.15
0.04	1.0061	27.83	0.6323	214.33
0.06	1.0070	29.16	0.6333	202.49
0.08	1.0078	30.25	0.6343	192.40
0.10	1.0086	31.17	0.6353	183.99
0.12	1.0094	31.96	0.6362	176.10
Potassium chloride in 6% aqueous Lactose				
Temperature = 303.15K				
0.00	1.0183	-	0.8867	-
0.01	1.0188	24.21	0.8883	188.61
0.02	1.0192	25.88	0.8893	181.78
0.04	1.0201	28.24	0.8909	172.06
0.06	1.0209	30.04	0.8923	164.64
0.08	1.0217	31.55	0.8937	158.03
0.10	1.0224	32.86	0.8950	152.34
0.12	1.0231	34.10	0.8963	147.43
Temperature = 308.15K				
0.00	1.0165	-	0.7856	-
0.01	1.0170	26.00	0.7869	204.67
0.02	1.0175	27.34	0.7877	196.86

0.04	1.0183	29.45	0.7892	185.66
0.06	1.0192	30.94	0.7904	177.08
0.08	1.0199	32.21	0.7916	170.39
0.10	1.0207	33.29	0.7928	164.05
0.12	1.0213	34.34	0.7940	158.06
Temperature = 313.15K				
0.00	1.0146	-	0.7059	-
0.01	1.0151	27.13	0.7069	222.81
0.02	1.0155	28.38	0.7076	214.00
0.04	1.0164	30.24	0.7088	200.82
0.06	1.0172	31.59	0.7100	190.92
0.08	1.0180	32.72	0.7111	182.57
0.10	1.0187	33.69	0.7123	175.44
0.12	1.0194	34.53	0.7134	168.26
Temperature = 318.15K				
0.00	1.0124	-	0.6459	-
0.01	1.0129	27.96	0.6466	239.10
0.02	1.0133	29.07	0.6471	229.29
0.04	1.0142	30.80	0.6482	213.62
0.06	1.0150	32.04	0.6493	202.22
0.08	1.0157	33.03	0.6504	192.38

0.10	1.0165	33.97	0.6515	183.76
0.12	1.0172	34.80	0.6525	176.23

Errors in ϕ_v were calculated from eq. (2).

$$\Delta\phi_v = \left(\frac{2\Delta d}{d^2}\right)\left(\frac{1000}{m + M_2}\right) \qquad (2)$$

Eq. (2) assumes error to be associated with the density of solution (d) and solvent (d^0). Moreover, errors associated with determination of solution concentration are not the limiting factor while calculating the apparent molar volumes. The error in apparent molar volume as derived from eq. (2) was estimated to range from ± 0.06 cm^3 mol^{-1} at 0.01m concentration to $\pm 0.10 cm^3$ mol^{-1} at 0.12m concentration. The densities of various solutions of potassium chloride in 2, 4 and 6 wt. % of lactose obey Root's equation and justify the use of Masson's eq. (3) for the estimation of the limiting apparent molar volume.

$$\phi_v = \phi_v^o + S_v\sqrt{C} \qquad (3)$$

Where ϕ_v^o and S_v are calculated from the intercept and slope from the extrapolation of the plots

of ϕ_v versus $\sqrt{C}$. The sample plot of ϕ_v versus $\sqrt{C}$ for potassium chloride in 2 wt. % of lactose solutions is shown in fig. (1).

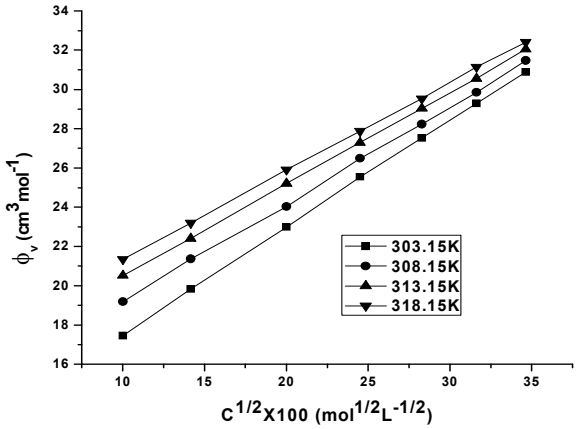

Fig.1: Plots of ϕ_v Vs $C^{1/2}$ for potassium chloride in 2 wt. % of lactose solutions at different temperatures.

The values of limiting apparent molar volume and slopes S_v are recorded in (Table 2). The slope S_v in Masson's equation may be attributed to be as a measure of ion-ion or solute-solute interactions [8-10], low and positive values accounts for weak solute-solute interactions in 2, 4 and 6 wt. % of lactose. There is a decrease in inter ionic interactions with increase in temperature for potassium chloride in 2, 4 and 6 wt. % of lactose, which may be due to more solvation of solute ions with rise in temperature.

Table 2: Limiting apparent molar volume ϕ_v^o, S_v and apparent molar expansibility (ϕ_E^o) and Values of A and B parameters of Jones – Dole equation of Potassium chloride in different compositions of lactose (2, 4 and 6%) solutions at different temperatures.

Temperature (T) (K)	ϕ_v^o (cm^3mol^{-1})	S_v ($cm^3 l^{1/2}mol^{3/2}$)	ϕ_E^o ($cm^3 mol^{-1} K^{-1}$)	A ($dm^{3/2}mol^{1/2}$)	B (dm^3mol^{-1})
Potassium chloride in 2% aqueous Lactose					
303.15	12.075	0.545	0.551	1.202	0.056
308.15	14.252	0.496	0.320	1.033	0.059
313.15	15.821	0.468	0.089	0.821	0.064
318.15	16.844	0.452	-0.142	0.442	0.073
Potassium chloride in 4% aqueous Lactose					

303.15	14.021	0.476	0.941	1.271	0.050
308.15	17.759	0.385	0.555	1.097	0.054
313.15	20.466	0.319	0.168	0.888	0.059
318.15	22.268	0.281	-0.219	0.588	0.066
Potassium chloride in 6% aqueous Lactose					
303.15	20.196	0.398	0.616	1.369	0.050
308.15	22.599	0.337	0.346	1.079	0.057
313.15	24.134	0.301	0.074	0.718	0.066
318.15	25.177	0.277	-0.198	0.221	0.078

The ϕ_v^o is a measure of solute-solvent interactions [11]. The ϕ_v^o values for potassium chloride are generally low and positive and increase with a rise in both the temperature and concentration in 2, 4 and 6 wt. % of lactose. This indicates the presence of strong ion–solvent interactions and these interactions are further strengthened at higher temperatures and higher concentrations suggesting larger electrostriction at higher temperatures. A quantitative comparison of the magnitude of values shows ϕ_v^o values are much greater in magnitude than S_v values, for all the solutions. This suggests that ion–solvent interactions dominate over ion–ion interactions in all the solutions and at all experimental temperatures [12]. The partial molar volumes (ϕ_v^o) were fitted to a polynomial of the following type in terms of absolute temperature (T):

$$\phi_v^o = a + bT + cT^2 \qquad (4)$$

Values of the coefficients a, b, and c of the above equation for different concentrations of potassium chloride in 2, 4 and 6 wt. % of lactose are reported in (Table 3).

Table 3: Values of a, b, c for Potassium Chloride in different compositions of lactose (2, 4 and 6%) solutions.

Solvent System	a	b	C
KCl in 2% aq. Lactose	-2277.91	14.557	-0.023
KCl in 4% aq. Lactose	-3830.84	24.425	-0.039
KCl in 6% aq. Lactose	-2665.69	17.103	-0.027

The partial molar expansibilities (ϕ_E^o) can be obtained by the following equation:

$$\phi_E^O = \left(\frac{\partial \phi_V^O}{\partial T} \right)_P \qquad (5)$$

The values of ϕ_E^o for different solutions of the studied electrolyte at 303.15, 308.15, 313.15 and 318.15K are reported in (Table 2). The values of ϕ_E^o decreases with increase in temperature for potassium chloride in 2, 4 and 6 wt. % of lactose solutions indicates the absence of "caging effect [13]" and its behavior is just like common electrolytes [14-15]. The structure making/breaking capacity of potassium chloride may be interpreted with the help of Hepler's reasoning [16], i.e. on the basis of sign of $(\partial^2\phi_v^o/\partial T^2)_P$. It has been shown from general thermodynamic eq. (6)

$$\left(\frac{\partial \bar{C}_P^0}{\partial P} \right)_T = -T \left(\frac{\partial^2 \phi_V^O}{\partial T^2} \right)_P \qquad (6)$$

Where $\overline{c_p^o}$ is the partial molar heat capacity at infinite dilution. From eq. (6), it is clear that structure making electrolytes should have a positive value of $(\partial^2\phi_v^o/\partial T^2)_P$and structure breaking electrolytes should have negative value of $(\partial^2\phi_v^o/\partial T^2)_P$. For potassium chloride in 2, 4 and 6 wt. % of lactose solutions sign of $(\partial^2\phi_v^o/\partial T^2)_P$ has been found negative, which suggests that it acts as structure- breaker in 2, 4 and 6 wt. % of lactose solutions.

Viscosity studies:

The viscosity data (Table-1) has been analyzed on the basis of Jones- Dole equation. [17]

$$\eta_s/\eta_0 = 1 + A\sqrt{C} + BC \qquad (11)$$

Where η_s and η_0 are viscosities of solution and solvent respectively, C is the molar concentration, A and B are constants. The values of A and B have been determined from the intercept and slope of linear plots of $(\eta_s/\eta_0 - 1)/\sqrt{C}$ versus $\sqrt{C}$. The values of A and B of different solutions are recorded in Table-2.

Parameter A of Jones-Dole equation represents the contribution from solute-solute interactions [18]. The values of A, shows that ion-ion interactions for potassium chloride in 2, 4 and 6 wt. % of lactose solutions decreases with increase in temperature, which may be due to more solvation of solute ions.

The B parameter which measures the structure making/breaking capacity of an electrolyte in a solution also contain a contribution from structural effects and is responsible for solute-solvent interactions in a solvent [19]. It has been emphasized by a number of workers that dB/dT is more important criteria [20] for determining solute-solvent interactions. Viscosity study of a number of electrolytes has shown that structure-maker will have negative dB/dT and structure-breaker will have positive dB/dT. The temperature effect on B coefficient for potassium chloride in 2, 4 and 6 wt. % of lactose solutions shows a positive sign of dB/dT thus behaves as structure-breaker in 2, 4 and 6 wt. % of lactose solutions. The sample plot of B versus T for potassium chloride in 2, 4 and 6 wt. % of lactose solution is shown in fig.(2).

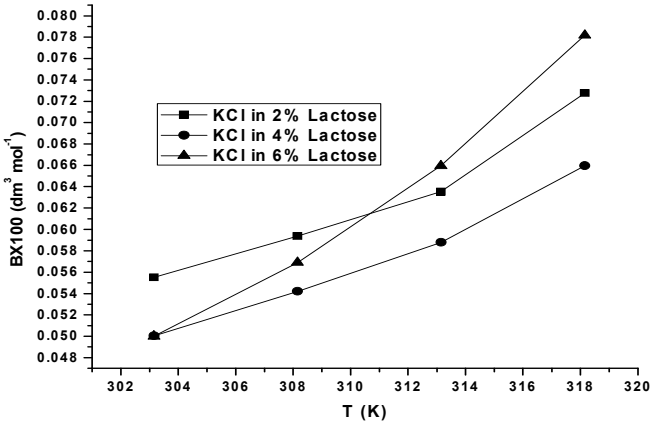

Fig.2: Plot of B versus T for Potassium Chloride in 2, 4 and 6 wt. % of lactose solution

Viscosity data has also been analyzed on the basis of transition state theory of relative viscosity of electrolytic solutions as suggested by Feakins et al. [21-22]. The values of $\Delta\mu_1^0$(Free

energy of activation per mole of solvent) and $\Delta\mu_2^0$ (Free energy of activation per mole of solute) are calculated by using the following relations:

$$\Delta\mu_1^0 = RT \ln (\eta_0 \overline{V}_1^0 / h N) \quad (13)$$

$$\Delta\mu_2^0 = \Delta\mu_1^0 + RT/ [10\overline{V}_1^0 00B - (\overline{V}_1^0 - \phi_v^o)] \quad (14)$$

Where R, h and N are gas constant, Planck's constant and Avogadro's number respectively; T is absolute temperature and is partial molar volume of solvent. The values of $\overline{V}_1^0$, $\Delta\mu_1^0$ and $\Delta\mu_2^0$ are recorded in Table-4. $\overline{V}_1^0$

Table 4: Values for $\overline{V}_1^0$, ϕ^0_v, $\Delta\mu_1^0$ and $\Delta\mu_2^0$ for Potassium Chloride in different composition of lactose at different temperatures.

Temperature T (K)	$\overline{V}_1^0$ ($cm^3 mol^{-1}$)	$\Delta\mu_1^0$ (kJ mol^{-1})	$\Delta\mu_2^0$ (kJ mol^{-1})
Potassium chloride in 2 % Lactose			
303.15	18.29	61.40	68.19
308.15	18.32	62.15	69.89
313.15	18.35	62.89	71.54
318.15	18.39	63.68	73.92
Potassium chloride in 4 % Lactose			
303.15	18.49	61.49	67.71
308.15	18.52	62.24	69.64
313.15	18.55	62.99	71.50
318.15	18.60	63.77	73.66
Potassium chloride in 6 % Lactose			

303.15	18.68	61.63	68.58
308.15	18.71	62.34	70.66
313.15	18.75	63.08	72.99
318.15	18.79	63.86	75.76

In the earlier prediction it suggested that for structure maker normally $\Delta\mu_1^0 > \Delta\mu_2^0$ and for breaker $\Delta\mu_1^0 < \Delta\mu_2^0$ [21-23]. From the Table-5 it is found that $\Delta\mu_1^0 < \Delta\mu_2^0$ for potassium chloride in 2, 4 and 6 wt. % of lactose solutions. It suggests that potassium chloride behave as structure-breaker in 2, 4 and 6 wt. % of lactose solutions. This may be due to increase in interactions of solute ions by the solvent molecules as a result of weakening of forces among solvent molecules at transition state.

Conductance studies:

The limiting molar conductance Λ_m^o for potassium chloride in 2, 4 and 6 wt. % of lactose solutions were obtained by extrapolating the linear plots of Λ_m (Table-1) versus $\sqrt{C}$ to zero concentration. The limiting molar conductance for potassium chloride in 2, 4 and 6 wt. % of lactose solutions at 303.15, 308.15, 313.15 and 318.15 K temperatures are recorded in Table-5, shows that limiting molar conductance increases with increase in temperature, which may be due to increase in ionic mobility of ions at infinite dilution.

Table 5: Values of limiting molar conductance (Λ_m^o), Viscosity of solvent (η_o) and Walden Product for Potassium chloride in different compositions of lactose (2, 4 and 6%) solutions at different temperatures.

Temperature (T) (K)	Λ_m^o **($\Omega^{-1}cm^2mol^{-1}$)**	η_o **(cp)**	$\Lambda_m^o\eta_o$ **($\Omega^{-1}cm^2mol^{-1}$ poise)**
Potassium chloride in 2% aqueous Lactose			
303.15	218.21	0.8246	179.93
308.15	239.38	0.7441	178.12

313.15	257.95	0.6702	172.89
318.15	279.30	0.6158	172.00
Potassium chloride in 4% aqueous Lactose			
303.15	208.37	0.8483	176.75
308.15	229.43	0.7631	175.08
313.15	247.78	0.6875	170.35
318.15	266.84	0.6299	168.09
Potassium chloride in 6% aqueous Lactose			
303.15	205.54	0.8867	182.24
308.15	223.53	0.7856	175.61
313.15	245.15	0.7059	173.06
318.15	265.21	0.6459	171.31

The Walden product data (Λ^{o}_{m} □₀) have been recorded in Table-5. The structure making/breaking nature of solute has been determined from temperature coefficient of Walden product i.e. [d (□°ₘ□₀) / dT] [24]. The negative temperature coefficient of Walden product for potassium chloride in 2, 4 and 6 wt. % of lactose solutions indicate that potassium chloride behaves as structure-breaker in 2, 4 and 6 wt. % of lactose solutions. The sample plot of Λ^{o}_{m}□₀ versus T for potassium chloride in 2,4 and 6 wt. % of lactose is shown in fig. (3).

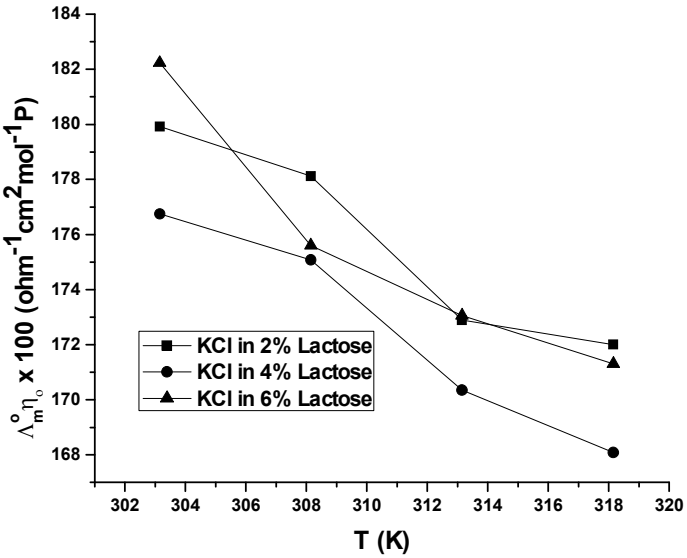

FIG.3: Plot of $\Lambda^{o}_{m}\eta_{o}$ versus T for potassium chloride in 2,4 and 6 wt. % of lactose.

Conclusion:

This study reveals that ion–solvent interactions are predominant over ion–ion interactions for potassium chloride in different composition of lactose at all experimental temperatures. Also, the electrolyte under study was found to act as a structure breaker in the solvent mixtures studied. Density, viscosity and conductance have been measured for potassium chloride in different composition of lactose at 303.15, 308.15, 313.15, and 318.15 K. The variation in density, viscosity and conductance and other related thermodynamic parameters potassium chloride at various concentrations and temperatures in aqueous lactose shows the variation to be increase and decrease non-linear. The non linearity confirms the presence of solute-solvent, ion-ion interactions. On the basis of above study, it has been concluded that potassium chloride behaves as structure-breaker in different composition of lactose.

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4

Interface of Literature and Culture in the Novels of Khushwant Singh, Jhumpa Lahiri and Chetan Bhagat

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Abstract

This paper proposes to highlight the importance of culture in framing the literature since time immemorial. Literature shows the ideas and culture of a people which are always changing with time. Culture refers to the beliefs, customs, values, and activities of a particular group of people at a particular time. Therefore, it is important to consider a work's cultural context. A society's history is reflected in literature based upon the fact that their actions, many times, are a result of what is happening around them in the society which they live in. Language also refers to a particular cultural group and is used to point to objects that are unique to a particular culture. The way we think about something comes across in our writing. No one is able to leave their history completely behind them. It shapes our identity and how we think. These ideals are then reflected in the way we write and what we choose to write about. Since the means of expression of people cannot be fixed by any laws, popular languages and any particular style throughout the world, hence literature keeps taking new births at every phase of time.

Introduction

The relationship between culture and literature cannot be overlooked. Culture shows itself in everything including language and literature. The relationship between language and culture has been a matter of dispute and people have different views regarding this discourse. The most widely accepted views on the relationship of language and culture are probably that the multiplicity of cultures and plurality of norms of verbal and non-verbal behavior are necessary for intercultural communication and that literature can be used as a rich resource to develop the ability to communicate appropriately in an alien cultural settings.

Literature

Literature refers to writings considered to be an art form or any single writing deemed to have artistic or intellectual value. This concept has changed meaning over a period of time as it includes oral literature and non-verbal art forms. Literature is reflecting norms & values revealing the ethos of culture, the process of class struggle, etc.

The **five** main **literary** genres are **poetry** (the oldest form of literature), **fiction** (literature that is made up), **nonfiction** (literature about real people, places or ideas), **drama** (literature that is meant to be performed, or at the very least mainly consists of dialogue) and **media** (The newest type of literature, such as movies and films, websites, commercials, billboards, and radio programs. Any work that doesn't exist primarily as a written text can

probably be considered media, particularly if it relies on recently developed technologies.); with each varying in style, structure, subject matter, and the use of figurative language.

A society's history is reflected in literature based upon the fact that their actions, many times, are a result of what is happening around them in the society which they live in. Literature is the recordings of the human experience, the spirit and heart of people and is an everlasting and universal truth, and therefore, accurate history. Underscoring these ideas, the French philosopher, art critic, and writer, Denis Diderot [1713-1784] wrote,

"The truest history is full of falsehoods, and your romance is full of truths."

Culture

Culture is a very complex phenomenon. The modern term "culture" refers to all the ways in which human beings overcome their original barbarism, and through art and craft, become fully human. It takes even the most thoughtful, honest and introspective person many years to understand even a small part of their own culture.

In the words of anthropologist E.B. Tylor, it is "that complex whole which includes knowledge, belief, art, morals, law, custom and any other capabilities and habits acquired by man as a member of society."

It has been estimated from archaeological data that the human capacity for cumulative culture emerged somewhere between 500,000–170,000 years ago. Raimon Panikkar identified 29 ways in which cultural change can be brought about, including growth, development, evolution, involution, renovation, reconception, reform, innovation, revivalism, revolution, mutation, progress, diffusion, osmosis, borrowing, eclecticism, syncretism, modernization, indigenization, and transformation. In this context, modernization could be viewed as adoption of Enlightenment era beliefs and practices, such as science, rationalism, industry, commerce, democracy, and the notion of progress.

The internal structure of culture includes the following levels: material culture, institutional culture, behavioral culture, and mentality culture. The cultural layer of matter is the sum of the material production activities and products of human beings. It is a tangible cultural thing with material entities. The institutional culture layer is a variety of social behavior norms established by humans in social practice. The behavioral culture layer is a behavior pattern that is commonly used in interpersonal communication in the form of etiquette, folklore, and custom. Mentality culture is a subjective factor such as values, aesthetic tastes, and thinking patterns gestated by human beings in social awareness activities. It is equivalent to the concepts commonly referred to as spiritual culture and social awareness. This is the core of culture.

Literature & Culture

Books are written by individuals, but they are also influenced by that individual's society. Therefore, it is important to consider a work's **cultural** context. **Culture** can refer to the beliefs, customs, values, and activities of a particular group of people at a particular time.

Literature is an art that uses language as a means to shape an image to reflect social life and express the author's thoughts and feelings originated from human productive labor. The first appeared was oral literature, which was generally linked to music as lyrical poetry that

could be sung. Modern literature usually divides literature into four categories: poetry, fiction, prose, and drama.

Culture is a social phenomenon and it is the product of long-term creation. At the same time, it is also a historical phenomenon. It is the accumulation of social history. Culture refers to the history, geography, customs, traditions, ways of life, literature and art, behavioral norms, modes of thinking, and values of a country or a nation. It includes material culture, institutional culture and psychological culture.

We can say that, literature is the recordings of the human experience, the spirit and heart of people is an everlasting and universal truth, and therefore, accurate history. Literature increase culture and culture of a population is often expressed by its literature for better or worse.

Literature and culture are two sides of the same coin!

Literature shows not only the world around us but the way we view that world. The way we think about something comes across in our writing. Take ***Train to Pakistan*** for instance. The culture and ideals of the time were changing. The author, Khushwant Singh (1956), shows both the old ideas and the new ideas about nationalism and segregation. It is a historical novel which recounts the Partition of India in August 1947. Instead of depicting the Partition in terms of only the political events surrounding it, the author takes our attention into a deep local focus, providing a human dimension which brings to the event a sense of reality, horror, and believability. He shows how these ideas clash and violence it can lead to. Examination of the varied groups of people not only increases cultural and social understanding of that time and place, but also shows that the blame could not be placed on any one group. To better understand the situation surrounding the partition of India, the author provides information about both religions involved. Singh makes it clear that many people played a part in this chaos and everyone was equally worthy of blame, all while integrating examples of the moral confusion which arises from trying to make sense of an event as momentous as the Partition.

Let us take the example of ***The Namesake*** (2003) which was the first novel by American author Jhumpa Lahiri. No one is able to leave their history completely behind them. It shapes who we are and how we think. These ideals are then reflected in the way we write and what we choose to write about. It explores many of the same emotional and cultural themes. Moving between events in Calcutta, Boston, and New York City, the novel examines the experiences involved with being caught between two conflicting cultures with highly distinct religious, social, and ideological differences. *The Namesake* depicts the struggles of Ashoke and Ashima Ganguli, first-generation immigrants from the East Indian state of West Bengal to the United States, and their American-born children Gogol. The story chronicles Gogol's cross-cultural experiences and his exploration of his Indian heritage, as the story shifts between the United States and India.

Similarly, a specific **language** refers to a particular **cultural** group. If we take the example of ***One Night at the Call Center*** (2005) by Chetan Bhagat, it revolves around a group of six call center employees working at the call center in Gurgaon. It takes place during one night, during which all of the leading characters confront some aspect of themselves or their lives they would like to change. In the story the characters receive a phone call from God. A

phone call from God is one of the salient features in the novel. Claimed to be based on a true story, the author chooses Shyam Mehra, as the narrator and protagonist, who is one among the six call center employees featured. The themes revolves around the anxieties and insecurities of the rising Indian middle class, about their career, marriage, family conflicts in a changing India, and the relationship of the young Indian middle class to both executives and ordinary clients whom they serve in the United States. There is an aspect of self-help in the book as the author invites readers to identify aspects of themselves and their lives that make them angry and that they would like to change. One of the reasons why the novel turned out to be a best-seller was the fact the author had tried to capture the attention of the young crowd who are also English literate readers. The language used by the author was also easy to comprehend and usually used by contemporary India. His novels address the young readers at large and it went on to sell more than a million copies, a record for English novels in India.
Literature is also the means by which **culture** and its traditions and shared values may be conveyed and preserved. For example the Epics, Vedas, Scriptures, and other religious texts; they differ from literary texts by being a compilation or discussion of beliefs, mythologies, ritual practices, commandments or laws, ethical conduct, spiritual aspirations and by creating or fostering a religious community.

Conclusion

Thus, we can say that Literature, in Emily Dickinson's words, sits on the horizon of our lives to take us lands away. It is the perpetual mobile that turns the cogs of our existence: it inspires, enables, and transforms you into the person you will dare to become. It opens the future like a golden key. It allows you to experience other lives, other cultures, and other worlds, and grow with this knowledge.
Literature and **culture** are important perquisites of everyday **life** because it connects individuals with larger truths and ideas in a society. **Literature** creates a way for people to record their thoughts and experiences in a way that is accessible to others, through fictionalized accounts of the experience. Literary and Cultural Studies are inter-related and gives an access to historical traditions and thoughts. Through critical interpretation, we can see how culture mediated through literature allows different ways of knowing and living.

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5

Changing Face of Library Services & Role of Information Professionals

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Abstract

In recent years internet has revolutionized the concept of libraries. With the growing popularity of internet, which provides loads of information with just a click of mouse, one may pause to think about the relevance and importance of a library in today's world.

But as the library is service oriented institution and always adopt technological advances efficiently, so it will continue to stay and provide improved services to its patrons. Library and information professionals see the internet and electronic resources as tools that are used to provide accurate and timely information to their users. Present paper discusses about changing face of library services and role of library and information professionals in this changing environment. It analyses some reasons behind this change, and also discusses challenges and opportunities before information professionals.

Keywords: Library Professionals, Library services. Internet, Knowledge Society

Introduction

Libraries should not be defined by the equipments they provide or the stock of material on their shelves. Libraries should be measured by the services they deliver, the experience they enable and the environment they create, it is also true in the case of public libraries. Since the beginning public libraries served as a local information center making the source of knowledge readily available to the individual and society as a whole. UNESCO lay down guidelines that clearly stressed that public libraries should be strengthening reading habits, supporting self conducted education, providing education, providing opportunities for personal creative development, stimulating the imagination and creativity of children and young people, promoting awareness of the cultural heritage, innovation among other activities.

As the information technologies are changing everyday and growing at a tremendous speed, the knowledge society is becoming more complex, competitive and dependent on technological changes, information explosion and globalization of networks. Libraries are frequently been early adopters of new technology and Information professionals

continue to be at the forefront in learning and teaching new technologies. They see the internet and electronic information as tools that are used to provide information. The libraries, either public or any other, seek to take advantage of technology to provide improved or new services, to increase access to resources beyond those owned, to reach more users more effectively, to promote learning. At the same time libraries should maintain and apply traditional values and principles of librarianship to ensure high standards of services. These values and principles include open access to information, preservation of human record, commitment to learning and connecting people to information and the importance of excellence in service. The availability of new tools for accessing information and ability to communicate and interact indirectly without geographical and time constraints has changed the social structure of education and research. The libraries are developing now as a powerful platform of e-learning applications in different segments of society.

Traditional Library

In traditional system of the libraries search strings for documents are arranged in index or catalogue cards. Readers access the documents through these cards. These cards are arranged alphabetically for the ease of the readers and satisfy different access approaches of the reader.

Limitations of Traditional Library System

- Readers have to come to the library for consulting the documents.
- Traditional patterns take more time to locate the document and the information available in the documents.
- Reader is dependent on the card catalogue for searching the document in which bibliographic information is entered.
- Reader generally confuses the accession number and call number.
- Updating card catalogue is time consuming.
- Searching though all the keywords are impossible by traditional devices.
- All the information on one topic is not found in any one library. The readers only get walled information.
- Traditional devices are unable to provide quick and pinpointed information to the user.
- Documents are issued for a limited period of time.
- Readers have to wait 3-6 weeks for their desired documents that are obtained on inter library loan.
- Space problem is a big problem in libraries as printed material collection grows every year.

Changing Face of Library Services

Melville Dewey wrote in an early edition of American Library Journal:

> **"**It is not enough that the books are cared for properly, are well arranged, are never lost ..... The librarian must put every facility in the way of the readers, so that they

should be led from good to better. He must teach them, how, after studying their own wants, they may themselves select their readings wisely."

This definition of librarianship is still relevant in modern concept of library services. The Library and Information professional's role is to take care of the needs of the readers, give them facilities, teach them to use these facilities. The library's perpetual mission is to provide scholarly access to relevant information resources, giving high value to the needs and expectations of the users. This mission encompasses all available media and document formats, both physically available and remotely accessed via internet. With the change in technology and readers expectations face of modern library services also changed. Let us analyze some reasons behind this change:

Changing readers: Now the question arises who our readers are? There is a new wave of information seekers who are:

- The generation born after 1980s.
- They are surrounded by computers and digital media.
- This generation of information seekers likes control, interactivity and convenience.
- They are comfortable and confident with multitasking and IT.
- Their expectations are high.
- They do not care about the format in which information is provided but they prefer digital sources.
- This generation is nomadic in nature and expecting services and resources when and where needed.

New Library Vision: This type of information seekers and the change in technology visualize a very different library that operates according to the expectations of today's readers. In this vision, the library makes information available wherever and whenever the reader requires it. This vision requires change across a wide range of systems, processes and attitudes. This library vision governed by some principles:

- The Library is everywhere.
- The Library has no barriers.
- The Library invites participation.
- The Library uses flexible, best and fast systems.

Transition in Information World: With this new generation of user community the changes in technology played an important role in determining the services in the library. The Library goes:

- From a library- centered to information- centered entity.
- From utilizing new technology to automate library functions to utilizing IT for the enhancement of information access.

- From library networking to wider collaboration with all types of institutions and information professionals.
- From acquisition to access i.e. instead of purchasing information sources, licenses for remote access are paid for.

Library and Information Professionals: Changing environment

Initially, Library and Information Professionals were considered as the custodians of the traditional documentary resources of their library and later on as the providers of different services based only on their collection. With the passage of time, the role of library professionals has changed from an ornamental one to an indispensable wing in public life, academic world and in research and business fields. Internet has emerged as a major tool for churning information and producing new knowledge and this knowledge can be used from anywhere in the world. This information is enormous , more than any library can offer. The environment in which library & information professionals work is changing with the change in technology, user perceptions and the services offered by the libraries. Their role is also changed, now they are:

Information Broker: from custodian of knowledge they emerge as Information Brokers for both print and electronic media, who identify, organize, repackage and provide access to information.

Technology Application Leader: Now they collaborate with information technology services to design and evaluate system that would facilitate access. They provide active services for maximum use of information with minimum cost and time.

Facilitator: They make access easier by identifying, gathering and arranging information infrastructure such as network access, software access, licenses and passwords to use these resources. They provide the right information to the right seeker at the right time.

Educator: They train their users on internet use, tools, search engines, online resources, databases, catalogues and use of web instructions and tutorials, so that the users can retrieve the information needed.

Efficient Managers: Library professionals act as efficient managers for maintaining and improving the performance of the library. In order to fulfill the objectives of the library, its resources- human, material and financial are to be used in the most efficient and effective way.

Challenges

It is amazing to see that the libraries appear on the computer screen and vanishes when switched off. This is the net result of revolution started from clay tablets, papyrus to printing press and then electronic publishing. Libraries which are considered only a store house of knowledge have got a new outlook in modern information and communication technology era.

In this changing scenario a question is being asked directly or indirectly "We have internet, the world wide web and digital libraries, so, why do we need Libraries" Sometimes this question is indirect as when organizations plan new campuses, buildings or allocate funds for telecommunications, computing and library services. At the other times it is direct as when govt. officials, parents or volunteers invest in computers and network access for schools that may have no libraries. The question why do we need libraries suggest a choice between libraries and computers. It is a fact that internet has become part of day to day life. It is everyday scene that information resources, library users are turning to electronic media. Information is in, nutshell, is digital plus print.

For library and information professionals who have been practicing through the rapid advancement of technology it seems that 'things' associated with the profession is disappearing. Card catalogues have been replaced with OPACS, audio and video material are now available for download and e-books are finally starting to realize their potential. It might seem that library buildings are no longer needed, but despite the ever widening availability of electronic resources, libraries are still busy places. The challenges now are to design library spaces not to house physical material but to serve users.

The challenge for information age is not choosing between libraries and computer networks. The challenge is to determine how to provide access to information. As the information overload by internet is vast, simply accessing internet is not going to yield good search results unless they have knowledge about resources and techniques involved in accessing information. The role of expert library and information professional is essential to provide knowledge about reliable resources. Librarians are accountable for the information they provide, if they are not doing so, they should take every precaution to avoid misinformation. The provision of false or misleading information through carelessness breaches the trust the patrons puts in the library professionals. It is the ethical duty to supply the highest level of service to library patrons, no matter what the format of information is. Library professionals know that 'a good library is defined by the principles of librarianship, the mission of the specific library and the persons and services that make that mission a reality' Technology will continue to change, libraries and library professionals will use the changing technology to provide best access and service to their users. The challenge is to change with the technology.

If libraries have to stay as information providers, this reality has to reflect in their working. This reality should also reflect in all the budgeting and funding actions of the libraries. The change that is called for is best viewed as an opportunity to stay tuned to the times rather than something undesirable.

Opportunities

The ultimate test of a good library is whether the materials are available to those who need them, when and where they are needed, the manner in which they are made available and at what cost i.e. Effectiveness, Efficiency and Economy. The availability of new tools for accessing information and ability to communicate and interact indirectly without geographical and time constraints has changed the social structure of education and research and opened up new opportunities before Library and Information professionals for providing library services easily, timely and appropriately to the users. These can be summarized as

- **Digitization:** Electronic documents can be viewed by the multiple users simultaneously, which eliminates the waiting time for the popular and rare documents in the library. These documents can be scanned and stored for the electronic viewing by the numerous users.
- **Patrons initiated inter library service:** Links for different libraries for searching the documents as in the traditional method by author, title or subject. Once the appropriate material is located by the user at their terminal they can electronically forward a request to Librarian to arrange the document on inter library loan.
- **Books and Reading Lists:** Readers advisory services have not disappeared from the functions librarians traditionally perform. Web versions of books and reading lists are available for users.
- **E-Newsletter:** Communicating the news of the library to its users of both its physical and virtual collections take new forms such as electronic newsletter or bulletins etc.
- **Virtual Reference Desk:** Earlier reference librarians were available in person ,but now in web based environment reference librarian is available via e-mail or through a web form on library portal like 'ask a librarian' for providing reference services to its users. Users find it highly useful as it replaces 'sticking to timing' required for person to person contact.
- **Useful sites:** Give links to useful sites on the website of the library.
- **Virtual Tours:** Virtual tours can be created to describe the physical library and its services.

Conclusion

Access to information is available round the clock and traditional constraints of space and time stand collapsed. We, the, library & Information Professionals have the opportunity to provide global reach to the indigenous knowledge. Similarly we can get access to world's knowledge and information through the internet provided we have will, skill and the appropriate attitude. These opportunities and challenges can be handled effectively by competent library personnel, sound knowledge base, pertinent skills and positive mindset. Do we have that? If, yes, there is no reason to worry about the future of libraries. Libraries must become a local gateway to the world's knowledge and information to stand with changing environment.

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6

अज्ञेय के ''भोखरः एक जीवनी'' में काम का स्वरूप

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आधुनिक युग में मनोविश्लेषणवाद बहुचर्चित एवम महत्वपूर्ण वाद है। प्रसिद्ध मनोवैज्ञानिक फ्रॉयड ने कामुकता अथवा ''लिबिडो'' को मानव प्रकृति का मूलाधार माना है। अज्ञेय से पूर्व प्रेमचन्द आदि के उपन्यासों में नर–नारी का प्रेम तथा उनका आकर्षण लगभग अछूता ही रहा । उनके उपन्यासों में पुरूष सामाजिक तथा राजनैतिक समस्याओं में ही उलझा रहा और नारी पत्नीत्व के आदर्श को ही निभाती रही । प्रसाद तथा उनके समकालीन उपन्यासकारों में नर – नारी केवल आदर्श प्रेमी हैं, सेक्स की पीड़ा से पीड़ित नहीं। इन उपन्यासकारों के उपन्यासों में पात्र अन्तर्द्वन्द्व से पीड़ित होते हैं। वे राम–विराग कर्तव्य–अकर्तव्य, सत–असत जैसे विरोधी भावों में डूबते उतराते हैं, लेकिन मात्र कुछ समय के लिए ही। फ्रॉयड के मनाविश्लेषण सिद्धांत के अन्तर्गत व्यक्ति की समस्या का मूल केन्द्र बिन्दु ''सैक्स'' है। इसलिए प्राचीन यौन समस्या बदली, सतीत्व की परिभाषा में परिवर्तन हुआ। प्रेम के आदर्शमय स्वरूप में पर्याप्त अन्तर आया। मनुष्य की प्रवृत्तियों अधिकांशतः इसी '' लिबिडो'' काम भावना'' की विकृत एवं परिष्कृत क्रिया–कलापों की प्रतिछाया है। ओम प्रभाकर ने '' शेखर : एक जीवनी'' के नायक में यौनाभाव को प्रमुख मानते हुए कहा है – '' वस्तुतः यौन भाव ही शेखर के चरित्र की मूल प्रवृत्ति है। विद्रोह, अहम्, बौद्धिकता, संवेदनशीलता, वैयक्तिकता आदि तो उस पर आरोपित है।[1]

फ्रॉयड ने कामुकता (लिबिडो) के विकास की विभिन्न अवस्थाओं को दर्शाया है। '' शेखरः एक जीवनी'' में कामुकता का भाव शेखर के माध्यम से प्रकट हुआ है। शेखर के पारिवारिक जीवन पर जब दृष्टि पात करते हैं तो उनके व्यक्तिगत जीवन में यौन भाव की प्रधानता परिलक्षित होती है। शेखर के जीवन में बाल्यकाल से लेकर युवावस्था तक यौन भाव ही है। इसी भाव की पूर्ति–अपूर्ति में उद्भूत समस्याएं, कुण्ठाएं, असफलताएं, विक्षिप्तताएं, तुष्टि तथा असफलताएँ- इन भावनाओं का ही अंकन अज्ञेन ने किया है। शेखर यौन भाव की पूर्ति के कारण बचपन से ही अस्त–व्यस्त तथा विक्षिप्त सा रहता है। वह स्वयं को तभी कुछ आश्वस्त अनुभव करता है जब शशि उसे प्राप्त होती है। शेखर के यौन भाव के उग्र तेवर प्रारंभ से ही अत्याधिक क्रियाशील रहते हैं। सामाजिकता तथा नैतिकता के कारण कुछ तो कुठित हो जाते हैं तथा उसकी आत्मा को भी विद्रोही बना देते हैं।

फ्रॉयड ने यौन भाव के विकास की तीन अवस्थाएं निर्धारित की हैं– आत्मरति, समरति और विपरीत रति। शेखर के व्यक्तित्व में इन तीनों प्रक्रियाओं का सम्मिश्रण परिलक्षित होता हैं। शेखर में आत्मरति का भाव वहाँ पर प्रदर्शित होता है, जब भीतर से उसका '' आत्मपक्ष'' प्रबल होकर लोगों को अपनी ओर आकर्षित कर उनपर अपना एकाधिपत्य स्थापित करना चाहता है। बाल्यकालीन विभिन्न क्रीड़ाएं उसकी आत्मरति की परिचायक हैं। फ्रॉयडीयन व्याख्या के अनुरूप शेखर में आत्मरति का वह रूप तो नहीं मिलता जब बालक अपने अंगों की ओर आकर्षित होता है, लेकिन आत्मरति का परिष्कृत रूप अवश्य मिलता है। शेखर जब बालक्रीड़ा के द्वारा लोगों का ध्यान अपनी ओर आकर्षित करवाना चाहता है। उसी का एक रूप इन पंक्तियों में द्रष्टव्य है '' वह सम्राट् है। अपने विजयी घोड़े पर बैठा है और संसार को ललकार रहा है। जब भी कोई राही उसके पास से होकर निकलता है त बवह उसे मुंह चिढ़ाता है और पुकार कर जो मन में आए कह डालता है। वह अपने मन में सम्राट है और राहियों के मन में एक उद्धत शिशु, इसलिए कोई उत्तर नहीं देता, रूष्ट नहीं होता, उसकी ओर देखकर चला जाता है।[2]

इस प्रकार स्पष्ट है कि शेखर बचपन में लेटर बाक्स पर चढ़कर सम्राट बनने के स्वप्न देखकर सम्मान प्राप्त करने की लालसा से लोगों का ध्यान है जब वह कॉलेज होस्टल में अपने से एक वर्ष बड़े सहपाठी मित्र कुमार के प्रति आकर्षित होता है तथा उससे कहता है– '' कुमार बताओ, तुम मुझे अपने से बड़े क्यों नहीं लगते ? मुझे क्यों लगता है कि तुम छोटे हो, और मैं जैसे तुम्हारा संरक्षक, तुम्हारा गर्डियन (देवीरक्षक) हूँ और तुम मुझ पर निर्भर करते हो ?[3]

इसके बाद शेखर उस पर अपना आधिपत्य जमाना चाहता है, जिसकी परिणति उसके शारीरिक हाव–भाव, अंग चेष्टा या चुम्बन आदि से होती है। वह कहता है– '' कुमार यदि तुम मेरे अतिरिक्त और किसी के हुए तो मै। तुम्हारा गला घोंट दूंगा।... इतना ही नहीं शेखर ने कुमार को अपनी तरफ खींचकर उसका मुंह चूम लिया । लेकिन साथ ही उसके मन में एक शंका हुई... स्वर में यह भय क्यों ? और उसे यह भी लगा, कि जो कुछ उसकी ओर से है, दूसरी ओर से वह नहीं है, जैसे झील में उसका प्रतिबिम्ब मात्र, जिसमें कम्पन है, लेकिन कम्पन जीवन का नहीं माया का।[4]

अतः स्पष्ट है कि शेखर का कुमार की तरफ आकृष्ट होना तथा उसका मुंह चूमना इत्यादि उसकी समलिंगी कामुकता को प्रदर्शित करता है। शेखर के हृदय में विपरीत लिंगी का भाव उन समस्त नारियों के संदर्भ में होता है जो उसे संपर्क में आती हैं। नारी हृदय के प्रति यह खिंचवा तथा स्वाभाविक आकर्षण उसके बालजीवन में ही उदित होता है। अज्ञेय ने फ्रॉयड के सिद्धान्तों को पर्याप्त रूप से अपनाया है। फ्रॉयड की मान्यता है कि मानव चेतना अपने युवाकाल एवं परवर्ती जीवन में जो एक रूप ग्रहण करती है उसकी नींव बालजीवन के प्रारभिक चार–पांच वर्षो में पड़ जाती हैं अर्थात् बाल्यकालीन चार–पांच वर्ष की आयु जीवन का वह आधार है जिसपर व्यक्ति के भावी जीवन का महल खड़ा होता हैं। इसी मान्यता के अनुरूप शेखर के प्रथम भाग में यौनाक्रान्त शेखर के वयः सन्धि प्राप्त होने पर यौन भावों का तीव्र गति से उद्रेक होता है। शेखर समय–समय पर शशि, शारदा, शान्ति, मणिका, नौकरानी अत्री आदि के प्रति अपनी कामउतेजनाओं को प्रकट करता है। एक दिन शेखर बुहारी देती हुई नौकरानी अत्री की धोती का छोर पकड़ लेता है और चाहता है कि उसे उधाड़ दे। इसी प्रकार जब उसकी आयु मात्र तीन वर्ष की थी, शशि की आयु भी लगभग तीन वर्ष की थी। तब पहले– पहल इन्होंने एक–दूसरे को देखा था और स्नेह – सूत्र में बंध गए थे। शशि पहली बार शेखर के घर आई तो शेखर ने नहाते समय उसको लोटा मारा परन्तु शशि ने शेखर की शिकायत नहीं की। उदण्ड शेखर अनायास हो शशि की ओर आकर्षित हो गया। जब दोनों खाना खाने बैठे तो शेखर ने उसी लोटे में शशि को पानी भर कर रख दिया। शशि के पानी पी लेने पर .... '' शेखर को लगा उसने संसार के सब लोटों से बढ़कर एक चीज पी ली है।[5]

इसके अतिरिक्त शेखर में परिलिंगी कामुकता का भाव वहाँ पर प्रकट होता है, जब वह शशि से यह कहता है –'' सुनो शशि मुझे तुमसे बहुत कुछ कहना है। तुम जागो नहीं, सोई रहो, तुम सोई–सोई भी सुन लोगी जो मैं कहना चाहता हूँ – क्योंकि तुझे वह तुम्हारे कानों से नहीं कहना, तुम्हारें ओठों से कहना है– जो आज मेरी ओर बेझिझक उठे हैं, जिन्हें कुछ भी कहने में झिझक मुझे नही है– जब वे सोते है, तब और भी नहीं...।[6] अतः शेखर शशि से किसी भी अवस्था में अलग होकर जीना नहीं चाहता।

शेखर के जीवन में जितनी भी नारियां आती हैं, सभी से उसका संबंध 'बहन' जैसा है। शशि ही एक ऐसा पात्रा है जो शेखर की सभी कुछ है। लेकिन ये सभी संबंध मनुष्यकृत है, क्योंकि यह सभी संबंध प्राकृत एवं शाश्वत संबंधों से बहुत दूर है। समाज ने मनुष्य के ऊपर इन्हें लादा है। वास्तव में इसके मूल में काममंडित प्रेम ही है। प्रेम और वासना में अत्यधिक नैकट्य होता है। फ्रॉयड के आनन्द सिद्धान्त (पलेजर प्रिंसीपल) के अनुसार बिना वासना के प्रेम का अस्तित्व निराधार एवं निरर्थक है। प्रत्येक प्रेम में किसी ने किसी रूप में वासना का अंश और अस्तित्व विद्यमान रहता है जिसे सात्विक प्रेम की संज्ञा से अभिहित किया जाता है। यह भी वासना से सर्वदा कटा हुआ नहीं होता , अपितु इसी का उदात्त रूप होता है। शेखर के सन्दर्भ में यह मत सही प्रतीत होता हैं इसी भावना से वशीभूत होकर वह शशि को फूलों की माला से ढ़क देता है। वह बहिन के कपोलों को अत्यन्त कृतज्ञ भाव से स्पर्श करते हुए कहता है '' कितनी अच्छी लगती हो तुम। '' यह काम भाव कई दिनों तक उसके मस्तिष्क में घुमड़ता रहता है। सरस्वती भी इसी कामुकता के वशीभूत शेखर का गाल थपथपाती रहती है तथा शेखर के गालों में अपना सुन्दर अलक्ष्य प्रतिबिम्ब देखती है।

शेखर के मन में सरस्वती के प्रति जो एक्य – भाव है वह अत्यन्त उन्मद एवं तीव्र है। शेखर को लगता है कि जो वांछित है, प्रिय है तथा समझने व सहानुभूति करने योग्य है उसका पुंजीभूत रूप सरस्वती है। शेखर जब शारदा की आंखें मूंदकर उसके सूखे केशों को सूंघता है, तो प्रकारान्तर में उसकी दमित यौन – भावना की तुष्टि होती है। इन्द्रनाथ मदान का कथन है – '' शेखर की संतुष्टि नारी के स्पर्श मात्र से ही हो जाती है। उसे नारी को छूने से गंगा स्नान की अनुभूति तो नहीं मिलती, लेकिन तपन को शान्त करने के लिए शीतल जल के पान की शान्ति अवश्य मिल जाती है।[7]

क्षयरोग से पीड़ित शान्ति के कण्ठ को स्पर्श मात्र से ही उसको सन्तुष्टि मिलती है। शेखर के जीवन को सर्वाधिक प्रभावित शशि ही करती है। वास्तव में शशि ही वह विशिष्ट केन्द्र बिन्दु है जिसके इर्द–गिर्द शेखर का समूचा व्यक्तित्व पल्लवित एवं पुष्पित होता है। इस तथ्य की पुष्टि उपन्यास में इन शब्दों से होती है, मेरा होना अनिवार्य रूप से तुम्हारे होने को लेकर है। शशि, शेखर की प्रेयसी है तथा रमेश की परिणीता पत्नी। रिश्ते में वह शेखर की मौसेरी बहन लगती है परन्तु अपने हृदय का समस्त प्रेम वह शेखर पर न्यौछावर कर देती है। इसके लिए उसे अनेक कठिनाइयों का सामना करना पड़ता है। घर बार छोड़ना पड़ा, पति का त्याग किया यहाँ तक कि शेखर के विकास के लिए उसने स्वंय को मिटा दिया। जब शेखर शशि से प्रश्न करता है '' शशि'' तुम क्या हो ? शेखर का उत्तर वह इन शब्दों में देती है – '' .... मैं विवाहिता हूँ। अपना आप मैंने स्वेच्छा से दिया है : अपने को दूह का संकल्प कर दिया है – आहुति दे दी है, जो दे दिया मेरा नहीं है, उसकी ओर से मैं कुछ नहीं कर सकती, न कुछ स्वीकार ही कर सकती हूँ न प्रतिवाद कर सकती हूँ , और न कुछ दे सकती हूँ – पर तुमसे मेरा वह जीवन है, जो मै हूँ जो मेरा मैं है, और वह मूर्त्त नहीं है, इसलिए कम सच नहीं है, कम जीता नहीं है। शेखर तुम मुझे बहन, मां बेटा कुछ मत समझो क्योंकि मै अब कुछ नहीं हूँ। एक छाया हूँ – '' और अमूर्त्त होकर मैं '' तुम्हारा अपना आप हूँ, जिसे तुम नहीं दोगे।[8]

इस विवेचन से स्पष्ट होता है कि प्रेम और वासना ही वन मूल संवेदना और प्रेरणा है, जो शेखर के व्यक्तित्व को आन्दोलित तथा परिचालित करती है। शेखर के जीवन की सबसे बड़ी दुर्बलता नारी है। उसके संबधों को देखा जाए तो यही निष्कर्ष निकलता है कि उसने जितनी अधिक भावुकता के साथ जितनी बड़ी निष्कर्ष निकलता है कि उसने जितनी अधिक भावुकता के साथ जितनी बड़ी संख्या में नारी संबंधों को महत्ता दी है, उतनी पुरूष संबंधो को नहीं। यही उसकी परलिंगी कामुकता का शाश्वत एवं प्रत्यक्ष प्रमाण है। मां का अपवाद यदि छोड़ दिया जाए तो प्रत्येक नारी संबंध को एक साथ पाने,

उस पर अपने एकाधिपत्य का अप्रत्यक्षः अनुभव करने और उसके समीप्य में अधिक से अधिक समय गुजारने की उत्कट लालसा रही है। जबकि पुरूष पात्रों को उसने केवल विवशता में अथवा परिस्थितिवश ही महत्व दिया है।

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7

Role of Online Banking for Digitalization and eCommerce: A Case Study of Punjab National Bank, Arki Branch (District Solan, H.P.)

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Abstract

Banking is key bones for digitalization process. Digitalization is the process of converting physical transaction in digital format. After the revolution of digitalization in banking sector it is a new scope for e-commerce and online banking. Banks are not just a part our lives but it provides lot of other facilities for us like as online service and electronic dealing. In this study an attempt has been made to examine the role of online banking for digitalization and e-commerce. The secondary data was collected from Punjab national bank Arki branch Solan. The data based on 7000 customers who took the services from PNB bank. The objective of this study based on the PNB customers behaviour for online services and e-commerce motive of PNB service for digitalization, other impact made on PNB role for online services and employers effort to connivance the customers to take online services.
Keywords: online banking, e-commerce, digitization.

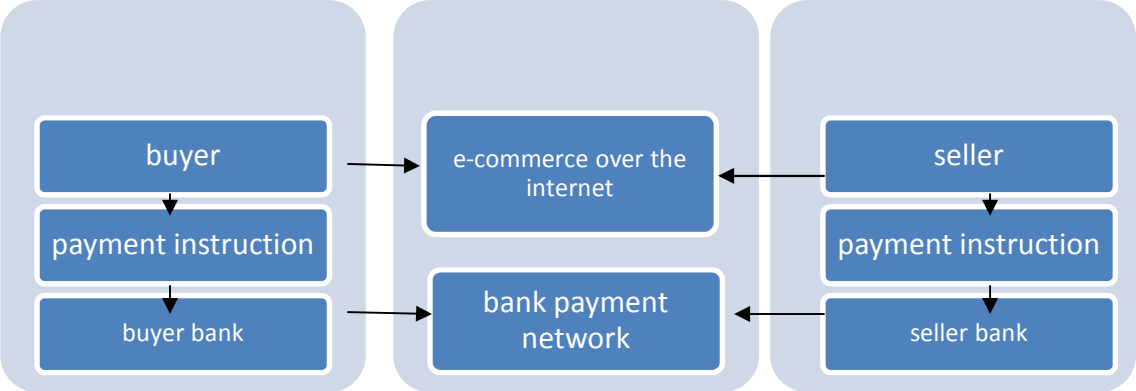
Introduction

Banks have benefited in several ways by adopting newer technologies, e-banking has resulted in reducing cost drastically Indian government is aggressively promoting digital transactions. The launch of united payment interface (UPI) and Bharat interface for money (BHIM) by national payment corporation of India (NPCI) are significant step for innovation in the payment systems domain. Today banks aim to provide fast, accurate and quality banking experience to their customers.

Banking industry has witnessed a huge change online shopping over the years and has adopted the automation method to make the process easy and faster. Digitization widely accepted by banking sector and has been successfully implemented. Digitization is process of converting data into digital format, the role of digital transformation in the banking industry is most important for digitalization

Online banking is a electronic payment system that enables customer of a bank to conduct a range of financial transaction. It is a part of core banking system; the online banking system will typically connect to digitalization. Internet banking portal provides personal banking, corporate banking, that gives us complete control over all banking demand online. Financial institutions now routinely allocate customers numbers whether or not customers have indicated an intention to access their online banking facility.

Banks are taking steps to expand the use of networking technology in their business operation like as business to consumer and consumer to business relationship by banking. Role of bank in e-commerce.



While it applies to any type of direct to consumer selling. It has come to be associated with online selling also known as e-commerce. E-commerce as its core to the purchase and sale of goods and service via electronic channel such as the internet categories of e-commerce like as B2B, B2C, C2B, C2C. Business to business this involves companies doing business with each other. B2C consist of business selling to the public through shopping cart software without needing any human interaction. C2B e-commerce post a project with a set budget online and companies bid on the project the consumer review the bids and select the company. C2C takes places with online classified advertisement, forums or marketplaces where individuals can buy and sell their goods examples of this are craigslist, ebay, etsy.

Banking role for digitalization, recently as five years ago, banks involvement with the internet was quite limited. A bank might set up a web site to provide consumers with information about its services actual banking transaction however still took places at the branch through the mail, by telephone or over the automated teller machines (ATM) network. Today scenario totally linked with banking system government provide direct facilities to people through bank like as gas subsidies , old age pension scheme, pension salary, etc. demonstration play a big role for digitalization, due to shortage of hard cash customer directly go for online shopping and online banking. Digital banking journey have been largely focused n adding the existing offering usine new technology – enabled services to increase the accessibility and value for customers. The most noticeable examples are mobile banking, e-wallet, google pay app paytm app etc. the current business priorities for banks in the digital world is to use the new establishment for increasing profitability and revenue. Customer convenience is the number one advantage of online banking. Like the traditional banks ATM, online banking is available 24 hour a day 365 days a year, however, you can do your banking from the comfort of your own home and this improve the time taken to process all the requests.

Review of Literature

Divya and padhmanabhan (2008) opined that internet banking is becoming is increasingly becoming popular because of convenience and flexibility. Factor analysis results indicate that

'utility request' , 'security', 'utility transaction', 'ticket booking' and ' fund transfer' are major factors out of total respondents more than 50% agreed that internet banking is convenient and flexible ways of banking. Grui anton (2014) opined that bunch of literature on the internet banking diffusion mainly with referring of individual level data on behavioural variable (particularly number of transactions and amounts of money kept in banking account). Analysis reveals that customers who adopt e-banking differ from other on such characteristics as age, income, activity and wealth in bank before the start of usage,. Digitalization being a key economic driver in the present world it is important to integrate the economy by creating digital markets firms. Prices and productivity are the three benefits derived by an economy. It is found in large economics internet accounts for about 3.4% of GDP on average along with stable employment generation. During global downturn 6 million jobs were created worldwide by the digitalization effects and 94% were from emerging economies and 6% from north America and western Europe. This showcases the potential of the digitization in creating employment opportunities. Researches show developing economies has more possibilities of gaining advantages of e-commerce than the developed economies as developing economies have wider scope of reducing inefficiencies and increase production. In India, increasing internet penetration, rapid technology adoption and high sale of technical gadgets like smart phones, tablets, etc, have led to an attractive online customer base and unprecedented growth of e-commerce. Domestic policies regarding telecommunication, financial services and distribution and delivery would provide inputs for e-commerce trade related negotiations studies show that 2.6 jobs are created by internet for every job lost for internet.

Statement of Problem

Banking services based on customer satisfaction. The traditional function of banking fulfill physical requirement of transaction now a scenario changed due to change in technology modern bank is fully based on internet. Internet banking provides a new opportunity for banks to expand their markets and services not only local level but world level. This study provide opportunity to know the PNB customers behaviour for online service and e-commerce also know about PNB employers convincing power to convince the customer for take online service.

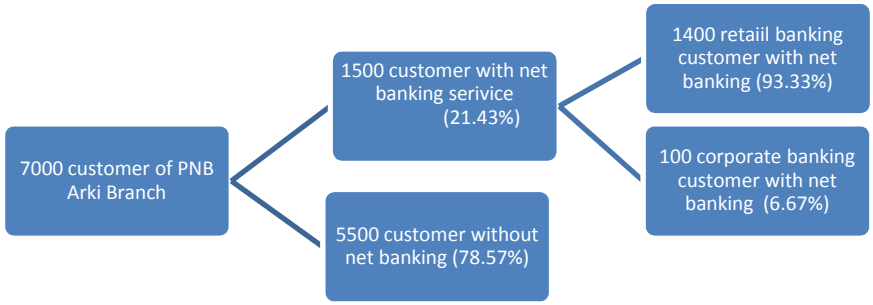
Objectives of the Study

1. To Examine the PNB services for online banking.
2. To identify the PNB role for online service and employees efforts to connivance the customers to taking online services.
3. To study the behaviour of corporate consumers for e-commerce

Methodology

The study is based on secondary data and primary data. The secondary source of data collected from PNB branch Arki district Solan in H.P other information collected through newspaper, magazines and primary data collective by personal interview of employees and 500 customers. The data tested through percentage and growth rate.

PNB Service for Online Banking



All the above information we can find that only few customers adopt PNB net banking service Various e-services provided by PNB bank like as BHIM, PNB kitty, PNB yuva, unified payments interface, retail internet banking , RTGS/NEFT/ECS/NACH, mobile banking, green pin-debit card, sms banking, missed call services, e-statement, PNB cash acceptor cum ATM, cash deposit machine, passbook updating machine, electronic cheque deposit machine, donation. Etc. all electronic services provided by PNB but only few services are covered by arki branch excluding pnb cash acceptor cum ATM, cash deposit machine, electronic cheque deposit machine, and donation. According to personal interview of respondents they ask that used net banking due to that it is a time saving process half of the retail consumer accept net banking for chip transaction and time saving process.

Employee Role for PNB Customer

Most of customers directly affected with PNB employees because banks requires a standard group of employees that includes tellers, customer service representative , book keepers, accounting clerks, loan officers and managers.

Tellers: when an individual walk into a bank than it is odd for first person to greet the visitor will be a teller. Tellers provide direct service to customers by accepting deposits cashing checks and exchanging currency. This bank employees typical duty also include receiving check order from customers and providing traveler checks, teller need excellent math skills to ensure accuracy in handling money. They are required to tally their cash drawers at the beginning and end of the workday.

Customer service representative: customer service representative assist customers in opening new bank accounts, modifying existing accounts and completing paperwork for products such as certificate of deposit , additional duties include answering questions about the banks product and services customer service representative may also be responsible for answering phone calls assisting caller or connecting them with the proper department

Bookkeepers and clerks: accounting, auditing and bookkeeping clerks maintain financial records for bank by posting financial transaction using computer software these clerks records for accuracy reconcile entries and balances and create reports from the data for example, and accounting clerk may regularly produce balance sheets for management from bank financial data. In small banks, a bookkeeper may be responsible for all the financial institution records larger banks may split the duties between accounting and auditing clerks

Loan officers: bank loan officers meet with applicants and help them complete loan applications loan officers answers questions about the different loan types the bank offers and explain contract provision once the application is completed, loan officers verify the information and evaluate the applicant potential to satisfy the loan terms. In some financial institution loan officers make the final decision on loan approval or denial. In other loan officers make only a recommendation and higher level executive make the final decision

Financial managers: in the banking business, financial manager examine financial report and prepare statement for upper management and owner. Financial manager often work in supervisory roles, managing other employees such as bookkeeping and accounting clerks, financial manager work closely with upper management advising on ways to reduce costs and increase profits.

Today we want to do any transaction with in less time like as apply for online loan application or onine open bank account but this type of facilities not available in Arki branch out 7000 PNB customers only few apply and used net banking facilities according this data we can analysis that many people are not aware about net banking and online banking. Maximum numbers of facilities not available in this branch and respondents review regarding employee behaviour negative. Customer feels hesitation for quires about any confusion. Mostly employees avoid to deal with customers due to hectic schedule 60 percent customer believe that the employees behaviour very rude at the time of quires but 40 percent customer fall under satisfactory results according to staff members of PNB due to hectic schedule they can't explain more time but they deal everyone despite of shortage of staff they handle properly.

Corporate Consumers' Behaviour for e-Commerce

Corporate consumer parts of business banking that refer the aspect of banking that deal with corporate customers. Corporate banking is a key of profit center of most banks but here situation are opposite because only 100 corporate customer registered in bank but they always given stress for taking the loan. It is necessary for corporate customer to open bank account because now days every business transaction are done by electronic mode. All income return and GST return done by electronic mode the refund redirect transfer in accounts. Bankers give full flexibility for withdraw and deposit amount abut area and scope of Arki branch for corporate customer very less due to less development of commercial activities

Conclusion

Online guidelines can't be provided for customers Punjab national bank internet banking can be taken from www.pnbindia.in or www.netpnb.com web sites but consumer are illiterate

they have no knowledge about these websites and functions. The role of PNB provides both registration facilities like as retail internet banking or corporate internet banking but only few consumer apply for this service because maximum of customers belong to rural areas they don't have any need to register in corporate and retail net banking services. PNB given facilities to customer for without bank help for open a net banking account but due to less awareness and illiterate about internet they can't do this. Bank provides debit and credit cards to customers but they feel hesitation about net banking and card payments. Customer thinks about online banking service are risky and unsafe.. The bankers given message about every transaction they can be done by online. Services about detail list has provides for customer. Mostly customers don't go for PNB banking because they feel that can't provide better services the goodwill of bank effected with Nirav Modi case.

Suggestion

The effort of employees will be focused on improving the reputation of bank image. In case of a customer with disability in facing any difficulty in receiving any services of the bank on that time customer should be contact with bank after that employees of bank treated him politely and guide him. The employee's effort should be imposed that they make you believe that online banking is sage and unrisky. PNB agent or call centre service agents are well versed to answer all the customer queries about digital transaction and online banking.

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Correlation in the Properties of Static and Rotating Compact Star within Extended Relativistic Mean Field Model

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Introduction

The efforts have been made to establish the empirical relationship between observable properties of static star with uniformly ro-tating star [1]. Many correlations have been calculated which correlate the static proper-ties with the keplerian properties of star. In present work we tried to correlate the static mass with the mass of star rotating with some frequency v.

Formalism

The different parametrizations of Extended Relativistic Mean Field have been generated by varying the ω meson self-coupling ζ and neutron skin thickness Δr for the ^{208}P b nucleus. These parametrizations have been obtained so as to reproduce the nuclear structure properties in finite nuclei and bulk properties of nuclear matter at nuclear saturation density [2]. In the present work we have employed BSR15 parametrisations of the Extended Relativistic Mean Field Model [2, 3], generated by choosing the ω meson self-coupling ζ as 0.06 and neutron skin thickness Δr for the ^{208}P b nucleus as 0.16. Further, the hyperon-meson coupling parameters are expressed in terms of the nucleon-meson coupling using the SU(6) model [2]. This parametrization is selected for this study as this parametrization produces a canonical mass ($1.4M_\odot$) at rest when composition is assumed to possess hyperons.

Result and Discussion

In Fig.1 we present the variation of mass with frequency. The blue circle present the mass calculated corresponding to respective frequency with including Hyperons in the calculations for BSR15 parametrization. On including hyperons into the calculation the mass and radius becomes $1.41M_\odot$ and 11.52 Km respectively at rest and it becomes $1.71M_\odot$ and 16.71 Km when rotating with keplers frequency, which is calculated to be 1108.39 Hz. The solid black line represent the best fit line given by the equation given by

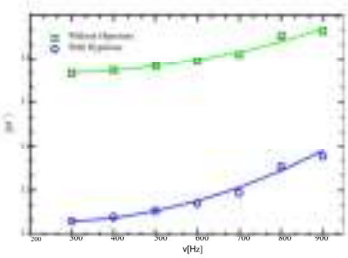

FIG. 1: The variation of compact star mass with frequency is plotted as blue circles(calculation with Hyperons) and green squares (calculation without hyperons). The best fit line for each case is plotted as solid black line.

$$M_v = a1 * v^2 - a2 * v + a3 * M_{static} \quad (1)$$

where M_v and M_{static} are mass of rotating compact star with frequency v and static mass (v=0) respectively. The values of a1, a2 and a3 are calculated from best fit line are $3.64\text{x}10^{-7}$,$1.73\text{x}10^{-4}$and 1.02 respectively This relation not only gives static mass but mass at all frequency upto keplers frequency.

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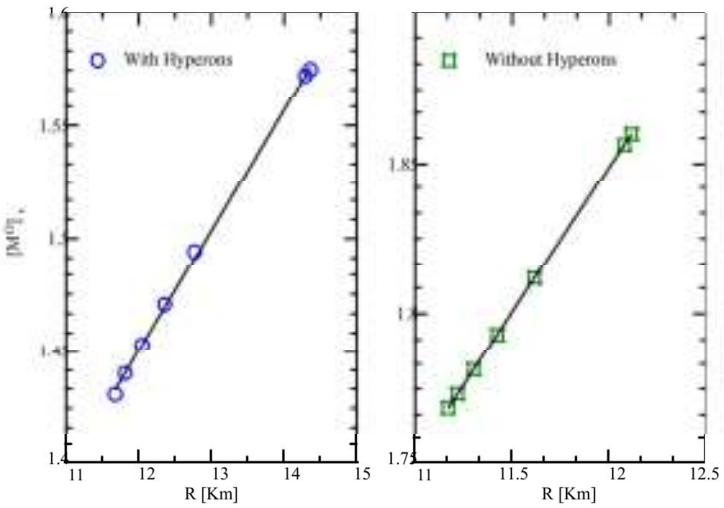

FIG. 2: The mass as a function of radius at different frequencies is plotted. The blue circles are masses calculated when hyperons included in calculation and green squares when heperons are not included. The best fit line in each case is represented by solid black line.

The green squares present the mass at different frequency without including Hyperons in calculation The BSR15 parametrisation yield a mass of $1.73M_{\odot}$ and radius of 10.92 Km at rest (v=0)and a mass of $2.09M_{\odot}$ and radius of 15.3455 when rotating with keplers frequency, which terns out to be 1374 Hz. The Solid black line represent the best fit line given by the same relation (1) but with a1, a2 and a3 as $2.26x10^{-7}$,$1.02x10^{-4}$and 1.04 respectively.

In Fig.2 we present the mass as a function of radius at different frequencies. The blue circles are mass calculated when hyperons in-cluded in calculation and green squares when heperons are not included. The best fit line is also plotted.The best fit line in each case is represented by solid black line.

The imperical relation between mass and radius is calculated to be

$$M_v = a1 * R + a2 \quad (2)$$

The values of a1 and a2 are found to be 0.054 and 0.81 for calculation with hypenons and 0.096 and 0.69 without hyperons respectively. Hence if static mass of a star is known then we can calculate the mass at any frequency using equation (1) and also respective radius using equation (2).

References

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Review Article

From Romance to Stark Realism of the Day: A Review of Gulzar's *Suspected Poems*

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Suspected Poems

By **Gulzar**, translated by Pawan K. Varma, Penguin Random House India, Gurgaon (Haryana), India, Pages 135, Price Rs 299, ISBN 9780670089611.

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Kanwar Dinesh Singh

The title of Gulzar's new collection of poems, *Suspected Poems*, translated from the original Hindi/Hindustani by Pawan K. Varma, is really intriguing. The first impression on a reader's mind would be that these poems might have censorious, offensive and unacceptable material, but after reading the poems one sits down mulling over some of the murky aspects of the socio-political system in India that is otherwise shining in our politicians' rigmaroles. The poet Gulzar brusquely turns away from romance to stark realism of the day. He brings to fore the acerbities of the present state of affairs in the country in a matter-of-fact tone, of course with the unusual ingenuity of his metaphors and wizardry of words. These new poems divulge the poet's conflict with hypocrisy, egotism and nonchalance of people in the present-day society. The present-day world is fraught with such ethico-moral chaos and nuisance that speaking the truth and being forthright is always at risk, and hence the title of the book is pertinent to that eventuality.

In this collection of 52 poems, both in Hindi and English, spread over 135 pages, we find moving, picturesque descriptions of certain harsh realities of the present-day Indian society. These poetic snippets bear scathing commentaries on issues of social injustice, crime, atrocity, oppression, exploitation, indifference and egotism prevailing in the country. Seemingly, these short pieces are journalistic accounts of social and political scenario, interspersed with the poet's remarks, ranging from sly sarcasm and satire to evident ire on several contemporaneous issues of (de)privation, indifference and discrimination. Gulzar finds monotony in everyday news, as no substantial transformation is discernible anywhere in the country: "It has been happening for fifty years— / It has happened again! / As though time has put a paan in his mouth / And continues to chew it!" (p. 11). He refers to the long-stretched problems of terrorism, floods, poverty and starvation accompanied by apathy of the government as well as the media: "These new pictures we saw even then / When there was no camera / This latest news / Must be consumed today and forgotten." (p. 11).

Gulzar often interlaces the past and the present of the country to recount the continual strife of the helpless/powerless commonalty against the non-concern of those at the helm of affairs. In "Newspaper", one can see him raking up the horrid times of the riots of 1984: "The Passport Commissioner looked up... / 'Any identification that cannot be erased?' / The Sikh thought for a few minutes / And then suddenly took off his shirt: / 'There is a burn mark, Sirji, / From '84. / This can't be erased!' (p. 15). The dreariness of the news media amplifies the angst of the poet: "How long can one munch / The chewing gum of daily statements? / Now one has come to learn: / Just spit it out / If the mouth can take no more." (p. 17).

Gulzar expresses his righteous anger at the sorry state of affairs in New Delhi, where only a war of words goes on between ruling and opposition parties and nothing substantial ever transpires. In the name of so-called freedom and democracy, the lawmakers of the country are actually betraying the trust of the people who have voted them into power:

> There's nothing new in New Delhi
> Except that every five years a new government comes in
> And converts old issues to new schemes...
>
> Opening scabbards anew
> They unsheathe again all the rusted laws
> That can cut neither grass, nor necks!
> (p. 3)

In "Shall We Talk about the Country", the poet refers to the historical wrongs, inhuman wars, cold-blooded massacres, foolish decisions, pointless divisions and partition blues, but nowhere is he specific. In an abstract manner, he presents a dismal image of India's past: as if nothing good has ever occurred on this land; as if no dream has ever come true; as if no hope has ever been fulfilled. In his desperate craving for a kind of utopia, he turns pessimistic:

> Hopes that drowned in whirlpools again and again
> Hopes, panting like wind in the sails
> Hopes and wants, murdered and looted
> Shall we talk about them again?...
> But how can we talk of a paradise
> That is not yet in sight?
> (pp. 6-7)

In "26th January", we come across the ironic image of a poor, polio-afflicted boy who is selling tricolour paper flags at the signal with fervour and hope: "'Two rupees for this tricolour, it's Public Day / Take one Seth, good for the country.'" (p. 9). The contrast between the affluent and the deprived here arouses pity for the helpless and hapless child. "Two Lakh Rupees" bears a carping remark about the paltry compensations paid by the authorities to the family of the poor ones dying in riots or calamities:

> If he knew that on his death
> His family would get two lakhs

That his death is priced so high
He would have died for himself!
(p. 35)

In "Shroud", dedicated to Madhav and Ghesu in Munshi Premchand's popular story, "Kafan", the poet articulates his inner rage at the sight of extreme poverty and starvation in the country, particularly against the hypocrisies displayed in the name of religious rites and philanthropy:

You are always worried about hunger;
Why sorry, there will be enough leftovers
At the ghat where they serve food as ritual
When dead bodies are burnt on the pyre.
(p. 43)

The following statement from the same poem, however, sounds derisive to the historical-cultural glory of India, famed as the Golden Bird: "What is there to be ashamed of in poverty? / Poverty is older than our culture!" (p. 43). At the same time, the poet also emphasises the worth of hard work and perspiration for the poor to make ends meet:

Just cut from somewhere a piece of sunlight
And stitch another patch to your garment
It will look like gold thread.
(p. 43)

"Traffic Jam" draws our attention to the everyday mess on all major roads of the country: "For seventy years I am caught in a traffic jam... / No one moves ahead, or steps aside." (p. 23).The human traffic is growing day by day and people are losing themselves in the crowd. There is no one to rue this loss: "His hand has slipped from my grasp / He is lost in the multitudes of this town / The search is on for the common man / A search for a person missing!" (p. 21).In fact, the common man has no right to be heard anywhere: "When he coughs, words fly around from his mouth... / Someone had asked him for his views / And then cut off his tongue!" (p. 29).

Today, the commonalty in India is divided in a number of small groups, which is a big threat to the integration of the country."The Wind Has Changed" depicts how the splintered groups hold their separate flags on the streets with their subjective agenda: "There is a change in the vision of the people / Fists are waving in the wind; / ... / The wind is blowing in a new direction / New flags have started appearing." (p. 27).The personified wind emblematises the franticness of some ground-breaking change at the democratic hustings: "That's what happens when flags flutter in the wind—/ The wind too flutters, clasping the flag!" (p. 27).

The poet acts as the spokesperson of the ordinary masses who have a plethora of problems to be solved, but they are devoured by the verbal vortex of the politicians' false promises and abstruse rationales: "I came back / Confused, who would solve whose problems!" (p. 59).The poem "Jalsa" is a hard-hitting pasquinade on the usual oration of Indian politicians,

"lengthier than the GT Road", which is attended by the ordinary masses, "A veritable *mandi* of those with nothing to do" (p. 51).The poet reacts to it: "you and I have two histories, both apart. / ... / I am hungry, let's bring this *jalsa* to an end!" (p. 53)."This Useless Grass", reminiscent of Walt Whitman's grass symbolism in *Leaves of Grass*, tells how the common people, despite their ghastly circumstances, survive like blades of grass with a persevere will to live on: "This meaningless, senseless and stubborn grass / It begins to grow from even the tiniest crevice it can find / In a rock." (p. 61).

Gulzar also takes up even the highly combustible issues of religion and caste. "Babri" derides the protest of two factions on useless, barren piece of land, which is today inhabited by "Families of vultures... / Amidst the heaps of garbage lying around" (p. 63). The contrastive imagery draws a parallel between the two belligerent groups of people pitted against each other for a daft claim:

> As the animals of dusk
> Fight for every bone of rotting limbs
> Whoever can sink their teeth in first
> Has the right over that piece of flesh.
>
> Who was the one who struck the first blow of the axe?
> Yes, this indeed is that piece of land
> Which till yesterday was also a home to some god!"
> (p. 63)

The partition of India has been the leitmotif in most of Gulzar's writings: it's conspicuous in his collection of short stories, *Raavi Paar and Other Stories*, and exists as an undercurrent through many of his poems. He seems to be miffed over irretrievable human loss that was incurred as a consequence of the reckless political decision on the basis of 'two-nation theory'. In "Kabaddi", he suggests a poetic (re)solution to problems from both sides of the 'line of control' between India and Pakistan: "If the border lines are there, let them be / ... / Let's use them now as dividing lines for a game... / Come, let's play kabaddi!" (p. 75). Even though it sounds puerile, it seems to work with the uncorrupted, crystal-clear spirit of a child as a means to fix the historical blunder committed by our leaders.

Through *Suspected Poems*, Gulzar emerges as an egalitarian, a democrat, a socialist, a libertarian, a communist, a dalitist and a humanist—all rolled into one. The diverse socio-political issues and 'isms' are more pronounced than verse or genuine poetic stuff: quite the converse of the highly imaginative-lyrical use of words what Gulzar is distinguished for. He has made a sudden detour from the romantic lyricism of the early years of his poetic/artistic career. As an affiliate of the Progressive Writers' Movement, he had displayed his leftist leanings through a criticism of Indian polity in his fiction and films as well. His film "Aandhi" was banned for a time for disparaging the then Prime Minister of India, Indira Gandhi, for imposition of emergency in the country. In "Half a Rupee: Stories", Gulzar thematised the volatile issues of insurgency, naxalism, riots and hostilities prevailing in some parts of the country.

No doubt, the professedly "suspected" poems document the real-world issues, but these are still humdrum everyday news, a bit incongruous with verse—sans promise of mental reprieve

and/or aesthetic delight one expects from poetry. The saving grace is Gulzar's exceptional way with words. But there is more verbal felicity in the original Urdu compositions than in their English renderings. The translator's work is sincere enough, but, at places, he appears to be at the mercy of words in handling the typical Urdu phraseology that has no equivalent or apt expression in English. The words and phrases such as 'shagun', 'maamool', 'supaari', 'mansoobe', 'zung-aalooda', 'baadbaanon mein', 'falak', 'kallemein', 'muntaqil', 'zaeef', 'vaadon ke luqme', 'zarda', 'qimam', 'khosha-e-gandam', 'aqeede', 'choli', 'tahzeeb', 'behis', 'laa-matnaahi taaqat' do not glow as much in English translation as they do in their original forms in Urdu. Some of the translations barely measure up to the impact of figurative, rhythmic and stylistic aspects / patterns and particular shades of meaning of the original phrases. Besides, the Devanāgari script used in the book needs scrupulous editing for spelling and diacritical marks for Hindi / Urdu words.

Overall, these poems may not be easy on the eye/ear or appealing to the heart, but they are certainly thought-provoking, and call for the attention of the government and the media as well as the public at large to certain fundamental issues of human concern.

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