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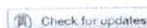
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PAPER



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Proton controlled synthesis of two dicopper(II) complexes and their magnetic and biomimetic catalytic studies together with probing the binding mode of the substrate to the metal center†

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This paper describes the synthesis, and structural and spectroscopic characterizations of two doubly bridged dicopper(II) complexes, $[\text{Cu}_2(\mu\text{-H}_2\text{L})(\mu\text{-OMe})][\text{ClO}_4]_2 \cdot 2\text{H}_2\text{O}$ (**1**) and $[\text{Cu}_2(\mu\text{-L})(\mu\text{-OH})][\text{ClO}_4]_2$ (**2**), with a binucleating ligand (HL) derived from the Schiff base condensation of DFMP and *N,N*-dimethyldipropylamine, and their biomimetic catalytic activities were related to CAO and phenoxazinone synthase using 3,5-di-*tert*-butylcatechol and *o*-aminophenol (OAPH), respectively, as model substrates. Structural studies reveal that the major differences in these structures appear to be from the distinct roles of the tertiary amine groups of the ligands, which are protonated in **1**, whereas it coordinates the metal centers in **2**. Magnetic studies disclose that two copper(II) centers are strongly antiferromagnetically coupled with slightly different *J* values, which is further interpreted and discussed. They exhibited very different biomimetic catalytic activities; whereas **2** is an efficient catalyst, complex **1** showed somewhat lower substrate oxidation. The higher reactivity in **2** is rationalized by the strong involvement of the tertiary amine group of the Schiff base ligand, where the substrate oxidation is favored because of the transfer of protons from the substrate to the tertiary amine group, showing the importance of the functional groups in proximity to the bimetallic active site. Emphasis was also given to probing the binding mode of the substrate using an electronically deficient tetrabromomocatechol ($\text{Br}_4\text{C}_6\text{H}_2$) and the isolated compound $[\text{Cu}_2(\mu\text{-HL})(\mu\text{-OH})][\text{Br}_4\text{C}_6\text{H}_2][\text{NO}_3]_2 \cdot 4\text{H}_2\text{O}$ (**3**) which suggests that monodentate asymmetric binding of 3,5-di-*tert*-butylcatechol and OAPH occurs during the course of the catalytic reaction.

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Introduction

The design and synthesis of di- and poly-nuclear transition metal complexes with various bridging ligands has been ongoing research interest worldwide mainly because of their significance in several fields including bioinorganic chemistry, catalysis, and molecular magnetism.^{1–3} In this regard, bi-comparmental phenolate containing ligands with symmetrical

and asymmetrical pendent arms at the 2- and 6-positions of the phenolic group deserve a special mention as they are involved in the vast development of coordination chemistry as is shown by the results reported in the literature.^{4–7} These arms can accommodate two similar or dissimilar transition metal ions, and hence produce both homo- or hetero-metallic transition metal complexes in which the metal centers are simultaneously bridged by the endogenous phenolate group together with one or two exogenous groups, such as hydroxide, carboxylate or pseudohalide ions.^{8–13} In these doubly or triply bridged dinuclear metal complexes, two metal ions are placed in close proximity in the range of 2.9–4.0 Å, and in many such compounds, the metal centers are coordinatively unsaturated or weakly bonded to substitutionally labile ions or groups.^{14–15} These structural features made these compounds attractive targets for mimicking the active site structures of various metalloenzymes, such as catechol oxidase (CAO),^{16,17} catalase,¹² urease,¹³ purple acid phosphatases,¹⁴ phosphotransferases and DNA nucleases,¹⁵ to elucidate the mechanistic aspect of the metalloenzymes and to establish the structure-

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Research paper

A comparative study of noncovalent interactions in various Ni-compounds containing nitrogen heteroaromatic ligands and pseudohalides: A combined experimental and theoretical studies

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ABSTRACT

Five mononuclear nickel(II) complexes, [Ni(NCS)₂(imz)] (1) and [Ni(NCS)₂(pyz)] (2), [Ni(NCS)₂(3-Clpy)] (3), [Ni(NCS)₂(3-Clpy)] (4) and [Ni(NCS)₂(3-Clpy)] (5), where imz, pyz, 3-Clpy and 3-Clpy are imidazole, pyrazole, 3-hydroxypyridine and 3-chloropyridine, respectively, have been synthesized and characterized by X-ray crystallographic studies to explore the role of different heteroaromatic ligands and pseudohalides in the crystal packing. The noncovalent interactions witnessed in the crystal packing of these complexes have been well-defined focusing on the recurrent π -stacking motif, leading to the π -stacked dimeric assemblies. Besides, noncovalent interactions such as $N-H\cdots N$, $N-H\cdots \pi$, $\pi\cdots\pi$ along with both conventional and nonconventional hydrogen bonding interactions play important roles in the stabilization of these complexes in the solid state. The energetic features of the π -stacking and the importance of additional noncovalent interactions towards cooperatively formed π -stacking dimers were investigated using DFT calculations in combination with the quantum theory of atoms in molecules (QTAIM) and noncovalent interaction plot (NCI plot) index computational tool. Remarkably, the aromatic ligands (imidazole, pyridine) through coordination generate favourable antiparallel orientation of the dipoles (180°) in the dimeric form of complexes 1, 3, 4 and 5, and thus exhibit strong π -stacking interaction in comparison to complex 2 (pyrazole) in its dimeric form with the perpendicular orientation of dipoles. This study may provide further insight into elucidating the role of weak noncovalent interactions in the supramolecular assemblies of metal-containing compounds.

1. Introduction

Noncovalent interactions give rise to various solid state architectures and play a crucial role in catalysis, crystal engineering, pharmaceutical drug design, molecular biology, molecular recognition, materials, etc. [1–7]. Among different weak interactions, hydrogen bonding and π - π stacking interactions are the most important ones which operate both in solution and in solid-state, useful for self-assembly and molecular recognition processes [8,9]. They are present in nucleic acid [10,11] and protein structures [12,13] and they have wide application in the field of crystal engineering [14], materials science [15], drug design [16], etc. The π - π interaction involving aromatic rings can present in diverse ways such as, stacked arrangement (face-to-face, slipped), edge- or point-to-face and T-shaped conformation. Substituents attached to aromatic rings further increase the stacking interactions [17–24]. Here, direct interaction between a substituent (electron withdrawing or electron donating) of one ring and a closest part of the other ring is observed [22]. Stacking interactions are further increased in presence of the metals. Therefore, metal-chelate rings exhibit stronger stacking interactions in comparison to free organic aromatic rings [14,25,26].

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Impact of Positional Isomers on the Selective Isolation of *cis-trans* Isomers in Cobalt-Dioxolene Chemistry and Solvation Effects on the Valence Tautomerism in the Solid State

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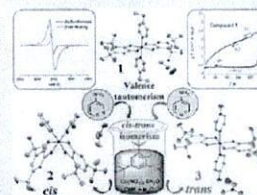
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ABSTRACT: Three new mononuclear cobalt compounds—*trans*-[Co(3,5-dbcac)(3,5-dbsq)(4-EtPy)]·CH₃CN (1), *cis*-[Co(3,5-dbcac)(3,5-dbsq)(3-NH₂Py)]·DMF (2), and *trans*-[Co(3,5-dbcac)(3,5-dbsq)(4-NH₂Py)]·2DMF (3) (where 3,5-dbcac[−] and 3,5-dbsq[−] stand for 3,5-di-*tert*-butyl-catecholate and 3,5-di-*tert*-butyl-semiquinonate, respectively), derived from a redox-active *o*-dioxolene ligand in the presence of 4-ethylpyridine (4-EtPy), 3-aminopyridine (3-NH₂Py), and 4-aminopyridine (4-NH₂Py), respectively—have been synthesized and investigated with a view to examine possible influence of pyridine derivatives and solvation on the valence tautomeric (VT) process. Single-crystal X-ray diffraction data for all compounds at room temperature suggest Co(III)(3,5-dbcac)(3,5-dbsq) charge distribution in these complexes. Further insight into the crystal structures discloses the diverse non-covalent interactions offered by the isomers of aminopyridine in 2 and 3, leading to the first example of selective isolation of *cis* and *trans* isomers in cobalt-dioxolene chemistry induced by the positional isomers of the ancillary ligands. Variable temperature magnetic susceptibility data for all compounds between 2 K and 300 K are consistent with the structural studies. At elevated temperatures, complex 1 exhibits a VT interconversion from low spin Co(III)-(3,5-dbcac)(3,5-dbsq) to high spin Co(II)-(3,5-dbsq)(3,5-dbsq), triggered by the loss of lattice solvent molecules, while a partial interconversion is observed for complex 3, even heating up to 430 K. The present report overall highlights the impact of positional isomers on the selective isolation of *cis-trans* isomers in cobalt-dioxolene chemistry and solvation effects on the valence tautomerism in the solid state.



INTRODUCTION

Molecular materials that can be reversibly switched between distinguishable states are of great interest in the scientific community. The molecular switchable compounds are particularly attractive, because of the feasibility of fine-tuning in the chemical architecture, which allows tailor-made applications, such as sensors, information storage devices, or use in the field of molecular electronics.^{1–10} Molecule-based systems that exhibit an intramolecular electron transfer (IET) phenomenon can be switched between isomers with different electronic states.^{11–17} Valence tautomerism is also a specific phenomenon that involves a stimulated and reversible intramolecular electron transfer between a transition metal and a redox-active ligand.^{18–20} So far, octahedral cobalt complexes with redox non-innocent dioxolene ligand are the most popular family of valence tautomeric (VT) complexes, particularly those involving 3,5-di-*tert*-butyl-dioxolene (3,5-dbtiox) and nitrogen-donor ancillary ligands.^{21–23} In these systems, an intramolecular electron transfer occurs between two redox isomers that exhibit low-spin (ls) Co(III)-catecholate (cat^{2−}) at low temperature, while the high-spin (hs) Co(II)-semiquinonate (sq^{•−}) state is favored at higher temperatures.^{21,24} Thermally and optically induced VT

transitions are the most common, while the influence of pressure,²⁵ soft X-rays,^{26–28} and magnetic field²⁹ on VT transitions have also been reported but to a lesser extent.

After the discovery of the first VT cobalt-dioxolene complex,¹⁰ [Co(III)(3,5-dbtiox)(3,5-dbsq)(2,2'-bpy)] (where 2,2'-bpy is 2,2'-bipyridine), most of the other VT bis(*o*-dioxolene)cobalt complexes have been reported by replacing the 2,2'-bpy ligand with other bidentate *N,N*-donor ancillary ligands. Such complexes always adopt the *cis* orientation of the *N*-donor atoms, because of the structural restraints. By employing monodentate *N*-donor ligands in place of bidentate *N*-donor ligands, the *trans* arrangement of the ancillary ligands can be achieved and several such reports are available in the literature.^{41–43} Most of these complexes exhibit VT transitions in the solid state, where intermolecular interactions between the chemical moieties, packing effect, and solvation effect

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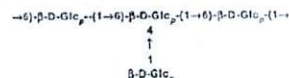


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Abstract: Polysaccharides from mushrooms have drawn the attention of chemists and immunobiologists on account of their immunological properties. Taking into account the usefulness of mushroom polysaccharides as immunomodulators and with a view to studying the immunological parameters, structural and some biological study of a glucan isolated from the fruiting bodies of *Pleurotus sajor-caju* were carried out. A polysaccharide was isolated from the fruiting bodies of the mushroom *Pleurotus sajor-caju* by hot alkaline extractions. The size exclusion chromatograms presented a single peak showing a molecular weight of 155 kDa. On the basis of acid hydrolysis, methylation analysis, and NMR analysis (^1H , ^{13}C , HSQC), the structure of the polysaccharide was established. The polysaccharide was composed of glucose and mannose. The methylation analysis showed that the units were (1 \rightarrow 4), (1 \rightarrow 6)-linked. ^1H NMR spectroscopy revealed that the linkages were of β -type. The polysaccharide was composed of a repeating unit with a structure as below:



This polysaccharide possesses macrophage activity on mouse monocyte cell line.

Key words: *Pleurotus sajor-caju*; Polysaccharide; Structure; NMR; Macrophage activity.

Carbohydrates have demonstrated to possess interesting biological properties in terms of the prevention and treatment of common diseases. Several polysaccharides showing a β -glucan type structure are considered as valuable biological response modifiers (BRM) for their ability to enhance the immune cells and thereby help to prevent infections¹. Mushrooms can be considered

as a valuable source of bioactive carbohydrates. In this field, several polysaccharides and bioactive carbohydrates have been extracted². Thus, the polysaccharides from several species, such as *Ganoderma*, *Lentinus*, *Agaricus* and *Pleurotus*, have been widely studied¹⁴. Different structural patterns have been found within the polysaccharides extracted from mushrooms. In this field, it is generally accepted that the β -(1 \rightarrow 3), (1 \rightarrow 6)-linked carbohydrates play an important role in enhancing the antitumor and the immunomodulatory effects^{7,8}. Furthermore, other structural features, such as the (1 \rightarrow 4), (1 \rightarrow 6) moiety found in several fungal species⁹, have also demonstrated to enhance the immune system¹⁰. *Pleurotus sajor-caju* is commercially available in large scale near Midnapore city during the period of December-January. The alkaline extract (4% NaOH) of this edible mushroom was found to consist of D-glucose only. With a view to studying the structural as well as immunological properties of this macromolecule, a detailed structural characterisation of this polysaccharide, isolated from *P. sajor-caju* was carried out and described in this paper. The isolation and purification of polysaccharides are described together with the elucidation of the structural features by NMR analysis.

Results and Discussion: Polysaccharides were extracted from the fruiting bodies of the mushroom *Pleurotus sajor-cajú* as previously described for other mushrooms.^{11,12} The molecular weight of this fraction was estimated from a calibration curve prepared with standard dextrans¹³ as 155 kDa. The determination of the chain composition by GC-MS after acid hydrolysis showed that the polysaccharide was composed of glucose, which indicated the presence of glucan-like polysaccharides. The results indicated the presence of 1,5,6-tri-O-acetyl-2,3,4-tri-O-methylglucose; 1,4,5,6-tetra-O-acetyl-2,3-di-O-methylglucose and 1,4,5-di-O-acetyl-2,3,4,6-tetra-O-methylglucose in a molar ratio 2:1:1. The methylation data suggested that the polysaccharide mainly consisted in a linear (1→6)-linked polysaccharide with (1→4)-linked side chains at O-4. In order to get more insight into the chemical structure of the polysaccharides extracted from the

of Bose Institute, Kolkata, is acknowledged for recording NMR spectra. The author is also grateful to Prof. Syed Sirajul Islam, Dept. of Chemistry, Vidyasagar University for his continuous support.

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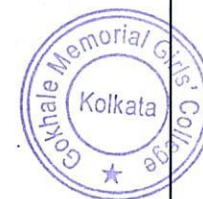
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Comparative Efficacy of Behavioural and Multimodal Interventions on Trait Anxiety and Parenting Style of Parents of Children With ADHD

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ABSTRACT

Objective: The study explored the comparative efficacy of behavioural and multimodal interventions in influencing trait anxiety and parenting style of parents of children suffering from Attention Deficit Hyperactivity Disorder (ADHD).

Method: 20 participating ADHD families consisted of biological parents and having one child meeting DSM-5 ADHD Combined Type criteria were selected. Children included aged between 6 and 10 years. Half of the participants received behavioural intervention (Group A) and rest received multimodal intervention (Group B). Initially baseline assessment was done, followed by intervention (10 sessions) and finally post-intervention assessment was conducted. Pre-post treatment change was then statistically analyzed.

Results: Statistical analysis using Wilcoxon-Signed Rank Test revealed both parents following multimodal intervention showed significant improvement from the baseline measures in the trait anxiety level. Mothers of ADHD children showed significant improvement in balanced parenting style following multimodal intervention. Fathers of ADHD children showed significant increase in 'perfectionistic supervisor' parenting style and decrease in the 'avoider' parenting style measure following multimodal intervention.

Keywords: ADHD; behavioural intervention; multimodal intervention; trait anxiety; parenting style

INTRODUCTION

Children's mental health covers a wide range of disorders. ADHD is the most commonly diagnosed neurodevelopmental disorder of childhood (Polanczyk et al. 2007). The core symptoms of the disorder include a developmentally inappropriate level of motor restlessness, inattention and impulsiveness that are present in childhood and can persist into adulthood (American Psychiatric Association, 2013). The high prevalence of ADHD is a growing public health concern because the behavioural symptoms of the disorder is a pervasive and debilitating condition that seriously affects learning and academic achievement as well as social functioning. Investigators have asserted that the child's ADHD is the primary determinant of parenting stress (Barkley et al., 1990). Living in a family with a child having ADHD impacts the whole family both inside the family sphere and socially (Moen et al., 2016). Foley (2011) described a higher level of family dysfunction in families with children having ADHD.

Parenting an ADHD child is a challenging task; parents often perceive their child's future as uncontrollable and unpredictable which increases parental anxiety level. Campbell et al., (1978) found a bidirectional interaction between the child's temperament and parenting behaviour; difficult to ascertain whether negative parenting causes ADHD or ADHD symptoms that caused difficult parenting. Parents of children with ADHD are more likely to adopt authoritarian parenting style (Yousef et al., 2011) that make greater use of negative parenting strategies combined with low levels of emotional support and responsiveness (Khamis, 2006). A study conducted in India by Dutta and Sanyal (2016), found a significant positive correlation between trait anxiety and family pathology of parents of children with ADHD; mothers of children with ADHD had increased trait anxiety level and family pathology score compared to fathers of ADHD children.

Conventional treatments available for patients with ADHD other than medications includes educating family members about how to cope with symptoms to more formal behaviour modification interventions. However, several research findings suggest that since ADHD is a chronic, multifaceted disorder, such interventions must be lengthy and intensive, thus require a great deal of time and energy. Whereas, multimodal or multicomponent-behaviour therapy aimed to provide holistic-based care.

The present research focused on using both behavioural and multimodal therapeutic interventions to find out the pre-post treatment change of the two modes of interventions in influencing the trait anxiety and parenting style of parents having ADHD child which in turn might help in improving the family ambience and reducing the sufferings caused by the disorder.

Research Question 1:

How the two different modes of interventions affect the parental trait anxiety level?

Research Question 2:

Is there any pre-post treatment change on parenting style of parents of children with ADHD?

METHOD:

Participants:

This was a cross-sectional study involving parents having children diagnosed with ADHD. The 20 participating ADHD families consisted of biological parents and having one child meeting DSM-5 ADHD Combined Type criteria (APA, 2013) were selected. The Children included aged between 6 and 10 years; of average intelligence; referred from local Kolkata-based psychiatrists in private practice. They were matched in regard to the proportion of boys and girls. All children were diagnosed by the psychiatrist as well.

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Minimal and nonminimal universal extra dimension models
in the light of LHC data at 13 TeVAvriish,^{1,2,*} Kartiman Ghosh,^{1,2,†} Tapoja Jha,^{1,2,‡} and Saurabh Niyogi^{1,§}¹Institute of Physics, Sachivalaya Marg, Bhubaneswar, Odisha 751005, India²Homi Bhabha National Institute, Training School Complex, Anushakti Nagar, Mumbai 400085, India³Gokhale Memorial Girls' College, University of Calcutta

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Universal extra dimension (UED) is a well-motivated and well-studied scenario. One of the main motivations is the presence of a dark matter (DM) candidate, namely the lightest level-one Kaluza-Klein particle, in the particle spectrum of UED. The minimal version of UED (mUED) scenario is highly predictive with only two parameters, namely the radius of compactification and cutoff scale, to determine the phenomenology. Therefore, stringent constraint results from the WMAP/PLANCK measurement of DM relic density (RD) of the Universe. The production and decays of level-one quarks and gluons in UED scenarios give rise to multijet final states at the Large Hadron Collider (LHC) experiment. We study the ATLAS search for multijet plus missing transverse energy signatures at the LHC with 13 TeV center-of-mass energy and 139 inverse femtobarn integrated luminosity. In view of the fact that the DM RD allowed part of mUED parameter space has already been ruled out by the ATLAS multijet search, we move on to a less restricted version of UED, namely the nonminimal UED (nmUED), with nonvanishing boundary-localized terms (BLTs). The presence of BLTs significantly alters the dark matter as well as the collider phenomenology of nmUED. We obtain stringent bounds on the BLT parameters from the ATLAS multijet plus missing transverse energy search.

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I. INTRODUCTION

After almost a decade long running, the Large Hadron Collider (LHC) collected and analyzed 139 fb⁻¹ integrated luminosity data along with a boasting discovery of the Higgs boson [1,2], confirming the mechanism behind masses of the weak gauge bosons and fermions of the Standard Model (SM). Numerous analyses of the LHC data in a variety of channels establish the predictions of the SM on firm footing [2]. Nonetheless, the existence of the Higgs boson brings forth other questions in terms of the stability of its mass, etc. On the experimental front, the evidence of neutrino oscillation, and hence the presence of tiny neutrino masses, casts a shadow over the SM. One can, in principle, solve this problem by incorporating right-handed gauge singlet neutrinos and assigning additional Yukawa terms in

the SM, provided the mass hierarchy in the SM fermion sector is acceptable. A rather more daunting task is to incorporate the idea of a new weakly interacting massive particle in the theory in order to explain certain pressing cosmological as well as astronomical evidences in the name of dark matter (DM). Such inadequacies of the SM lead to plenty of novel theories that would come down to the SM at an appropriate limit.

The invocation of theories with extra spatial dimension(s) is of interest for a number of reasons. The most profound ones are the stability of the Higgs boson mass and the related hierarchy problems that were successfully explained by the Arkani-Hamed–Dimopoulos–Dvali model [3,4] and later by the Randall–Sundrum [5,6] model. Extra-dimensional theories can also achieve a light neutrino without introducing any heavy mass scale [7], the unification of gauge couplings [8], and can also account for hierarchies present in the SM fermion masses [9]. Among a variety of extra-dimensional frameworks, we confine ourselves to a particular variant, called the universal extra dimension (UED) model(s), where all the SM fields are allowed to propagate into the space(s) beyond the usual 3 + 1-dimensional space-time [10–12]. Of course, there are other prospects of working with such frameworks, such as electroweak symmetry breaking without invoking a fundamental scalar [13], a cosmologically

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Tuneable structures and magnetic properties of pseudohalo-bridged dinuclear Ni(II) complexes derived from $\{N_4\}$ and $\{N_3O\}$ donor ligands†

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Tetradentate ligands with $\{N_4\}$ -donor (L^1 and L^2) and $\{N_3O\}$ -donor (HL^3) groups prepared from a traditional Schiff base condensation reaction of *N,N*-dimethylpropylenetriamine with pyridine-2-aldehyde or 2-acetylpyridine or 3-ethoxycarbonylaldehyde, respectively, were used to react with Ni(II) salts in the presence of different pseudohalide ions, resulting in six new Ni(II) dimers with different bridging modes: $[Ni_2(L^1)_2(\mu_2-N_3)(ClO_4)_2]$ (1), $[Ni_2(L^1)_2(\mu_2-N_3)(ClO_4)_2]$ (2), $[Ni_2(L^1)_2(\mu_2-N_3)(ClO_4)_2]$ (3), $[Ni_2(L^1)_2(\mu_2-N_3)(ClO_4)_2]$ (4), $[Ni_2(L^1)_2(\mu_2-N_3)(ClO_4)_2]$ (5) and $[Ni_2(L^1)_2(\mu_2-N_3)(ClO_4)_2]$ (6). Their structures and magnetic properties have been studied and discussed. Double end-to-end (EE) and end-on (EO) bridging modes were observed for both the azide and cyanate ions in these complexes. While the EE or EO azido-bridged Ni(II) compounds are quite common, the doubly EE or EO cyanate-bridged dimeric Ni(II) complex 2 was quite rare. Furthermore, we observed that in complex 4, the double azido bridges cross each other to form a rarely observed twisted boat-type arrangement of the $(Ni_2L^1_2N_6)$ core, which leads to ferromagnetic interaction through the EE azido bridges. According to the present results, the introduction of different bridges and bridging motifs affords overall diverse magnetic interactions in these Ni(II) dimers, which has been discussed and rationalized in terms of previous literature reports.

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Introduction

Synthesis of di- and poly-nuclear transition metal complexes with bridging pseudohalides is still attracting considerable research interest worldwide because of their structural diversities and rich magnetic properties.^{1–6} In this context, the magnetochemistry of pseudohalo-bridged Ni(II) complexes has been extensively studied because of the presence of significant magnetic anisotropy in Ni(II) ions, arising from the second order spin-orbit coupling, in addition to the possible high spin ground states originating from the ferromagnetic coupling between the metal centres through the bridging

pseudohalides.^{7–9} Among all the pseudohalides, the azide anion is of special interest. It is well established that the azide ion with an end-on (EO, $\mu_{1,1}$) bridging mode provides ferromagnetic (F) interaction, while end-to-end (EE, $\mu_{1,3}$) azide usually transmits antiferromagnetic (AF) coupling between Ni(II) ions.¹⁰ Besides the azide anion, dicyanamide and cyanate ions are also frequently encountered in molecular magnetic materials. The $\mu_{1,3}$ -dicyanamide (dca) bridges mediate mostly a very weak AF interaction between Ni(II) centres, while the $\mu_{1,3}$ -mode of dca transfers moderate AF interactions, leading to some long-range magnetic materials.^{11–15} The cyanate ion, on the other hand, propagates magnetic interaction between Ni(II) centres in a similar fashion to that of the azide ion but weakly and there is a scarcity of reports of such Ni(II) compounds in the literature.^{16–22} In addition, unlike the azide ion, an experimental magneto-structural correlation is yet to be established for cyanate-bridged Ni(II) systems.^{23,24}

Magnetically speaking for all these pseudohalides, their controllable specific bridging modes are of great value to dictate the desired magnetic properties of the resulting molecular compounds. A better understanding of the stereo-electronic factors governing the magnetic exchange interaction between metal ions through the bridging pseudohalides would enable us to design Ni(II) clusters with

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† Electronic supplementary information (ESI) available: CCDC 2059603–2059606 contain the supplementary crystallographic data for 1–4, respectively, in the form of a CIF file. For ESI and crystallographic data in CIF or other electronic format see DOI: 10.1039/d1ce00202c

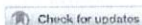
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A novel triple aqua-, phenoxo- and carboxylato-bridged dinickel(II) complex, its magnetic properties, and comparative biomimetic catalytic studies with analogous dinickel(II) complexes†

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Amrita Saha^e and Anangamohan Panja^{a,*,†}

This paper describes the synthesis and structures of three dinickel(II) complexes, namely $[\text{Ni}_2(\mu\text{-L})(\mu\text{-OH})(\text{H}_2\text{O})_2(\text{ClO}_4)_2]$ (**1**), $[\text{Ni}_2(\mu\text{-H}_2\text{L})(\mu\text{-OH})(\text{NCS})_2(\text{NCS})]$ (**2**), and $[\text{Ni}_2(\mu\text{-HL})(\mu\text{-OBz})(\mu\text{-H}_2\text{O})(\text{OBz})(\text{ClO}_4)_2 \cdot 2.5\text{H}_2\text{O}]$ (**3**) (where HOBz = benzoic acid), with an end-on/off compartmental ligand (HL) obtained via the Schiff base condensation of 2,6-diformyl-4-methylphenol and *N,N*-dimethylpropyleneetriamine in methanol. Structural characterization reveals that both **1** and **2** are phenoxo- and hydroxo-bridged compounds, while complex **3** is a unique triple aqua-, phenoxo- and carboxylato-bridged dinickel(II) complex. Although similar bridging patterns to that found in **3** are known, the combination of aqua-, carboxylato- and phenoxo-bridging in a dinickel(II) complex has not been reported in the literature. Variable temperature magnetic susceptibility analysis reveals that the two nickel centres are antiferromagnetically coupled, with J values ranging from -12 to -143 K, in these complexes. The phenoxazinone-synthase-like activities of these complexes have been investigated using *o*-aminophenol as a model substrate in a methanol medium, as this area is yet to be explored for nickel(II) systems. Mass spectrometry and EPR spectroscopic studies were further carried out to gain insight into the course of the reaction, and the reactivity trend has been further explored. The present work highlights the novel triply bridged dinickel(II) complex and its magnetic properties and demonstrates a comparative biomimetic catalytic study relating to phenoxazinone synthase.

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Introduction

The synthesis and structural studies of transition metal complexes with a variety of bridging ligands still attract considerable research interest worldwide, mainly because of their relevance in biological systems, catalysis, and molecular magnetism.^{1–3} The literature has witnessed the vast development of studies on the coordination chemistry of compartmental ligands that consist of two symmetrical or asymmetrical pendent arms at the 2- and

6-positions of a phenolic group. These ligands are capable of producing both homo- and hetero-metallic phenoxo-bridged dinuclear transition metal complexes in which metal centres are simultaneously bridged by the phenolate group.^{4–7} In some cases, the presence of additional bridges, such as hydroxide, carboxylate, and pseudohalide ions, may lead to doubly or triply bridged dinuclear metal complexes in which two metal ions are placed in close proximity of $2.9\text{--}4.0$ Å.^{8–15} In many of these compounds, the metal centres are coordinatively unsaturated and/or bonded with substitutionally labile ions or groups, making these types of compounds attractive candidates for biomimetic studies; consequently, they have been extensively employed in the structural and functional modelling of various metalloenzymes, like catechol oxidase,^{16,17} catalase,¹⁸ urease,¹⁹ purple acid phosphatases,²⁰ phosphoesterases, and DNA nucleases,²¹ to gain insight into the mechanistic aspects of metalloenzymes. In addition to modelling the structures and functions of the active sites of metalloenzymes, these compounds could provide a large number of ferro-/antiferromagnetically coupled discrete dinuclear metal complexes; this could help to provide insight into the fundamental aspects of

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RESEARCH ARTICLE




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DYSTOPIAN TURN IN POST- INDEPENDENCE INDIAN FICTION IN ENGLISH,
READING ADIGA'S *THE WHITE TIGER* AND *BETWEEN THE ASSASSINATIONS*

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ABSTRACT

The writings of Aravind Adiga have always remained committed to the portrayals of Indian society that is fraught with socio- economic and caste conflict and discrimination. Historically speaking this society is the result of the onslaught of a change that took place with the adoption neo-liberal capitalism, industrialization and globalization in post colonial modern India. The plight of the lower caste, the poor, the down trodden and the marginalized reflect a social reality in which any hope of crossing the boundary proves futile. And when it happens it comes at a heavy cost. The struggle of young children, youth and millions of Indian poor people are all real and presents a society devoid of the promise and hope present in ancient Indian society. Thus Adiga's portrayal of society seems to take a dystopian turn. This paper intends to highlight to what extent most of Adiga's fictions have traversed a dystopian territory in Indian context.

Keywords: *Discrimination, Neo-Liberal Capitalism, Marginalized, Social Reality, Dystopian.*

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Raj Kumar Barman



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IMPACT OF CLIMATIC HAZARDS ON FOLK CULTURE OF SOUTH BENGAL, INDIA

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Abstract: Natural hazards have caused extensive loss of life, as well as damages to physical facilities such as buildings and infrastructure, and have as a result had a detrimental impact upon the socio-economic conditions of affected communities. West Bengal, fourth most populous state of India, has been no exception as far as sufferings caused by extreme events are concerned. Southern part of the state has been suffering from frequent cyclones, floods, droughts and sometimes earthquakes and tsunami. Vulnerability scenario appears to be worsening over time in this region due to high population density and concentration of industrial and agricultural activities across the region with increasing developmental activities. Most of the studies on natural disaster in West Bengal are related to the nature of hazards, its impact on economy and society and disaster management. But one can't deny the impact of natural hazards and disasters on folk culture of different parts of South Bengal.

Keywords: Disaster, Folk Culture, Natural Hazard.

I. Introduction

The concept of 'hazard' and 'disaster' is dynamic. The study of natural hazards involves many disciplines but principally geography and other geophysical disciplines. Many scholars have tried to define it from different perspectives. John Oliver (1980, p. 3) defined disaster as a part of the environmental process, but as a phenomenon that occurs when human systems intersect with the hazard creating major "human hardship with significant damage". Peck and Miles (2002, p. 512) see disasters produced when extreme events in the natural environment "interact [with] the natural, social and constructed environments." McEntire (2015, p. 3) defines disaster in relationship to underlying hazards but underscores that they are significant disruptive social events that require changes in routine behaviors [1,2]. From the above definitions it is clear that the concept is mainly related to nature, society and behaviour.

West Bengal is not only a populous state of India but its physiographic, climatic and cultural variation is remarkable. Southern part of the state frequently experiences some natural hazards like flood, drought, hailstorm, cyclone and sometimes earthquake and tsunami [3]. This region has also some old traditions and folk culture. Many of those are directly related to the nature particularly with natural hazard. The present study deals with the impact of natural hazards on folk culture of this region.

II. Literature survey

'Cyclone Hazards and Community Response in Coastal West Bengal: An Anthro-Historical Perspective' by Arabinda Samanta (1997) deals with the impact of cyclone hazard on society and culture of coastal people of West Bengal. Coastal belt of Bengal is a most vulnerable region because of its repeated exposure to cyclone hazards which cause severe damage to human life, property and flora. However, the residents of the region refuse to migrate elsewhere unless they are forced, or rendered completely homeless. Though social tensions do arise due to discrimination in the relief work, cyclonic disasters generally act as a social-leveller and a social cement, enabling the victims to continue to reside in the land of their deceased ancestors.

Very often archaeologists and earth scientists have simply assumed that the occurrence of extreme natural events means that they were the prime movers in cultural change without demonstrating that the latter was solely or largely dependent on the former. The overall aim of the book 'The archaeology of disasters: past and future trends' by R. Torrence and J. P. Grattan (2002) is to critically examine the role of extreme environmental events in causing cultural change. The authors have deliberately taken a sceptical point of view and have carefully examined the evidence in order to distinguish between coincidence and dependence.

Frank Furedi (2007) in his article 'The changing meaning of disaster' deals with how adverse events such as disasters are interpreted through a system of meaning provided by culture. This paper explores the changing conceptualization of adversity. It suggests that the shift from the expectation of resilience to that of vulnerability is best understood as an outcome of a changing cultural conceptualization of adversity.

'Culture and Risk: Understanding the Socio cultural Settings that Influence Risk from Natural Hazards' a synthesis Report from a Global E-Conference organised by ICIMOD and facilitated by the Mountain Forum was prepared by Kenneth Hewitt (2008).

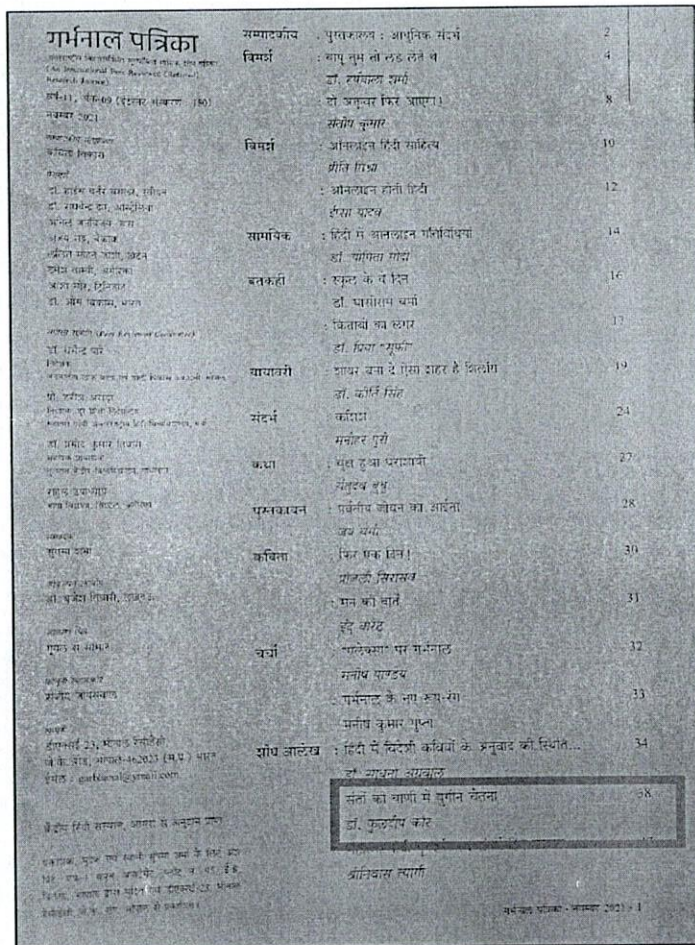


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जैन्य की कहानी 'रुक्मिणी बुढ़िया' के बहाने वृद्ध-विमर्श

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पश्चिम-बंगाल, भारत

शोध-साधना

किसी विषय विशेष के सन्दर्भ में समीक्षा से चिन्तन-गहन, खोज, तर्क-वितर्क और सोच-विचार करना तो विमर्श है। २२वीं सदी में हिन्दी साहित्य में स्त्री विमर्श, दलित विमर्श, आदिवासी विमर्श, किन्नर विमर्श तथा वृद्ध विमर्श आदि अनेकों विमर्श हो रहे हैं। विमर्शों के इस दौर में वृद्धों की समस्याओं तथा उनके परिस्थितियों पर विचार वृद्ध विमर्श कर रहा है। हिन्दी साहित्य के आधुनिक काल में वृद्धों की समस्याओं पर लेखकों ने प्रवेश करने का प्रयास किया है। इसी प्रयत्न में, भोग साहनी, कृष्णा सोबनी, उषा सिन्हा तथा जैन्य कुमार आदि लेखकों ने अपनी रचनाओं में वृद्ध समस्याओं को उजागर किया है और हिन्दी साहित्य में वृद्ध विमर्श के लिये प्रेरणा प्रदान की है। जैन्य की कहानी 'रुक्मिणी' वृद्धों के लिये उन वृद्धों की समस्याओं पर विचार किया गया है जो अकेले हैं और समाजिक तथा आर्थिक रूप से कमजोर हैं। 'रुक्मिणी' के माध्यम से लेखक ने हमारे समाज में रह रहे वृद्धों की दृष्टि से दशाओं पर प्रकाश डाला है जो अपने जीवनकाल में वृद्ध मानवों के शिखर होकर अपने भविष्य को दिशाहीन कर लेते हैं।

शोभाखण्ड

जैन्य एक विचारशील और बुद्धिजीवी कहानीकार है। उन्होंने व्यक्ति की महत्ता को स्वीकार किया है। उनकी कहानियों में व्यक्तिगत चरित्र, व्यक्तिगत

जीवन-दृष्टि तथा व्यक्तिगत समावेशन का प्रकाश होता है। जैन्य एक मनोवैज्ञानिक कहानीकार हैं। उनकी कहानियाँ मनोवैज्ञानिक आधार पर रची गई हैं। उन्होंने अपनी कहानियों में मुख्य रूप से स्त्री जीवन की समस्याओं, सन्त के अस्तित्व, प्रेम प्रसंग में शोख से मिले प्रणामय जीवन आदि का सूक्ष्म चित्रण किया है। उनकी कहानियों में किशोरी, युवावी प्रौढ़वस्था तथा वृद्ध आदि सभी उम्र की स्त्रियों के जीवन की समस्याओं का चित्रण हुआ है। 'रुक्मिणी' वृद्धों की स्त्रियों के लिये आदर्श की कहानी है। समाज की रुक्मिणी बनने के बीच अदृश्य अवसर के लिये स्त्रियों के अन्तर्मन का आशीर्वाद प्राप्त होता है। 'रुक्मिणी' कहानी जैन्य की एक ऐसी कहानी है जिसमें एक ऐसी वृद्धा की जीवन की समस्याओं का चित्रण किया गया है जो अन्य रचनाकारों की रचनाओं में दुर्लभ हो देखने को मिलता है।

कृदावस्था या बुढ़ापा जीवन की एक अवस्था को कहते हैं जिसमें उस मानव जीवन का अंतिम काल के समीप या उससे अधिक हो जाती है। वृद्ध होने को रोग लगने से अधिक सम्भवता होती है। उनकी समस्याएँ भी अलग होती हैं। कृदावस्था एक धीरे-धीरे आनेवाली अवस्था है जो कि स्वाभाविक व प्राकृतिक घटना है। वृद्ध का शारीरिक अर्थ है बूढ़ा हुआ, पका हुआ, परिपक्व। कृदावस्था में प्रत्येक मानव की उमिर २ से ५ प्रतिशत कम हो जाती है। इस प्रकार कृदावस्था में मनुष्य शारीरिक तथा मानसिक रूप से कमजोर हो जाता है साथ ही उसके जीवन-पीड़ावक हो जाता है।

वृद्ध विमर्श वह अर्थ है वृद्धों की परिस्थितियों, समस्याओं, घटनाओं तथा उनकी पीड़ा आदि विषयों पर विचार करना अर्थात् कृदावस्था की समस्याओं को समझकर उनके लिये उचित समाधान करना। इस प्रकार जब हम किसी साहित्यिक रचना के सन्दर्भ में वृद्ध विमर्श की बातें करते हैं तो उस रचना की वृद्धता में वृद्ध जीवन की इन समस्याओं का चित्रण किया गया है उनका अध्ययन करना और उनके समाधान ढूँढ़ने से है।

भारतीय संस्कृति और संस्कृति अत्यन्त प्राचीन

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का चित्रण किया। उन्होंने नारी को भी पुरुषों के समान अधिकार दिया, नारी को भी पुरुषों के समान निर्णय लेने का अधिकार है इसके अतिरिक्त नारी, पुरुष का हरी भक्ति में भी समान अधिकार है, उसे उन्होंने इन भक्तियों में दर्शाया है।
नारिए पुरुष होइबा एकजोती।
तेवरे सोजिवो हरित भक्तौ ॥७

इसी कारण परवती काल में शंकरदेव के शिष्यों ने भी जब नव वैष्णव धर्म का प्रचार किया तब पुरुषों के साथ साथ नारी को भी समान अधिकार प्राप्त हुआ।

इसी तरह श्रीमंत शंकरदेव ने मनुष्य की सामाजिक, सांस्कृतिक और आध्यात्मिक कल्याण के लिए अपना संपूर्ण जीवन दे दिया। असमिया समाज में उन्होंने समानता का बीज बो दिया। इस लक्ष्य और उद्देश्य से मानवीय गुणों से विभूषित एक अधिक नारी की विचित्र समावेश उनकी रचनाओं को निरस्य कहलजयी अगर साहित्य बनाती है और साथ ही जनसमाज में अभूतपूर्व जनप्रियता लाभ करने में सक्षम हुई।

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1. शर्मा सत्येन्द्रनाथ अन्तरिम नाटक साहित्य न्यू बुक स्टॉल, गुवाहाटी।
2. महापुरुष शंकरदेव श्रीमद्भागवत गीता।
3. महात्मा वापनर ऐतिहासिक पत्राभित श्रीमंत शंकरदेव जनरल डिप्लोमा
4. महापुरुष श्रीमंत शंकरदेव पत्नी प्रसाद नाटक, घट प्रकाशन, गुवाहाटी।
5. महापुरुष श्रीमंत शंकरदेव कालीय दमन, न्यू बुक स्टॉल, गुवाहाटी।
6. महापुरुष श्रीमंत शंकरदेव रचित श्रीमण्ट हरण नाट, असम साहित्य सभा।
7. महापुरुष श्रीमंत शंकरदेव भागवत

□□□

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भीष्म साहनी के नाटक 'माधवी' में स्त्री विमर्श

डॉ. पलाशी बिस्वास
महायक प्रवक्त, गोखले मेमोरियल गर्ल्स कॉलेज, कोलकाता, पश्चिम-बंगाल

प्रस्तावना

समकालीन विमर्शों में स्त्री विमर्श पर सबसे अधिक चर्चा हुई है। आनी आबादी पर पुरुषों द्वारा किये जानेवाले अत्याचार और एशुवत व्यवहार किये जाने के विरोध में ही स्त्री विमर्श की आवश्यकता महसूस हुई। प्रस्तुत शोधलेख में पितृसत्तात्मक समाज में भर्वादा तथा कर्त्तव्यपरायणता के आइ में पुरुषों द्वारा वर्षों से किये जा रहे स्त्रियों के दैहिक शोषण पर चर्चा की गई है। माधवी के माध्यम से उन असह्य स्त्रियों की दैहिक मुक्ति की बात की गई है, जिन्हें आज भी पुरुष वर्ग अपना निजी सम्पत्ति सम्पन्न कर धर्म तथा कर्त्तव्यपरायणता के नाम पर उनका मानसिक तथा दैहिक रूप से शोषण करते हैं। आज की स्त्री अपने देह पर अपना अधिकार चाहती है। वह पुरुषों की मूल्यमी को त्यागकर मुक्त होना चाहती है। माधवी के माध्यम से स्त्री की दैहिक मुक्ति की बात कही गई है।

शोधालेख

पितृसत्तात्मक समाज में स्त्री को केवल देह मात्र समझा गया। पुरुषों ने उसे अपना निजी सम्पत्ति सम्पन्न कर अपने स्वार्थ सिद्ध करने के लिये उसका मनमाना शोषण किया है। स्त्रियों के प्रति होने वाले अत्याचार और शोषण के प्रतिवाद में ही स्त्री-विमर्श की आवश्यकता महसूस हुई। स्त्री विमर्श में स्त्री अपने ऊपर हो रहे अत्याचारों का विरोध करती है। वह अपने शरीर पर अपना अधिकार चाहती है। प्रो. गोहणी


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The Status of Child Labour in Kolkata
Dr Krishnakali Roy
Assistant Professor in Geography
Gokhale Memorial Girls' College
Kolkata, Westbengal

Abstract:
The practise of employing children to work on a full time or part time basis for earning is a curse for society. This causes great harm to society and civilisation. The child is deprived of child education, games and other normal activities which are essential for mental-social development. Childhood is destroyed by this system. This leads to the social deprivation of the country and community. Child labour is a common phenomenon in Kolkata in different sectors like motor-mechanics, garage, tea-stall, hotels, leather factory, stitching, printing, binding, house help, etc. A huge number of children are involved in rag-picking and garbage disposal. The maximum number of child labour resides in slum and squatters of Kolkata. Child labour is unlawful but is a common characteristic of modern society. The major reason behind this is lack of education and poverty. This paper highlights the status and characteristics of child labour in Kolkata. The reason behind child labour is also to be emphasised.

Key Words: Child labour, Kolkata, Childhood, Poverty, Child-education, Awareness.

Introduction
Child labour is an important problem for many decades. Child labour has been a national and international crisis because it dangerously destroys the future of children. Recently the International Labour Organization (ILO, 2013) estimated there are around 215 million children between the ages five to fourteen who work worldwide. They are often mistreated and work for prolonged hours, in very bad conditions. This can affects the child physically, mentally and emotionally. Child labour affects the total childhood of many generations. These children do not have basic rights like access to school or health care. The use of child labour is very prevalent in India and the cause is deep-rooted with poverty. UNICEF India has an estimated 28 million children aged five to fourteen involved in work (UNICEF, 2011). With time to date, the number of child labour has increased to a great extent. This affects the total all-around development of the child. Several factors force children to work such as

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Solid Wastes: Sources and Management in Urban Arena of India

Dr. Krishnakali Roy
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Gokhale Memorial Girls' College
College Kolkata, West Bengal

Abstract:

One of the oldest problems of civilization is the management of solid wastes. The possibility of disposing them off, ceases to dominate, with the increases in population as well as the growing urbanization and industrialization. Increases in population, make it impossible for the natural system of waste disposal to dilute, disperse and decompose wastes to create a non-threatening level of these in the biosphere. the organic and inorganic waste materials, produced by household, commercial, institutional and industrial activities have caused immense problem in urban arena. The vast field of solid waste management, needs research attention and thus a review about it might help the research community.

KEY WORDS: Urbanization, Urban degradation, Solid Waste, E-waste, Management Practices

INTRODUCTION

Solid wastes can be defined as "any refuse or waste material, including semi-solid sludge, produced from domestic, commercial or industrial premises or processes including mining and agricultural operations and water treatment plants etc." (Patrick, 1980)

Urban areas bear more prominent traces of the above-mentioned crisis, due to the increasing population and the consequent pressure on the natural resources. In the early days, the major constituents of solid wastes were domestic refuse and agricultural residues, which were biodegradable in nature, and could be easily disposed of on vast stretches of open land.

Capitalism and urbanization have led to rising consumerism and this has changed habits and lifestyles diversifying the overall wastes produced in their turn leading to health hazards.

The quantum and type of solid waste generated in any urban centre are mainly from households, fruit and vegetable markets, slaughter houses, commercial areas including

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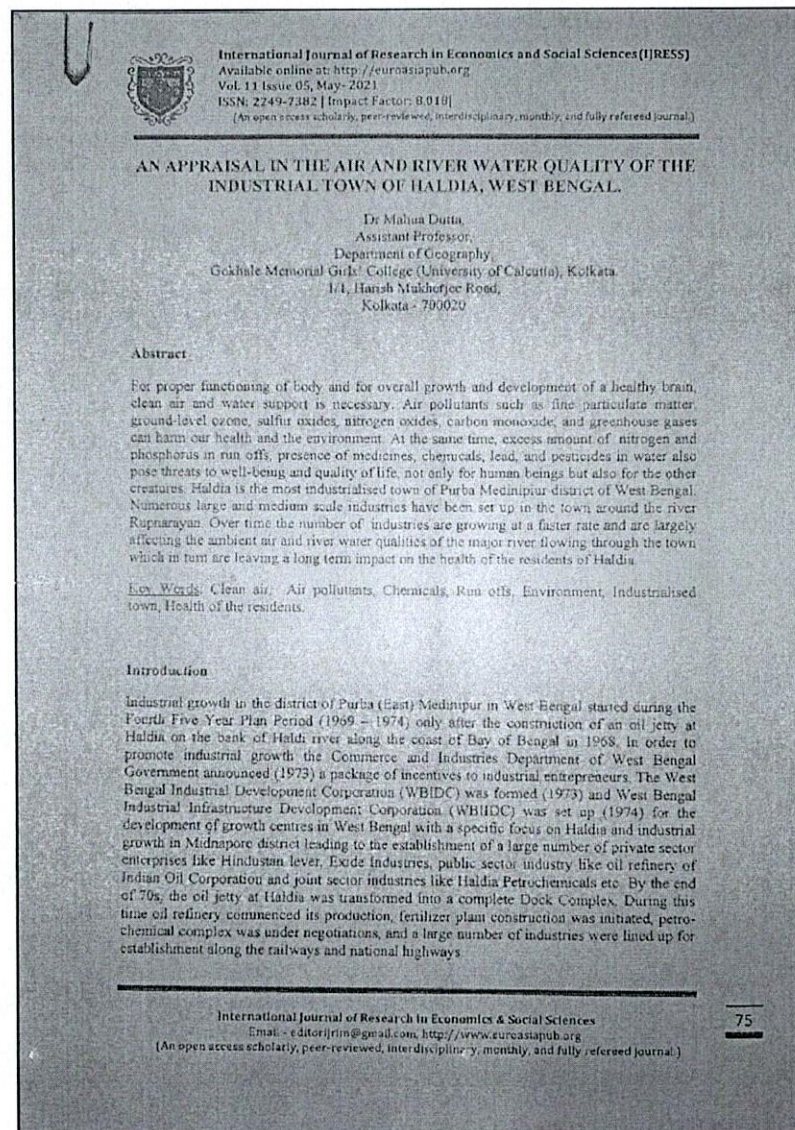
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Impact of COVID-19 pandemic on mental health across different populations

Koyel MUKHERJEE, Swapnokalpa BANIK*, Nabamita CHAKRABORTY

*Corresponding author: Swapnokalpa Bank, Department of Psychology, Gokhale Memorial Girls' College, 11, Harish Mukherjee Road, Golghai Road, Bloomington, 700020, Kolkata, West Bengal, India. E-mail: swapnokalpa06@gmail.com

INTRODUCTION The outbreak of COVID-19 and the consequential isolation measures have significantly threatened the mental well-being of the public. Previous research suggests that a pandemic may result in the lifelong prevalence of psychological morbidities.

EVIDENCE ACQUISITION. Studies that reported the prevalence of depression, anxiety, stress, insomnia as a response to the pandemic, across several populations in PubMed and ScienceDirect databases, were included. Of the 136 studies included, 45 studies were on the general population, 45 on healthcare workers, 18 on students and young adults, 9 on psychiatric patients, 3 on COVID-19 patients and 16 on other populations.

EVIDENCE SYNTHESIS: Though the results across populations were inconsistent, all populations exhibited elevated levels of depression, anxiety and associated psychological symptoms (like posttraumatic stress disorder, stress, insomnia). A comparison among the populations revealed that healthcare workers (especially frontline workers) were at the highest risk of mental health problems. Other risk factors included being female, younger, single/divorced/widowed and having a history of mental illness.

CONCLUSIONS. COVID-19 is not just a threat to physical health but also the mental health of the public. Further research is needed in this aspect. There also exists a need to identify vulnerable populations and design suitable psychological interventions.

(Cite this article as: Mukherjee K, Banik S, Chakraborty N. Impact of COVID-19 pandemic on mental health across different populations. *Minerva Psychiatri* 2021; 61:140-55. DOI: 10.23736/52724-6611.21.12372.2)

KEY WORDS: COVID-19; Depression; Pandemics; Mental health

The 2019 coronavirus outbreak in China is a global health emergency and is till date the largest outbreak of atypical pneumonia since the severe acute respiratory syndrome outbreak (SARS) in 2003. A pandemic does not only pose threats to one's physical health but also has a grave psychological impact. The ongoing COVID-19 pandemic is inducing fear, and a holistic understanding of the mental health status of the victims seems to be crucial and relevant implying obvious benefits for overall social well-being.

As a result of the pandemic, the burden of the strictly imposed quarantine conditions, travel restrictions, constant monitoring and screening and

the plethora of misinformation being circulated and the fear of contraction may have serious psychological implications.¹

Extensive research has been conducted in view of the psychological impact of COVID-19 on the general population,²⁻⁶ on COVID patients⁷ and healthcare workers.^{8,9} Though a lot of research has found a prevalence of higher levels of stress, anxiety and depression in young adults,^{3,4,6,10} there has been limited work on this group in the context of COVID-19. There is also a dearth in studies on several specific populations such as migrant workers, mentally ill and homeless people.



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सम्पादक

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वृद्ध जीवन के अकेलेपन को व्याख्यायित करता उपन्यास उस चिड़िया का नाम

डॉ. रेशमी पांडा मुखर्जी

'लेकिन दरवाज़ा', 'पंखवाली नाव' जैसे उपन्यासों व 'बच्चे गवाह नहीं हो सकते', 'दुंडा प्रदेश व अन्य कहानियाँ' जैसे कहानी-संग्रहों द्वारा हिंदी जगत को एक नई सोच और दृष्टि से आप्लावित करने वाले रचनाकार पंकज बिष्ट ने 1989 को 'उस चिड़िया का नाम' उपन्यास पाठकों को सौंपा। आलोचकों के मतानुसार पंकज बिष्ट हिंदी के उन गिने-चुने रचनाकारों में से हैं जो अपनी हर वैचारिक अभिव्यक्ति की बिना लाउड हुए या बिना आवेश में आए संकलित उपस्थिति दर्ज करते हैं। उस चिड़िया का नाम उपन्यास में आपने हिंदू धर्म व परंपराओं, पहाड़ी जीवन में सुगों से सांस लेने वाले विश्वासों व रीति-रिवाजों, दंतकथाओं, मुड़े-मुड़े-गढ़े गए ऐतिहासिक तथ्यों को टटोला है। लोकगीतों की मधुर पाठकों को गुदगुदाती है। तो समन अंधकारपूर्ण डिडुरन भरी रातों में एक डॉक्टर या एम्बुलेंस के लिए निस्तराप दम तोड़ते इन पहाड़ी बाशिंदों की विवशता शहरी जीवन की सुख-सुविधाओं से लेस पाठकों में उलटन पैदा करती है।

एक संजीदा कथाकार के रूप में ख्यातिलब्ध उपन्यासकार पंकज बिष्ट की कृति 'उस चिड़िया का नाम' पहाड़ी जनजीवन के फलक पर एक परिवार के आंतरिक संबंधों के उत्तार-चढ़ाव को बुनता है। यह उपन्यास लेखक के विज्ञान को लोक-मान्यताओं, विश्वक कथाओं, संस्कारों व रीति-रिवाजों के साथ आधुनिक वैज्ञानिक व नवीन जुझार मानसिकता से जोड़ता है। उपन्यास मुख्यतः ग्रामीण पहाड़ी जीवन की बुजुर्ग पीढ़ी के रहन-सहन, आचार-विचार के साथ शहरी उच्च शिक्षित चिकित्सक व व्यस्ततम जीवन जीने के आदि, मुंबईयों संस्कृति में स्ने हुए जीवन के अंतर्विरोध को बुनता है। इतना विरोध व अलगाव होने पर भी ये दोनों कोण एक ही परिवार के हिस्से हैं, पिता-पुत्र, पिता-पुत्री, भाई-बहन के शाश्वत संबंधों से इकार करने में लेखक को आपत्ति है। जहाँ तक पत्नी के देहांत के बाद आजीवन अकेलेपन के कोहरे में भटकने वाले पिता के जीवन की झूँ व नग्न सच्चाइयों का सवाल है तो लेखक ने बेबाकी से उस सच का साथ निभाया है जो जीव मात्र की अदम्य इच्छा में बास करता है। मानव अपने ऊपर संस्कारों, शिक्षा, धार्मिक मान्यताओं के अंकुश को चाहे जितना कस ले पर क्या वास्तव में उसकी

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EDUCATION AND FUTURE OF E-LEARNING

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Assistant Professor
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Abstract: E-learning has become an essential part of education. E-Learning is learner-centered rather than Teacher-centered. The contents also include online communication between the learner and learner or between learner and teacher. Internet has become an important medium in human being life. General usage of Internet globally has transformed education and business activities. The present paper is discussed about the efficiency and challenges of e-learning in future. A new pattern for modern education has been formed by e-Learning. With the help of e-learning method Students can study through online at home any time. Students can develop their knowledge through e-learning at home. Government of India has taken various initiatives for e-learning.

Index Terms - e-learning, digital learning, Virtual Class.

I. INTRODUCTION

E-learning is the holistic learning method where it develops coordination between teachers and students. Various universities have incorporated e-learning methods into their education system. Currently it has developed for students as an alternative learning method. With the help of e-learning method Students can study through online at home any time. Due to pandemic (COVID-19) Educational Institutions closed and lockdown, most faculty members and learners are pleased by the development of online learning. The faculty members of different universities have begun to find online instructor certifications to deliver online instruction to their students. At the same moment, faculty members are learning how to use online learning platforms. Previously, they are using only the deliverance through face-to-face teaching. (Sahai 2020).

II. CONCEPT OF E-LEARNING

Weggen and Urban (2002): "e-learning is defined as the delivery of content via all electronic media, including the Internet, intranets, extranets, satellite broadcast, audio-video, interactive TV and CD-ROM."

Jenkins and Hanson (2003): "e-learning is defined as learning facilitated and supported through the use of Information and communication."

Tastle (2005): "e-learning is a means of education that incorporates self-motivation, communication, internet or intranet."

III. SOME MAJOR INITIATIVES IN INDIA

The Government of India has taken various digital initiatives like---

- SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) under the 'Digital India' Initiative of Government of India, one of the thrust areas is 'Massive Online Open Courses (MOOCs).
- Swayam Prabha.
- National Academic Depository (NAD).
- E-Yantra.
- Talk to a Teacher program.
- E-acharya.

The British council provides English language learning through online for all types of students. The Ministry of Human Resources Development of Central Government has launched a project called national programme of Technology. The project currently runs about 921 courses including 419 web courses and 501 Video courses. The school of health science has uploaded video lectures and courses on their respective subjects in YouTube. NPTEL provides various types of online courses through e-learning. IGNOU has uploaded video lectures on their relevant subject matter in YouTube channel.

The Government of India has launched a National Mission on Education through ICT (Information and Communication Technology) in February 2009. It will provide internet connection to about 20 thousand colleges and other educational institutions.

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106 MAR 2023

E- Learning in Secondary Govt. aided School during Covid-19 pandemic in West Bengal

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Assistant professor

Gokhale Memorial Girls' College, Kolkata, India

Email : sarifuledu@gmail.com

Abstract: Due to the pandemic crisis of COVID-19, e-learning has become the compulsory component of all educational institutions like schools about the world. The present paper study usefulness of e-learning during the pandemic (covid-19) and the attitude of teachers and students towards online learning. Survey method was used for this study. 30 headmasters and 50 students of government aided secondary schools located in Purba Medinipur district of the state of west Bengal in India were selected as sample of the study. Purposive simple random sampling technique was used in this study for selection of sample. Questionnaire (self designed) is used for collection data from the sample. The findings are Most of the Govt. aided secondary schools have taken online classes through Whatsapp. Only 5% schools are conducting online classes through Google meet. Most of the schools state that lack of e-resources as difficulty in conducting online classes. Most of the students are positive attitudes towards online learning.

Key Words: e-learning, COVID-19 Pandemic, Challenges.

1. INTRODUCTION:

Covid-19 pandemic has affected more or less all aspect of human being. Its impact can be seen comprehensively in the field of education. Online learning has become an essential part of education due to the pandemic (COVID 19). The Government of India has launched and suggested several e-learning platforms like SWAYAM, e-pathshala, etc. The use of a computer, laptop, or smart phones and the internet forms a main component of this learning methodology. E-learning provides rapid development and proved to be the best in all sectors during this lockdown.

Definition of terms.

Jenkins and Hanson (2003)—"e-learning is defined as learning facilitated and supported through the use of Information and Communication."

Tastle (2005)—"e-learning is a means of education that incorporates self-motivation, communication, internet or intranet."

Advantages or Benefits of E-learning

Some of the advantages that the implementation of e-learning in Govt. aided secondary school education.

- It is cost effective.
- e-Learning allows self-pacing.
- Interactivity
- Learning time reduce.

2. LITERATURE REVIEW:

- Dalmay (2020)** studied about "E-learning in schools during covid-19 pandemic in rural areas". A main objective of the study was effectiveness of e-learning during the covid-19 pandemic. Sample consisted of 50 Headmasters from different schools. The author found that E-learning is not at all effective in rural areas.
- Shahzad (et. Al) (2020)** studied about "Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female". Data were calculated appropriate statistics. Sample consisted of 280 students of different universities of Malaysia. Study found that E-learning portal usage is more towards female students in Malaysian Universities.
- Dhawan (2020)** studied about "Online Learning: A Panacea in the Time of COVID-19 Crisis". A main objective of the study was "to conduct an Strengths, Weaknesses, Opportunities, & Challenges (SWOC) analysis of online learning during the Corona Virus pandemic and natural disaster". E-learning can help in providing inclusive education even at the time of crisis.



Authenticated .

Chandana
Principal

Gokhale Memorial Girls' College

6 MAR 2023

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সুভাষিনী-র 'কথা'

दा भी मित्र

রবীন্দ্রনাথের একটি বিশেষ ছোটগল্পকে কেন্দ্রে রেখে
এই নিবন্ধ সন্ধান করেছে রবীন্দ্রনাথের জীবনায়
শারীরিক প্রতিবন্ধকতার মাত্রা। লক্ষণীয়, প্রতিবন্ধকতার বিবিধ
সুস্পষ্টতাকে কীভাবে অবগোচন করতে চান তিনি।

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১২৯৯ এ রবীন্দ্রনাথ লিখলেন সূত্র^{১৪}, এক মূক মেয়ের গল্প।



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ANTORJATEK PATHSALA

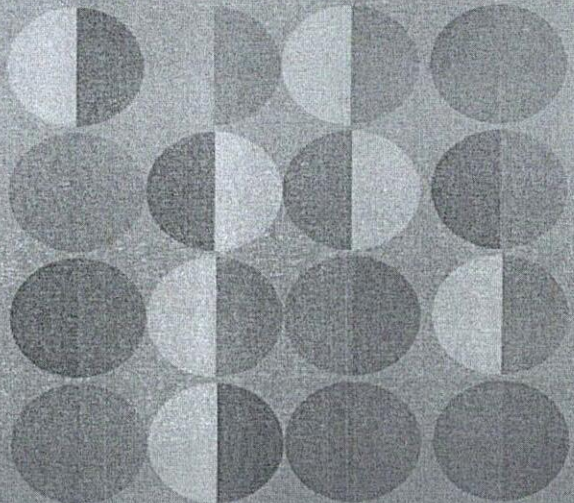
ISSN 2230-9594

চিন্তাভাবনার সপ্তসিন্ধু দশদিগন্ত এখন বাংলা ভাষায়

আন্তর্জাতিক
পাঠশালা

জুলাই-সেপ্টেম্বর ২০২১

বিবিধ প্রবন্ধ



ଆଉ ଜାତିକ
ପାଠଶାଳା

• জুলাই-সেপ্টেম্বর ২০২১ • বিবিধ প্রবন্ধ •

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सम्माननीय ०६

উনিশ শতাব্দী

ଡାକ୍ତର ସତ୍ୟନାରାୟଣ ଗୁପ୍ତା ଓ ଡାକ୍ତରୀ

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হুসা খোঁজা

ঔপনিবেশিক শাসনকাল এবং পাঠ্যপুস্তক রচয়িতা বিন্দ্যাসাগর ৩০

विश्व शतकचर्चा

କିରୀଟକ ମାମତା

দ্রষ্টব্য ও বিধবা বিবাহ : ঔনিবেশিক বাংলার সাম্প্রদায়িক উন্নয়ন,

বিশুদ্ধি ও প্রজন্ম সম্বন্ধে (১৯০৯-১৯৩৯) ৪০

ब्रवीच्छर्मा

শেখর সমাধার

ବନୀଜ୍ଞନାଟକେ ସାକ୍ଷ୍ୟ : ଜେନା, ଅଜେନାଓ ୧୩

ब्राह्मी सिद्ध

ସୁଭାଷିନୀ-ର 'କଥା' ୬୩

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Gokhale Memorial Girls' College



अमरकांत एवं मार्कण्डेय: व्यक्तित्व एवं साहित्य

अमर कुमार चौधरी

हिन्दी विभाग, गोखले मेमोरियल गर्ल्स कॉलेज, कोलकाता, पश्चिम बंगाल, भारत

सारांश

साहित्य की श्रेष्ठता एवं सफलता तभी सिद्ध होती है, जब लेखकीय बोध रचना द्वारा कला के स्तर को प्राप्त कर लेता है। जहाँ जीवन-बोध की नवीनता अपने-आप में परंपरा से हर मायने में असंगत हो। वहाँ तो जीवन-बोध का साहित्य में रूपान्तरण और भी कठिन हो जाता है। एक ओर इस प्रतिक्रिया को पूर्ण होते देर भी लगती है और दूसरी ओर संक्रांतिकालीन अनुभूतियों के साथ ईमानदार रहने में भयंकर यतनाओं से गुजरना पड़ता है। परिणाम यह होता है कि साहित्य निर्मित प्रक्रिया अधूरी रह जाती है और फिर उसी धारा के अंतर्गत रचनात्मकता का नया प्रवाह ऊपर उठने की कोशिश करता है। यह नया प्रवाह पुराने की प्रेरणाओं को लेकर ही आगे बढ़ता है और नवत दिशा में जाने वाले अपने प्रवाह के पिछले हिस्से को मही दिशा देता है। हमें लगता है कि साहित्य की धारा के अंतर्गत सातवें दशक की हिन्दी कथा-साहित्य के रचनात्मक मोड़ को स्पष्ट करती है। नई कहानी वास्तव में पूर्व में प्रचलित कहानी विधा में एक नया और महत्वपूर्ण मोड़ था। आजादी के बाद का मोहभंग निराशा और जीवन के यथार्थ अनुभव को नयी कहानी ने सामने लाया। नयी कहानी के कथाकारों ने जो अनुभव निजी जीवन में किया। उसी को अपनी लेखनी के माध्यम से सामने भी लाया।

मुख्य शब्द: संक्रांतिकालीन अनुभूतियाँ, हास्यनोमुखी प्रक्रिया, स्पष्टवादिता, रुमानी भावना, संकल्पित।

प्रस्तावना

आज की हिन्दी कहानी जिनमें पिछले दोनों दशक शामिल है निश्चित रूप से नए युग की गृष्टि है। अतः स्वभाव से ही उसमें संक्रांतिकालीन चेतना का स्तर सबसे तीव्र है। इसके अंतर्गत हर परंपरा की अस्वीकृति प्रयोगशीलता वैज्ञानिक दृष्टि और बौद्धिक जटिलता के साथ युग संश्रम को अस्तित्व के रूप में खेले की क्षमता भी है। स्पष्ट है नई कहानी आधुनिक जीवन की हास्यनोमुखी प्रक्रिया एवं विघटन के प्रति अपना तीव्र क्षेम प्रकट कर रही है। स्वतंत्रता के बाद परिवर्तन के जिस सत्य को तत्कालीन लेखकीय संवेदना अनुभूतियों का हिस्सा बनकर व्यक्त करना चाह रहा था। उसी संवेदना को समकालीन कहानी अधिक सफलता से प्रकट कर रही है या करना चाहती है। वह इसलिए भी कि आज की कहानियों में घटना और पात्र की उपयोगिता वहीं तक है। जहाँ तक वह किसी मनःस्थिति या विचारगत विशेषता को उद्घाटित करने में सहायक हो। इसलिए आज कहानियों में सामाजिक राजनीतिक मनोवैज्ञानिक ऐतिहासिकता पौराणिक आदि अथवा चरित्र-प्रधान घटना-प्रधान वातावरण-प्रधान अथवा प्रतिक्रियावादी आदि वर्गीकरण झूठे और अस्वाभाविक हो गए हैं। नयी कहानी का यह नयापन

स्वतंत्र भारत की सामाजिक आर्थिक राजनीतिक और धार्मिक परिवर्तन के बीच से अपनी जमीन बना रहा था। इसी धारा के कहानीकार अमरकांत जी थे। 50 के बाद हिन्दी कहानी के क्षेत्र में जिन जागरूक नयी पीढ़ी का प्रवेश हुआ अमरकांत का नाम उसमें अग्रणी है।¹

अमरकांत जी का जन्म उत्तर प्रदेश के बनिया जिले के नवरा कस्बे के पास स्थित छोटाना गाँव भगमलपुर में 1 जुलाई 1925 ई. में एक कायस्थ परिवार में हुआ। बचपन में इनके दो नाम थे एक धीराम और दूसरा अमरनाथ। अमरनाथ नाम किसी साधु द्वारा रखा गया था। आगे चलकर अमरनाथ का नाम बदलकर अमरकांत हो गया और यही नाम साहित्य-जगत में प्रचलित हुआ। अमरकांत जी ने कहानी के प्रति सारा दृष्टिकोण ही बदल दिया। उनके पहले की कहानियों में या तो शुद्ध कल्पना का विकास होता था या नीति और उपदेश के स्थूल सूत्र होते थे। अमरकांत जी ने एक ओर यदि कहानियों में मनोरंजन और मानसिक वृत्ति की आवश्यकता बताई तो दूसरी ओर उससे चरित्र निरूपण की सम्भावना की ओर संकेत किया और अंततः उन्होंने कहानी का आधार अनुभूति को बताया घटना को नहीं। "आज की कहानी में दृढ़तात्मकता और संदेह आत्म-विकृति और आत्म-विभाजन




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Timeless Telkupi: An Unforgettable Heritage of Purulia

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Abstract

Telkupi is a small village located on the bank of the river Damodar. The village is carrying its age-old Architectural tradition. This area first came under the observation of Archaeological Survey of India in the Colonial period. Beglar was the very first person who visited this place and made a first-hand report. Later time, there are other archaeologists who also try their best to protect the lost history of Telkupi. According to Beglar, there were only 20 temples scattered around Telkupi. Among which only three to four remain intact though the present condition of those architectures is not so good. This area along with most of its architectural heritage (between 8th to 12th century CE) was submerged between 1956 to 1962 because of the construction of Panchet Dam. In Telkupi, the Jain Architectural site Bhairabathan got popularity and it also attracts the tourists' interest as well. But in this paper would like to highlight the other temples which also possess some unique features and need a proper restoration.

Key Words: Bada: Wall, vertical portion of the wall below the spire of a temple
Chhajja: Projecting member serving the purpose of eaves.
Gandi: Trunk.
Upana: Low plinth of a temple.

Located on the border area of two states Jharkhand and West Bengal, specifically on the south bank of the river Damodar, the famous heritage site Telkupi officially comes under the jurisdiction of Raghunathpur II block in Purulia District. Probably the first survey of this place has done back 1951.¹ It came out with a result that this village is covering almost 1613 acres of an area. The principal means of livelihood here was obviously agriculture. But apart from farmers, we also find the result of the presence of so many other people who engaged with various other professions like - Bauri, Malakar, Dhivar, Kumbhakar, Gorain, Carmaker, Modak, Dom, Handi, Rajak, Sundi etc. In the first census report, we also get to know about the local public festivals of that place. Couple of

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15555Two rhodamine-azo based fluorescent probes for
recognition of trivalent metal ions: crystal
structure elucidation and biological applications†Jayanta Mandal,^a Kunal Pat,^b Sougata Ghosh Chowdhury,^b Parimal Karmakar,^c
Anangamohan Panja,^d Snehasis Banerjee^d and Amrita Saha^{a,*}

Two rhodamine end azo based chemosensors HL1 = (3,6-bis(ethylamino)-2-(2-hydroxy-3-methoxy-5-(phenyldiazenyl)benzylidene)amino)-2,7-dimethylspiro[indoline-1,9'-xanthen-3-one] and HL2 = (3,6-bis(ethylamino)-2-(2-hydroxy-3-methoxy-5-(p-tolylidiazobenzylidene)amino)-2,7-dimethylspiro[indoline-1,9'-xanthen-3-one]) have been synthesized for colorimetric and fluorometric detection of three trivalent metal ions, Al^{3+} , Cr^{3+} and Fe^{3+} . The chemosensors have been thoroughly characterized by different spectroscopic techniques and X-ray crystallography. They are non-fluorescent due to the presence of a spiro-lactam ring. The trivalent metal ions initiate an opening of the spiro-lactam ring when excited at 490 nm in Britton–Robinson buffer solution ($H_2O/MeOH$ 1 : 9 v/v, pH 7.4). The opening of the spiro-lactam ring increases conjugation within the probe, which is supported by an intense fluorescent pinkish-yellow colouration and an enhancement of the fluorescence intensity of the chemosensors by ~400 times in the presence of Al^{3+} and Cr^{3+} ions and by ~100 times in the presence of Fe^{3+} ions. Such a type of enormous fluorescence enhancement is rarely observed in other chemosensors for the detection of trivalent metal ions. A 2 : 1 binding stoichiometry of the probes with the respective ions has been confirmed by Job's plot analysis. Elucidation of the crystal structures of the Al^{3+} bound chemosensors 1 and 4) also justifies the 2 : 1 binding stoichiometry and the presence of an open spiro-lactam ring within the chemosensor framework. The limit of detection (LOD) values for both the chemosensors towards the respective metal ions are in the order of $\sim 10^{-8}$ M which supports their application in the biological field. The biocompatibility of the ligands has been studied with the help of the MTT assay. The results show that no significant toxicity was observed up to 100 μM of chemosensor concentration. The capability of our synthesized chemosensors to detect intracellular Al^{3+} , Cr^{3+} and Fe^{3+} ions in the cervical cancer cell line HeLa was evaluated with the aid of fluorescence imaging.

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Introduction

Colorimetric and fluorescent chemosensors which are designed for selective detection of metal ions play a crucial role in the development of medicinal and environmental

research.^{1,2} Various techniques such as atomic absorption spectroscopy,³ inductively coupled plasma-mass spectroscopy,⁴ plasma emission spectroscopy,⁵ neutron activation analysis,⁶ chromatography⁷ and voltammetry⁸ are available for detection of different metal ions in food, biological systems, and environmental and industrial samples. Most of these detection techniques are expensive and users face challenges in sample preparation, instrument handling and their costly maintenance charges. In this regard, the fluorescence study is a highly sensitive, user friendly, low cost and real time monitoring process. Among different metal ions, trivalent metal ions, Al^{3+} , Cr^{3+} and Fe^{3+} deserve special mention. Extensive application of these metals in industry and daily life results in their diffusion and contamination in living systems and causes a wide variety of diseases.⁹ Aluminium is the most abundant metal in the Earth's crust and used vastly for domestic purposes. The excessive concentration of Al^{3+} in the human body causes myopathy, encephalopathy, microcytic hypochromic

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Inorganic Chemistry

Magneto-structural Studies in Double Chloro- and Pseudohalo-bridged Isomorphous Dinickel(II) Complexes

Moumita Patra,^[a] Paula Brandão,^[b] Adam P. Pikul,^[c] Sarmistha Adak,^[a, d] and Anangamohan Panja^{*[a, d]}

Four new complexes, $[\text{Ni}_2(\text{NO}_2)_2(\text{CH}_3\text{OH})_2]$ (1), $[\text{Ni}_2\text{L}_2(\mu\text{-Cl})_2]$ (2), $[\text{Ni}_2\text{L}_2(\mu\text{-NCO})_2]$ (3) and $[\text{Ni}_2\text{L}_2(\mu\text{-N}_3)_2]$ (4) were synthesized from a tetradentate Schiff base (HL) prepared from the condensation reaction of *N,N*-dimethyldipropylenetriamine and 5-bromosalicylaldehyde. X-ray crystallography reveals that 2–4 are isostructural and isomorphous dinickel(II) compounds with bridging chloride or pseudohalides. All these three dinickel(II) complexes exhibit ferromagnetic interaction through bridging

chloride or pseudohalides and their coupling constants are in the order $4 > 2 > 3$, a replication of the average strength of exchange interactions found in such complexes characterised magnetically. Most importantly, compound 3 is a precious addition to the only four known examples of this family, and unprecedented high degree of structural and magnetic resemblances observed in 2–4 is the major achievement of the present work.

1. Introduction

Considerable attention has been directed towards the synthesis of di- and polynuclear transition metal complexes in recent years primarily because of their aesthetic structural diversity, relevance to the metalloenzymatic systems in biology^[1–3] and fascinating magnetic properties.^[4–6] In the field of molecular magnetism, Ni(II) ion is an automatic choice due to its large single-ion zero-field splitting, and as a consequence several di- and polynuclear Ni(II) complexes with interesting magnetic properties have been developed.^[7–10] The investigation of magnetic properties of binuclear Ni(II) complexes and correlating them with the structures are quite significant to gain insight into the fundamental aspects of the magnetic interactions as well as to integrate the derived ideas into the large clusters or extended systems to develop molecule-based magnetic materials with predictable magnetic properties. A common strategy to prepare such complexes is the utilization of a multidentate ligand along with judicious choice of a bridging

ligand to transmit specific magnetic interactions between the paramagnetic metal centres.^[11] The pseudohalide ligand particularly azide ion is the most attractive bridging ligand because of its diverse bridging modes, end-on ($\mu_{1,1}$) and end-to-end ($\mu_{1,3}$) modes being the most common ones, leading to the rich magnetic property in such compounds.^[12] In contrast, the presence of two hetero-bridging atoms with polarizable π systems in other pseudohalides, namely cyanate, which can coordinate the metal ions through either of the heteroatoms, or both, are less versatile than the azide ion. Therefore, in contrast to the vast coordination chemistry of azido-bridged systems,^[13–16] both structurally and magnetically interesting compounds with other pseudohalides are limited.^[17] It is well known that halides and pseudohalides show great resemblances in several chemical and physical properties, but such similarity in coordination chemistry is quite limited, which is due to lack of coordinative versatility of one-atom halide ion compared to polyatomic pseudohalides. If pseudohalides bind the metal centre terminally or connect the metal centres through $\mu_{1,1}$ or $\mu_{1,3}$ bridging modes, then only it may have structural resemblance with halide analogues. Along with the rich coordination chemistry of azido-bridged complexes, sophisticated experimental and theoretical magneto-structural correlations are available for these complexes for better understanding the magnetic property of these systems, in which general tendency is that $\mu_{1,3}$ bridging mode exerts antiferromagnetic (AF) coupling, while $\mu_{1,1}$ coordination mode propagates ferromagnetic (F) exchange between the metal centres.^[13–21] Cyanate ion transmits magnetic interaction between the metal centres almost in similar way as that azide ion does but weakly and a scarcity of reports of such Ni(II) compounds is available in the literature to establish a sophisticated magneto-structural correlation for cyanato-bridged Ni(II) systems.^[22,23] When Ni(II) is five-coordinate, the magnetic coupling observed between the metal ions is usually dominantly AF in nature, while in octahedral or pseudo-

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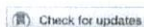
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DOI: 10.1039/D0DT02778BCite this: *Dalton Trans.*, 2020, 49, 14169Macrocycle supported dimetallic lanthanide complexes with slow magnetic relaxation in Dy₂ analogues†Fu-Xing Shen,^a Kuheli Pramanik,^{a,b,c} Paula Brandão,^{a,d} Yi-Qian Zhang,^a Narayan Ch. Jana,^{a,b} Xin-Yi Wang^{a,*} and Anangamohan Panja^{a,b,c}

Six dimetallic lanthanide complexes, [Ln₂(L)(acac)₄](ClO₄)₂ (Ln = Dy (1), Tb (2), and Gd (3)) and [Ln₂(L)(fac)₄](ClO₄)₂ (Ln = Dy (4), Tb (5), and Gd (6)) (H₂L = 1,9-dichloro-3,7,11,15-tetraaza-1,9-dibenzocyclohexadecaphane-2,10-diene-1,9-diol), have been synthesized by the reaction of lanthanide nitrates with the HL ligand in the presence of acetylacetonate (acac) or trifluoroacetylacetonate (tfac) and triethylamine (Et₃N). 4-chloro-2,6-bis-(3-(4-(dimethylamino)propyl)aminopropyl)imino methylphenol (HL) assisted modification of the Schiff base HL occurred and led to the formation of a new macrocyclic ligand (H₂L). X-ray crystallographic analysis revealed that the Ln^{III} ions of complexes 1–6 are all eight-coordinated in a square antiprismatic geometry with D_{4h} local symmetry. Magnetic measurements of these complexes revealed that 1_{Dy} and 4_{Dy} show single-molecule magnet behaviour with energy barriers of 66.7 and 79.0 K, respectively, under a zero direct magnetic field. The orientations of the magnetic axis and crystal field parameters were obtained from theoretical calculations and an electrostatic model. The magneto-structural correlations of SMMs 1_{Dy} and 4_{Dy} are further discussed in detail.

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Introduction

The design and synthesis of single-molecule magnets (SMMs) have attracted considerable attention in the fields of chemistry, physics and materials science because of their prospects and potential applications in high-density information storage, quantum computing, spintronics and magnetic refrigerators.¹ In recent years, there has been enormous interest in purely lanthanide-based SMMs, particularly using heavy lanthanide

ions (Tb^{III}, Dy^{III}, Ho^{III} and Er^{III}), and this has progressively increased because of their significant uniaxial magnetic anisotropy arising from the large unquenched orbital angular momentum along with a large ground-state spin, resulting in SMMs with higher relaxation energy barriers and blocking temperatures.² A large number of lanthanide-based SMMs with varying nuclearities have been developed.³ Among them, binuclear lanthanide compounds are considered a very important class and have been extensively studied in the recent past as they have one of the simplest molecular architectures which allow a convenient study of the nature and strength of magnetic coupling between two spin carriers, thereby elucidating magnetic relaxation mechanisms influenced by magnetic interactions.⁴ Moreover, it is relatively convenient to determine the possible orientations of the magnetic anisotropy in the dimetallic system, leading to an understanding of the relationships between single-ion relaxation and relaxation in a molecular entity.

It is noted that organic ligands play a crucial role in the synthesis of discrete SMMs and modulation of SMM properties. Therefore, searching for suitable ligands is one of the key strategies for overcoming the difficulty in promoting magnetic interactions for purely lanthanide-based systems. Bulky organic ligands can encapsulate the metal centres, preventing intermolecular interactions by isolating molecular entities,

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14216A facile biomimetic catalytic activity through
hydrogen atom abstraction by the secondary
coordination sphere in manganese(III) complexes†Narayan Ch. Jana,^a Paula Brandão,^b Antonio Frontera^c and
Anangamohan Panja^{a,*}

This paper describes the synthesis and structural characterization of four new manganese(III) complexes (**1–4**) derived from N₂O donor Schiff base ligands and their biomimetic catalytic activities related to catechol oxidase and phenoxazinone synthase. X-ray crystallography reveals that the Schiff bases coordinate the metal centre in a tridentate fashion, leaving the pendant tertiary amine nitrogen atom either protonated or free to balance the charge of the system, and these pendant trimines participate in strong hydrogen bonding interactions in the solid state. The hydrogen bonding ability of the pendant trimines at the second coordination sphere plays a crucial role in the substrate recognition and the stability of the complex–substrate intermediates. The effect of substitution at the phenolate ring towards the redox potential of the metal centre and the catalytic activity of these complexes has been observed. Detailed kinetic studies further disclose the deuterium kinetic isotope effect in which the transfer of the proton along the hydrogen bond from the substrates to the pendant trimine group at the secondary coordination sphere occurs at the key step in the catalytic reaction. The present reactivity nicely resembles the biochemical reactivities in the natural system in which a concerted electron and proton transfer to different species is usually observed. Remarkably although some sort of influence of the secondary coordination sphere on catalytic activity has been reported mimicking the function of these metallo-enzymes, such a direct participation of the secondary coordination sphere, particularly in modelling phenoxazinone synthase, has not been observed to date.

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Introduction

The exploration of the coordination chemistry of manganese complexes has always been an area of interest due to their broad applications in catalysis in various organic reactions,^{1–3} including bio-relevant catalysis, by complexes with varied nuclearities mimicking the functions of several metalloenzymes such as superoxide dismutase,⁴ manganese dioxygenase,⁵ catalases,^{6–9} ribonucleotide reductase,¹⁰ arginase¹¹ and

the oxygen evolving complex.¹² Although there have been a lot of reports on polynuclear manganese complex analogues to biomolecules,¹³ mononuclear manganese chemistry is still under continuous development^{14,15} to shed light on the mechanistic pathway in which model complexes are expected to have the ability to exhibit the fascinating task of dioxygen activation^{16–21} under mild conditions at the industrial level.²² Thus, modelling an approach for devising a new coordination chemistry of manganese is indeed a realistic need to expose the structural and functional outcomes of enzymes.²³ In addition, for organic conversion in the presence of catalytic amounts of transition metal complexes, structure–function relationships have been investigated through the involvement of primary and secondary coordination spheres.^{24–26} While the investigation of the influence of the primary coordination sphere is saturated,²⁷ the role of the secondary coordination sphere has not been explored enough in spite of its importance. Moreover, hydrogen bonding interaction, the most significant non-covalent interaction, is known to be highly demanding and effective in the regulation of metal-mediated reaction processes within the secondary coordination sphere

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† Electronic supplementary information (ESI) available: Fig. S1–S8, Scheme S1, Table S1 and data for DFT calculations, CCDC 2015236–2015239 for 1–4. For ESI and crystallographic data in CIF or other electronic format see DOI: 10.1039/d0dt02431g

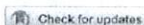


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The first report of a tetra-azide bound mononuclear cobalt(III) complex and its comparative biomimetic catalytic activity with tri-azide bound cobalt(III) compounds†

Narayan Ch. Jana,^a Paula Brandão^{b,c} and Anangamohan Panja^{a,*}

Three new azide-bound cobalt(III) complexes, $[\text{Co}(\text{L}_1)_2(\text{N}_3)_2]$ (**1**), $[\text{Co}(\text{L}_2)_2(\text{N}_3)_2]$ (**2**) and $[\text{Co}(\text{L}_3)_2(\text{N}_3)_2]$ (**3**), where L_1 , L_2 and L_3 are *N,N*-dimethylpropylenetriamine, *N*-isopropylidethylenetriamine and *N,N*-diethyldiethylenetriamine, respectively, were synthesized and structurally characterised. X-ray crystallographic studies reveal that the structures of both **2** and **3** are very similar in which three terminal azide ions together with a triamine coordinate the metal centre. Complex **1** on the other hand is significantly different from the other two as the metal centre in **1** is bonded with four terminal azide ions and two donor sites of triamine L_1 , leaving the tertiary amine group protonated. All the complexes are stabilized by rich hydrogen bonding interactions, leading to hydrogen bonded supramolecular chain structures. It is worth noting that complex **1** is the first example in cobalt(III) coordination chemistry in which all four azide ions coordinate the metal centre terminally. All these compounds exhibited efficient catalytic activity towards the oxidative coupling of *o*-aminophenols to phenoxazinone chromophores under aerobic conditions and the role of the structural factors in the catalytic activity has been explored. A mass spectrometry study was carried out to identify the products and important reactive intermediates and to support the mechanistic proposal.

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Introduction

Dioxygen, a "green oxidant", is considered as an essential oxidant for the oxidation reaction of organic compounds, particularly to manufacture agrochemicals, pharmaceuticals, and other fine chemicals.^{1,2} Utilization of this "green oxidant" is in great demand because it can oxidise organic molecules under mild conditions and the oxidation process is economically favourable. But this environmentally benign oxidant is kinetically inert due to its triplet ground state, and thus it is essential to activate triplet aerial oxygen to its active state to execute the oxidation process. However, metalloproteins can easily promote spin prohibited communication among dioxygen and organic matter for biochemical oxidation reactions by dioxygen activation.^{3–5}

Thus, bioinorganic chemists have paid considerable attention to explore the mechanistic pathway of such enzymes by applying a simple model study to get insight into the enzymatic reaction.^{6–8} Moreover, the development of new model catalysts that mimic the function of these enzymes may be utilized to achieve specific industrial transformation of organic substances^{9,10} and therefore could be an alternative to traditional hazardous inorganic catalysts.^{11–13}

We are presently working on first row transition metal complexes which can mimic the function of phenoxazinone synthase^{14–16} and catechol oxidase.^{17–19} The former is a multicopper metalloenzyme²⁰ that catalyses the oxidative coupling of substituted *o*-aminophenols to produce the phenoxazinone chromophore in the final stage of biosynthesis of actinomycin-D.²¹ This potent antineoplastic agent is known to be used clinically for the treatment of various cancers^{22,23} through intercalation of the phenoxazinone chromophore into a DNA-base pair, thereby inhibiting the synthesis of RNA.²⁴ Apart from 2-aminophenoxazin-3-one (Phox-1) derivative, an oxygen transport enzyme, bovine hemoglobin, is capable of producing other phenoxazinone chromophores like 2-amino-1,4a-dihydro-4a-7-dimethyl-3H-phenoxazin-3-one (Phox-2) and 3-amino-1,4a-dihydro-4a-8-dimethyl-2H-phenoxazin-2-one (Phox-3) (Scheme 1), which can act as antibacterial agents.²⁵ Moreover, the phenoxazine chromophore itself

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† Electronic supplementary information (ESI) available: Fig. S1–S9 and Table S1. CCDC 2001493–2001495 contain the supplementary crystallographic data for **1–3**. For ESI and crystallographic data in CIF or other electronic format see DOI: 10.1039/d0nj02339f



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Nickel(II) Clusters

Syntheses, Structures and Magnetic Properties of Ferromagnetically/Antiferromagnetically Coupled Penta- and Hexanuclear Azido-Bridged Nickel(II) Coordination Compounds

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Abstract: The use of the Schiff base ligand (HL) derived from 2,6-diformyl-4-methylphenol and *N,N*-dimethylidipropylamine in nickel(II) coordination chemistry has been investigated and two pentanuclear $[\text{Ni}_5(\text{H}_2\text{L})_2(\mu_3\text{-N}_3)_2(\mu_2\text{-OH})_2(\text{H}_2\text{O})_2(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ (1), $[\text{Ni}_5(\text{H}_2\text{L})_2(\mu_3\text{-N}_3)_2(\mu_2\text{-OH})_2 \cdot 12\text{H}_2\text{O} \cdot 2\text{CH}_3\text{OH}$ (2) and one hexanuclear $[\text{Ni}_6(\text{H}_2\text{L})_3(\mu_3\text{-N}_3)_3(\mu_2\text{-OH})_3(\text{H}_2\text{O})_3(\text{ClO}_4)_2 \cdot 4\text{H}_2\text{O}$ (3) clusters were isolated under mild conditions. In these complexes, the nature of the anion and stoichiometry of the reactants seem to play important roles in directing the formation of the metal clusters. Their X-ray characterization shows that the Ni_5 cluster can be

considered to be built from two triangular $[\text{Ni}_3(\mu_3\text{-phenoxido})_2(\mu_2\text{-OH})(\mu_2\text{-N}_3)]$ subunits with $\text{bis}(\mu_2\text{-N}_3)$ connectors, while bowtie-shaped Ni_6 clusters are formed by sharing a common vertex. Variable temperature magnetic properties of the penta- and the hexanuclear nickel(II) spin coupled clusters have been investigated and interpreted. According to the present results, although the core structures of triangular Ni_3 units are identical in these systems, the introduction of different bridges bring overall diverse magnetic interaction (antiferromagnetic to ferromagnetic) in these nickel(II) clusters.

Introduction

The last few decades witnessed rapid development of polynuclear coordination clusters with spin-coupled paramagnetic transition metal ions not only because of understanding of their fundamental magnetic phenomena but also for their potential applications as single-molecule magnets (SMMs)^[1–6] and single-chain magnets (SCMs)^[7–14] and in magnetic refrigeration and

quantum computing and nanotechnological devices.^[15,16] A rational approach to synthesize discrete exchange-coupled transition metal clusters depends on the synthetic strategy that involves the use of transition metal ions, multidentate blocking ligands in conjunction with the flexidentate bridging ligands to propagate specific magnetic interactions between the metal centers. In majority, the doubly or triply bridging anions like N_3^- , NCS^- , $\text{N}(\text{CN})_2^-$, CN^- , $\text{C}_2\text{H}_2\text{O}_2^-$, $\text{C}_6\text{H}_5\text{O}^-$ and OH^- are used for the construction of magnetically interesting coordination clusters.^[17] The sign and magnitude of the magnetic exchange interactions between the metal centers in coordination clusters depend on a number of factors; the most important of these are the type of bridging ligands and bridge angles. Among all, azido and hydroxo (phenoxido and alkoxido) bridges are the most versatile mediators of magnetic exchange interactions between paramagnetic ions due to their diverse coordination ability.^[18] In most of the reported complexes, azido bridges propagate antiferromagnetic (end-to-end, $\mu_{1,3}$ bridges) or ferromagnetic interactions (end-on, $\mu_{1,1}$ bridges) depending upon the nature of the bridges.^[19]

New ligands could provide us the opportunity to attain new structural types and spin topologies. Schiff-base ligands have been extensively used as blocking ligands in developing magnetically interesting compounds mainly because of their synthetic simplicity and tremendous structural diversities. The choice of ligands is always a major issue in the development of new synthetic routes to produce such type of coordination clusters.^[20] Phenol-based dinucleating Schiff base ligands are needed to be special mentioned as they are capable to bind simultaneously two metal ions,^[21] leading to the formation of

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Iron(III) and cyano-bridged dinuclear copper(II) complexes: synthesis, structures and magnetic property of the copper(II) complex

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Abstract. This report describes the synthesis and structural characterizations of three new complexes: $[\text{Na}_3\text{Fe}(\text{bbp})(\text{Hbbp})\text{CN}_6(\text{H}_2\text{O})_4]\cdot 4\text{H}_2\text{O}$ (**1**), $(\text{Bu}_4\text{N})[\text{Fe}(\text{bbp})_2]\cdot 3\text{CH}_3\text{OH}\cdot 2\text{H}_2\text{O}$ (**2**), and a cyano-bridged dinuclear copper(II) complex, $[\text{Cu}_2(\text{tren})_2(\text{CN})_4][\text{Fe}(\text{bbp})_2]\cdot 6\text{CH}_3\text{OH}\cdot 4\text{H}_2\text{O}$ (**3**), where Hbbp = bis(2-benzimidazolyl)pyridine and tren = tris(2-aminoethyl)amine. X-ray crystallography reveals that the geometry of iron(III) centers in the complex anions of **1–3** is an octahedral, while it is a trigonal bipyramidal around copper(II) center in the complex cation of **3**. Both bbp ligands meridionally coordinate iron(III) centers in the complex cations of **2** and **3**, while three cyanide ions and bbp (or Hbbp) ligand occupied either of the meridional positions around the metal center in **1**. In the dinuclear complex cation of **3**, the Cu(II)-CN-Cu(II) bridging region is strictly linear as dictated by the symmetry with $\text{Cu} \cdots \text{Cu}$ separation of 5.084 (7) Å. Variable temperature magnetic susceptibility study shows that the cyano-bridge mediates the antiferromagnetic coupling between copper(II) centers with J value of -110 K in **3**.

Keywords. Fe(III) and Cu(II) complexes; cyano-bridged dinuclear Cu(II); crystal structures; magnetic study.

1. Introduction

Transition metal cyanide complexes have attracted considerable interest due to their extraordinary variety of chemical and physical properties including color, magnetism, conductivity and hydrogen storage activity.^{1–5} Recently, magnetic interactions between paramagnetic metal ions through the cyanide bridges have been extensively investigated.⁶ In particular, the cyanide-bridged 3D bimetallic assemblies of Prussian-blue-type compounds have attracted great attention owing to the fact that many of them exhibit a long-range magnetic ordering above room temperature, photo-responsive behavior and slow relaxation of the magnetization.^{4,5} It is well known that interaction between the metal centers through cyanide groups in an end-to-end fashion is the basis of all the interesting physical properties of such compounds. Therefore, dinuclear complexes in which a single cyanide ion bridges the metal centers can be served as model

compounds for the study of exchange interaction between the metal centers.⁶ Although a large number of cyanide-bridged 1D, 2D and 3D complexes were synthesized and their magneto-structural correlations have been established, simple $\text{M-CN-M}'$ complexes containing one cyanide linkage were not much explored.⁷ The simplest example in this regard is a dinuclear copper(II) complex with only one localized electron per metal center. It has been found that such complexes exhibit significant variation in the strength of antiferromagnetic coupling between two copper(II) centers depending upon the relative disposition of the bridging cyanide group and the type, and geometry of the metal centers.^{7,8} In the complexes with tridentate tripodal ligands, two trigonal bipyramidal (TBP) copper(II) centers are bridged by a cyanide at an axial coordination site and therefore, stronger antiferromagnetic interaction is expected in such complexes as the lobe of d_{z^2} orbital of the copper(II) ion containing unpaired electron is directed towards the σ orbitals of the cyanide ion, resulting in a greater overlap with the

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SYNTHESIS, CRYSTAL STRUCTURE, AND SUPRAMOLECULAR INTERACTIONS IN A BIS(TETRACHLOROCATECHOLATE) CHELATED MANGANESE(III) COMPLEX

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A mononuclear manganese(III) complex $[DAB]_2[Mn_2(Cl_4Cat)_2(H_2O)_2] \cdot 4DMF$ (**1**) ($DAB = 1,4$ -diaminobutane, $Cl_4Cat = tetrachlorocatechol$) is synthesized by a one-pot reaction involving manganese(II) chloride tetrahydrate and tetrachlorocatechol in a 1:2 molar ratio in the presence of 1,4-diaminobutane in a DMF-water mixture under aerobic conditions, and is structurally characterized. X-ray crystallography reveals that the complex anion is constructed with two tetrachlorocatecholate ligands coordinated to the manganese(III) center in equatorial positions, and two axial positions are occupied by two water molecules. The crystal packing of **1** is stabilized by complex networks of hydrogen bonding interactions in which oxygen atoms of coordinated tetrachlorocatecholate ligands and lattice DMF molecules serve as hydrogen bond acceptors, while the axially coordinated water molecules together with doubly protonated 1,4-diaminobutane act as hydrogen bond donors. The solid state packing of **1** is further stabilized by $Cl \cdots Cl$ halogen bonding interactions within tetrachlorocatecholate units and the $C-H \cdots \pi$ and $\pi \cdots \pi$ interactions involving DMF solvates and aromatic rings of the tetrachlorocatecholate ligands. The complex is further characterized by IR spectroscopy and cyclic voltammetry, and the results are analyzed.

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Keywords: manganese(III) complex, redox active ligand, crystal structure, hydrogen and halogen bonding, $C-H \cdots \pi$ and $\pi \cdots \pi$ interactions, cyclic voltammetry.

INTRODUCTION

Transition metal complexes with redox active organic ligands have attracted considerable attention because of their application in various fields, including bioinspired catalysis, $C-H$ bond activation, and $C-C$ cross coupling [1–7]. Furthermore, these compounds display several closely associated electronic states because of their close energy levels of the d and π orbitals of metal and the redox non-innocent ligand, respectively. These so called valence tautomeric compounds can be switched by the influence of external stimuli such as heat and light, and therefore, these bistable materials are considered as potential candidates for the fabrication of memory storage devices [8–19]. Apart from the material perspective, several 1st row transition metal complexes with non-innocent ligands, such as dioxolenes, dithiolenes, and benzoquinonediimines, were synthesized for structural and/or functional models for various metallo-oxidases [20–25].

Weak non-covalent interactions, popularly known as supramolecular interactions, play important roles for the self-assembly of molecular systems of the highest relevance in both biological and che-



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Mental Health of the College and University Students in West Bengal during COVID 19 Pandemic and Lockdown

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Abstract

The world is going through panic, fear, anxiety, stress, worry and isolation because of COVID 19 pandemic and lockdown. Almost one third of the world population is living under some kind of quarantine or lockdown. All these things affect the mental health of any individual a lot. Researches in different countries in Europe stated that lockdown affects the mental health of individual severely. The concept of Mental Health in India is not new but people pay less attention or importance to it. It is a fact that staying mentally healthy is the key to live a good life. After completing 1st phase lockdown for 21 days, India started the 2nd phase lockdown. This 2nd phase will continue for 19 days that is till 3rd May, 2020. In West Bengal, Government has declared that all educational institutes will remain closed till 10th June, 2020. Studies in different parts of the world stated that even in normal time, depression, anxiety, stress among college and university students are high. Several reasons are there. This pandemic is increasing the intensity of those reasons. Experts of Economics have already predicted that unemployment, recession will increase rapidly. GDP growth rate of India may come down to 1.9% (IMF). All these predictions are creating an atmosphere of uncertainty about the future among the graduate and postgraduate students. These age group students are very vulnerable and sensitive to such environment.

In this situation the researcher wanted to carry out the study to find out the condition of the Mental Health of the college and university students of West Bengal, a state of Indian Republic, during lockdown and how they are facing this pandemic situation.



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Reorganisation of Jammu and Kashmir: Challenges and Development

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Abstract

A major decision to scrap Article 370 and Article 35A was passed in Indian Parliament on 2019. With this, Jammu and Kashmir Reorganization Bill, 2019 was introduced on 5th August 2019 by the Minister of Home Affairs. The Bill assures the reorganization of the state of Jammu and Kashmir into Union Territory (UT) of Jammu and Kashmir and Union Territory of Ladakh. Splitting and carving new states has been common in India but changing the status of an erstwhile state to a Union Territory is something happened for the first time. The move is highly consequential in both symbolism and substance. In this paper, we will analyse the potential changes of the status of UT and challenges and developments of the process of reorganization.

Keywords: Jammu and Kashmir, Reorganisation, Pakistan

Introduction

1951 **2019**



Jammu and Kashmir map after the Abolition of Article 370

The Government of India, on 5th and 6th August 2019, took a path breaking decision to extend entire constitution of India to the State of Jammu and Kashmir. It is said that all provisions of Indian constitution as amended from time to time shall apply to Jammu and Kashmir (J&K). Further, it continued to reorganise the state into two Union Territories, the UT of J&K and the UT of Ladakh. The state of Jammu and Kashmir was captured under its valley centric politics which resulted into insecurity, subversion, corruption and low economic growth which was not on account of shortage of resources. By 2018, it became clear to the central government that to develop the situation of Jammu and Kashmir, serious attention and strong measures are required.

On 5th, 6th August 2019, the central government of India took momentous decision of rewording Article 370 (which provides special status to Kashmir) and passed the Jammu and Kashmir Reorganisation Bill 2019 which aimed at root transformation of the entire region by rebooting the total process of administration and governance. The central government has taken direct control and responsibility of the entire zone. Now the law and order of the area becomes the responsibility of the union government. As a result, improved cooperation between various groups and agencies has led to the elimination and arrest of a large number of terrorists. A section of government employees who would post separatists ideas without being charged under the civil service rules, have started now to deactivate their social media accounts and disown their posts. Since August 2019, the steps taken by the government have ensured that predicted terror did not take place and by October 2019, many of the security restrictions had been relaxed.

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India: National Crisis in Pandemic Times

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Abstract

India is one of the most affected countries in the world from the corona virus pandemic, with more than 1, 00,600 reported cases till January. To slowdown the spread of this virus, Indian government decided a national lockdown in late March, which continued until May. While the lockdown has an immense impact on the economy, health and politics of India, the number of infection cases continues to climb with growth parameter for the current quarter collapsing. This paper will discuss about the impact of this crisis situations on Indian economy, health and politics. What kinds of challenges India is facing due to pandemic and what would be the outcomes from this situation in future, we will analyze all through this paper.

Keywords: Covid 19, Economy, Healthcare, Political Discourse

Keywords:

It is the unexpected COVID-19 pandemic, which is responsible for the rapid loss of human lives in 2020. The magnitude of which is incomparable with any other disease of course related-mortality. The source and cause for the origin of the disease is still to be established. There are different questions raised related to its origin such as could it be part of the cycles pandemic like Bubonic Plague of 14th century or influenza of 16th century. It also raised the question of linkage of the virus with anthropogenic abuse of nature in the name of development, or like Climate Change which is linked to relatively contemporary profit motive driven activities.

The pandemic effects havoc in the normal life of ordinary people, not only for its rates of morbidity and mortality but also raised income debates on the extending ethical, social, cultural, political, and economic realms. The effect of this pandemic shocked social analysts who have been unsettled from the accepted and accepted knowledge of vulnerability which is usually seen as the victim of any major shock [linked to nature have met contrary to those at the bottom of the socio-economic hierarchy]. On the contrary of such received and accepted knowledge, the high death toll of Covid-19 have been predominantly of people from poorer and less developed countries of Europe, the US, the UK, Australia, India, and nations which

[illegible]

These lives could have been saved if only the current growth-centric policies had not discouraged public investments into social policy. Mistaken in the name of revenue discipline, this neo-liberal policy regime not only separates a large section of the informal sector from the working class of circular migrants. This working class has been strayed by the rule of law and has had no access to regulatory institutions. These urban informal workers are distress migrants come out of a crisis ridden rural economy in search of survival opportunities. They have been furnished for decades undigested into the urban economy. In the urban



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THE STATE AND THE INDIVIDUAL IN SHAKESPEARE AND SRI
AUROBINDO'S *VIZIERS OF BASSORA*: A COMPARATIVE ANALYSIS

Subham Dutta

The idea of state and kingship is integral to Sri Aurobindo's dramatic philosophy. Sri Aurobindo perhaps quite deliberately locates his plays within a feudal mooring, considering the ideas of state kingship, essential to his evolutionary discourse. The plays of Sri Aurobindo predominantly offer an allegorical representation of the contemporary political scenario. Structurally, they adopt the Renaissance plot device of five-act structures to dramatize conflicts related to tyranny, usurpation, illegitimacy and so on. Thematically also, they share some discursive affinity with the Shakespearean plays and their famous plot device built around social and ideological problems. Especially, in Shakespeare's history plays and tragedy, one finds the manifestations of such problems. The plays of Sri Aurobindo are also analogous in that way. However, it is needless to say that the ideological schema that Sri Aurobindo and Shakespeare adhere to through their plays are not the same. This paper aims to explore the difference between the Sri Aurobindonian and the Shakespearean notions of kingship and how they locate themselves within their respective paradigms. It is impossible to read this exhaustively within the short scope of this paper and hence I take Sri Aurobindo's play *Viziers of Bassora* as a representative text to unravel how Sri Aurobindo's idea of the state differs from Shakespeare's despite their ostensible similarities.

The state emerges as a site of multiple contestations and negotiations in the Renaissance politics. The New Historical and the Cultural Materialists approaches re-read the ideas of Renaissance state tracing the relationship between the Renaissance state and the plays. From their studies, it is perceptible that Renaissance texts both shape and are shaped by contemporary politics which accords utmost importance to the role of the individual. In this section, I will try to show how beleaguered relationship that the state and the individual share in the Renaissance discourse. It is significant to look at the evolution of the idea of the state in Renaissance humanism. The issues it holds up for scrutiny are multiple. Renaissance brings to the foreground the notion of a stable and autonomous human subject. However, that subject was not free from the attendant strictures of Renaissance body-politic. Jonathan Dollimore in his penetrating insight into the Renaissance politics shows how the Renaissance political scenario brings to the foreground the rise of a radically "de-centred subject." Dollimore contends how the



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**Perception of Virtual Friendship on Facebook: A Study on Graduate and Post
Graduate Students of West Bengal, India**

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Abstract:

Popularity of Facebook as a social networking site is rapidly increasing among young generation in India during last few years. But the purpose of using this social network of the students of higher education is somewhat different from the common people. They not only take it as a medium of passing leisure time but also use it to fulfill many purpose. It is notable that they eager to maintain a balance between virtual and real friendship. In spite of some different view it is mostly acknowledged that Facebook has both positive and negative impact as a medium of virtual relationship.

Key words: Facebook, Social network, Virtual friendship, Real friendship



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ताजिंदगी जद्दोजहद के नाम
(संदर्भ- 'काला सागर' कहानी-संग्रह)

डॉ. रेशमी पांडा मुखर्जी

सर्वेश्वर ने 'वह खिड़की' में लिखा था- 'जिंदगी मरा हुआ चूहा नहीं है जिसे मुंह में दबाए-बिल्ली की तरह हर शाम गुजर जाए/और मुंडेर पर/कुछ खून के दाग छोड़ जाए।' कहानी लेखक के रूप में तेजेन्द्र शर्मा की कलम की सक्रियता पाठकों की जिंदगी में रहराव को सर्जनात्मक हलचल में परिवर्तित करती है। आपके पात्र अपने जीवन-पथ में पाठकों के जीवन के उतार-चढ़ाव को बुनते चलते हैं। उनकी दृष्टि कहीं समाज के संपर्कत व्यवस्था की हार का प्रतीक बनती है तो उनकी खुशी निराशा में डूबे हुए मन में जीवन के अंकुर प्रस्फुटित करती है। लेखक एजेंडा लेकर नहीं चलता पर उसकी सोच के दायरे उन सभी अनुभवों की संचित उर्जा है जो उसकी वैचारिकी के माध्यम से समाज को गढ़ने के इरादे से हमारे रू-ब-रू होती है। 'काला सागर' संकलन की कहानियाँ आम भारतीय जीवन की उस लालसा की परिभाषा है जिसमें थककर चूर होती हुई जिंदगी दम घेंड़ने से इंकार करती है, घुटने न टेकने की जिद की मिसाल बनती है। बेहद दिलचस्प बन जाती है उनकी कहानियाँ जो मानव मन के उन पदों के भीतर जाँकती हैं जो अनचाहे, अस्पृष्ट से रह जाते हैं। उन किवाड़ों पर दस्तक देती है उनकी कलम जिन्हें आमतौर पर खोलने में ताउम्र किसी की कोशिशें नाकाम रह जाती हैं। यही शर्मा जी की कहानियाँ पर पाठक मन के करीब अपना साम्राज्य स्थापित करती हैं, यहीं से उनके पाठक पात्र के जीवन को अंगीकार करने लगते हैं।

'काला सागर' कहानी-संग्रह की प्रथम कहानी 'ग्रीन कार्ड' उच्चाकांक्षा, छलावा, असमंजस और निराशा के तत्त्वों के आधार पर बुनी गई है। अमृता प्रीतम के शब्दों में यदि कहें- "परछाइयों को पकड़ने वाली छाती में जलती आग की परछाई नहीं होती।" यही कहानी में अभय एक महत्वाकांक्षी युवक है जिसके लिए कैरियर, सुख-समृद्धि, खलत कहानी में अभय एक महत्वाकांक्षी युवक है। भारत के अविकसित, गैवार, गलीज ऐस, स्टेट्स का नाम है अमरीका की जीवन शैली। भारत के अविकसित, गैवार, गलीज ऐस, स्टेट्स का नाम है अमरीका की जीवन शैली। भारत के अविकसित, गैवार, गलीज ऐस, स्टेट्स का नाम है अमरीका की जीवन शैली। भारत के अविकसित, गैवार, गलीज ऐस, स्टेट्स का नाम है अमरीका की जीवन शैली।

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06 MAR 2023

**Opinion of Undergraduate Students of Selected Districts of West Bengal
about Online Classes During Lockdown**

Dr. Newton Biswas

Assistant Professor
Gokhale Memorial Girls' College
Kolkata-20

(Abstract)

The entire world is going through the biggest crisis because of the Corona virus. Most part of the world is locked down. Most people are confined in their home. Corona virus attacked India in January 2020. After Janata Carfew on 22nd March, India officially declared lockdown on 24th March, 2020. To fight against the Corona virus, West Bengal government declared that all educational institutes will remain close from 16th March 2020, except the ongoing Higher Secondary Board exam. So, in West Bengal regular teaching learning stopped from that day. Large number of teachers as well as the government became worried. Then many teachers began to take class through different online platforms such as Edmodo, Google classroom, Zoom cloud meeting app etc.

Most of the teachers and students are using such online platform for the first time. The present research article tries to find out the experience and opinion of the under graduate students of West Bengal about these online classes. Are they really getting any benefit from such classes or not is also another topic of this research article.

Key words: *Corona virus, Lockdown, West Bengal, Education, Online Class Under graduate.*

INTRODUCTION

Online class is not a very new concept, but both for the students and many teachers of West Bengal this concept is quite new. The concept of online class is gaining popularity today mainly because of the threat of Corona Virus. India is going through a period of



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Example

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Newton Biswas

A Queer Journey: Mahabharata to Ghosh's Chitrangada

Sheenjini Ghosh

"Within infinite myths lies an eternal truth
 Who knows it all?
 Varuna has but a thousand eyes
 Indra, a hundred

You and I, only two" (*Chitrangada: The Crowning Wish*).
 From time immemorial, queer sexuality has formed an integral part of the Hindu mythological folklore. However, its interpretation have always been smudgy and vague as these stories, symbols, and rituals have suffered from explanations devoid of adequate enquiry, profound interrogation and wide vision. Therefore, there has remained a chiasmic difference between the queer ideas celebrated in these stories and their shallow interpretations in our Indian society due to the ignorance and rigidity prevalent in it. Devdutt Pattanaik, a mythologist, and an illustrator has made a compilation of such stories and has compared them to the Greek lore, and *The Bible* to show how "different cultures express and repress sexuality in different ways in different times." He states that while in the Hindu lore, the god, himself, would "become women" to tempt hermits or to trick demons, there is no such takeoff change of sex or same sex love in *The Bible* (for it amounted to blasphemy). Pattanaik had explained that in the Hindu worldview nothing can be taken as permanent in the entire cosmos.

"As one oscillates between the land of the dead and the land of the living, genders change, orientations change, identities change—the future being determined by the past. Masculinity and femininity are reduced to ephemeral robes of body and mind that ensheath the sexless, genderless soul. The ultimate aim in the journey of life then becomes an exercise in appreciating the beauty of existence, understanding its limitations, before finally transcending it."

In this paper, my attempt will be to trace one such queer journey that is rooted in the Indian tradition, right from *The Mahabharata* to the 21st century film of Rituparno Ghosh. While tracing this journey, I will refer to the tale of Mahabharata, the dualism or the androgyny rooted in

Vaishnavism and explore Tagore's interpretation of Chitrangada before proceeding to Rituparno Ghosh's film *Chitrangada: The Crowning Wish*.

Myriads of instances can be found in the celebrated epic, *The Mahabharata*, through the 'queer' characters like Brihanalla, the eunuch form of Arjuna to Shikandi, the form after queer rebirth of Amba and so on. It can be observed in case of Chitrangada, the prince of Manipur, who was raised like a man, in case of Mohini, whom Vishnu had cross-dressed to trick the demons. Again, in the Vaishnav-Sakhi sect, the monks take up female apparel to be the Sakhis of Radha to be close to Krishna. Chaitanya has been regarded as the epitome of cultural androgyny of this country (Bakshi). In Rituparno Ghosh's words, "Radha and Krishna are almost symbiotic in him." But, although, the Hindu Philosophy provides room for cross dressing and queer personalities, these instances were 'tolerated' within safe parameters of the 'divine'. Socially, people were expected to "follow a parampara or belong to a sampradaya with rules and codes of conduct fixed either by caste or by the guru." Pattanaik has argued that, according to the Dharmashastras, the ancient Hindu law book, heterosexual marriages and bearing of children are the most important duties of a person. Manusmriti (500 B.C.), another law book, condemned same sex activities and also prescribed punishments for the same. The idea of 'queer' in India represented a colonial category, an instrument to stigmatize subjects, who were sexual deviants and gender outlaws, and to demark as cultural aberrations, which 'can' not or even, 'should' not be assimilated into the sphere and machinery of normative colonial thought.

Here is an excerpt to show how *The Bhagvad Gita* talks of 'Prakriti' and 'Purusha'.

"It talks of 'Purusha' as the soul, the Self, pure consciousness, and the only source of consciousness. The word literally means 'man'. 'Prakriti' is something that is created. It is nature in all her aspects. 'Prakriti' means 'creator', the female

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Example

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Research paper

A rare flattened tetrahedral Mn(II) salen type complex: Synthesis, crystal structure, biomimetic catalysis and DFT study

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ARTICLE INFO

Keywords:
Mn(II) salen type complex
Crystal structure
Spectroscopic studies
Phenoxazinone synthase like activity
Theoretical calculations

ABSTRACT

A new flattened tetrahedral high spin Mn(II) complex (1) has been synthesized using N_2O_4 donor Schiff base ligand. Complex 1 was characterized by X-ray diffraction and various spectroscopic techniques. For further understanding of electronic structure of the complex, DFT calculations and electrochemical studies have been performed. This is a rare example of a flattened tetrahedral Mn(II) salen type Schiff base complex. High spin d^5 configuration of the metal center provides no crystal field stabilization energy to the system and that is the main reason behind the significant deviation of this salen-type ligand from planarity. Notably, the propylene linker in the ligand provides adequate flexibility so that such an uncommon binding mode of the salen type Schiff base ligand becomes possible. Complex 1 exhibits excellent catalytic property towards oxidation of *o*-aminophenol in acetic condition. Detailed kinetic investigations together with the mass spectrometry studies reveal several important information relating to biomimetic catalytic activity of the present complex.

1. Introduction

Manganese is the 12th most naturally occurring trace metal found in the living systems. Coordination chemistry of manganese is driven by a part of its occurrence in the active sites of several enzymes in the biological systems [1–4]. For example, in photosystem-II (PS-II), manganese centers constitute oxygen evolving complex (OEC) which photochemically oxidizes water to oxygen. In the active site structures of Mn containing catalase [5–7] and peroxidase, the manganese centers are found to coordinate with N or O donor ligands [8,9]. It is clear that nature has chosen Mn in the active site of different metalloenzymes due to its rich redox properties and possibilities of presence of Mn ions in different geometries and stable oxidation states. These enzymatic activities of Mn inspired us to use its model complexes for selective oxidation of organic molecules. It is important to mention that synthesis of biologically-compatible, environment-friendly and energetically efficient metal complexes is a challenging task for the development of new chemicals for industrial processes and subsequently facilitating the advancement of science in different fields. Oxidation process plays a crucial role in organic reaction for the synthesis of several valuable organic compounds in the fields of pharmaceuticals, agrochemicals, etc. [10–12]. Although in chemical industries mainly molecular oxygen is used as a primary oxidant, [13–17] direct oxidation of small organic molecules by molecular oxygen is still difficult because of its spin restriction that reduces its reactivity severely with ending up of poor yield [18–21]. In this connection phenoxazinone synthase (PHS) needs special mention for its biological importance, which is a penta copper oxidase that efficiently activates molecular dioxygen at ambient condition to catalyze the oxidative coupling of two molecules of a substituted *o*-aminophenol to the phenoxazinone chromophore in the final step for the biosynthesis of actinomycin D [22,23]. Actinomycin D is an aromatic heterocyclic natural product which is clinically used for treatment of choriocarcinoma, wilms tumors, rhabdomyosarcoma, and Kaposi's sarcoma [24]. So, it is important to develop metal complexes which can efficiently mimic PHS by oxidizing *o*-aminophenol to 2-aminophenoxazin-3-one chromophore [25].

On the other hand, Schiff base ligands are classical chelating ligands which are vigorously used to understand molecular processes occurring in biochemistry, material science, catalysis, encapsulation, activation, transport and separation phenomena, hydrometallurgy, etc. [26,27]. Their ease of synthesis and reactivity with almost all metal ions present in the periodic table make them suitable synthons for the development of coordination chemistry. Literature has witnessed rich coordination chemistry involving H_2L (Scheme 1) ligand with reports of numerous



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A REVISIT TO THE RELATION BETWEEN
IRREGULARITY INDEX AND SCALING INDEX
IN A STATIONARY SELF-SIMILAR SIGNAL
OBEYING FRACTIONAL GAUSSIAN NOISE

GOKUL SAHA¹, KAUSIK RAKSHIT²,
KOUSHIK GHOSH³ AND KRIPASINDHU CHAUDHURI⁴

(Received 25 June 2019)

Abstract. For a stationary self-similar signal obeying fractional Gaussian noise there is a conventional linear relation between the irregularity index and Hurst exponent. The Hurst exponent is coined as the scaling index and the irregularity index indicates the irregularity for a self-affine signal. The commonly used range of irregularity index with the boundary conditions are found as consistent for different stationary self-similar signals obeying fractional Gaussian noise but the familiar linear relation between these two indices does not seem to be consistent in all such cases. To get rid of this problem instead of taking a linear relation we contend to take a cubic relationship between these two indices together with the same boundary relationships. The present consideration possibly construes the matter towards a persuading inference.

1. Introduction. A stationary signal is one whose primary statistical attributes like mean, variance, autocorrelation etc. remain more or less unaltered at different phases of time or space. On the contrary for a non-stationary signal these statistical properties show prominent changes at different segments of time or space.

A signal $x(\xi)$, where ξ is either time or space variable, is said to obey a fractional Gaussian noise (Mandelbrot and van Ness, 1968) if

- (a) $x(\xi)$ is stationary
- (b) The transition of $x(\xi)$ to $x(\xi + \xi')$ for an increment $n(\xi, \xi') = x(\xi + \xi') - x(\xi)$ is $n(0, 1)$ for every ξ' .



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Research paper

A simple triazole-linked bispyrenyl-based xylofuranose derivative for selective and sensitive fluorometric detection of Cu^{2+}

Samiul Islam Hazarika^a, Goutam Mahata^b, Pallab Pahari^c, Nabakumar Pramanik^a,
Ananta Kumar Atta^a  

Abstract

Triazole-linked xylofuranose derivatives having one pyrene or two pyrene moieties were synthesized and their fluorescence properties towards various cations and anions were investigated. Only, bis-triazoles appended bispyrenyl-based sugar derivative **1** exhibited selective and sensitive fluorescence quenching effect in the presence of Cu^{2+} ions over a wide range of cations and anions in acetonitrile. The ON-OFF type fluorescence response of **1** was explained by the conformational changes from strong excimer emission of pyrene to weak pyrene monomer emission due to an interaction between Cu^{2+} and inward-facing triazole groups. The limit of detection (LOD) of sensor **1** for Cu^{2+} was found to be $0.15 \mu\text{M}$, which is well accepted as per WHO's guidelines.



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06 MAR 2020

Sustainable Development and Hierarchy of Needs in Global and Indian Context

Dr. Newton Biswas
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Abstract

The widely accepted and quoted definition of Sustainable Development reads as, "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Report of the World Commission on Environment and Development: Our Common Future). Here the most important concept, according to the present researcher is 'meet the need'.

The 'need' of human beings is very interesting as well as peculiar.

Abraham Maslow nicely tried to depict this amazing 'need' of human beings. He first introduced the concept of a hierarchy of needs in his 1943 paper "A Theory of Human Motivation". It is basically a motivational theory, comprising a five-tier model of human needs, often depicted as hierarchical levels within a pyramid.

The needs, from the bottom of the hierarchy upwards, are: physiological, safety, love and belonging, esteem and self-actualization.

As per the theory the needs lower down in the hierarchy must be satisfied before individuals can attend to needs higher up.

Now the questions are, to what extent human beings are satisfied in terms of their physiological need, safety need, love and belonging need, esteem need and self-actualization need?

Is it possible to fulfill all the needs as said by Maslow in his hierarchy of needs?

Even, if the 'needs' are not fulfilled, then how can we achieve Sustainable Development?

Its all about amazingly mysterious human mind.

In this article an attempt has been made to find out those answers, because if the 'need' of the present does not 'meet', as per Maslow's theory then the concept of Sustainable Development will remain confined only within books and seminars. We need to think critically and seriously to achieve Sustainable Development.

Key Words: Sustainable Development, Meets, Need, Future Generations, Hierarchy of Needs.



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Professionalism of Teacher Educators Regarding Obligation Towards Student Teachers, Through the Eyes of Student Teachers in Selected Districts of West Bengal

Dr. Newton Biswas
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Abstract

In this 2019, we lost many things as Indians. Rapidly we are losing our tradition, our cultural heritage and above all our identity. In doing so, we are accepting the western lifestyle. With the influence of ever-deepening globalization and development of information and technology and the role playing by media, our identity is re-shaping and giving us a new cultural identity. We need to save our own uniqueness- our identity.

The entire world agrees with the view to impart professionalism among teachers. The process has started earlier.

Teacher educators are also a part of teaching community. Their role is no less important. It is they who make teachers. They also must behave in a professional way. Now it is the time to evaluate them from the professional point of view. The learners are considered as an important part of teaching-learning system, so, while evaluating the professionalism of teacher educators, the researcher tries to evaluate the professionalism of the teacher educators, through the eyes of the teacher-student, who are pursuing or have completed B.Ed from the institute recognized by NCTE in West Bengal. The teacher educators must be responsible towards the teacher-student, society and their profession, as that the future teacher can shape a better society. So, the dream of a good society remains in the hand of teacher educators.

In this research paper an attempt has been made to evaluate the Professionalism of teacher educators regarding their obligation towards the student teachers, through the eyes of student teachers in West Bengal.

Key Words: Professionalism, Teacher Educators, Student Teachers, West Bengal

Introduction:

Change is an inevitable part of human life as well as society as a whole. If this change comes gradually, step-by-step then it becomes spice of life, if not, the individual or society may

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Okarpha
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A NEW PROPOSAL ON THE RELATION
BETWEEN IRREGULARITY INDEX AND SCALING
INDEX IN A NON-STATIONARY SELF-AFFINE
SIGNAL OBEYING FRACTIONAL BROWNIAN MOTION

GOKUL SAHA¹, KAUSHIK RAKSHIT², KOUSHIK GHOSH³
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(Received 7 December 2018)

Abstract. For a signal the power spectral density $p(F)$ usually follows a power law given by $p(F) \propto \frac{1}{F^\alpha}$ (F being the frequency). This power law index α is known as irregularity index. This relation was first observed by Johnson (1925). Since then this power law relation has been experienced in different contexts of Physics, Biology, Technology, Economics, Psychology, Language and Music. For a non-stationary self-affine signal obeying fractional Brownian motion a linear relation between the irregularity index α and Hurst exponent H was proposed as $\alpha = 1 + 2H$ (Higuchi, 1990). This Hurst exponent is coined as the scaling index for a self-affine signal (Hurst, 1951). We have $0 < H < 1$ (Hurst, 1951) and eventually this gives $1 < \alpha < 3$ obeying the boundary principles as $H = 0$ when $\alpha = 1$ and $H = 1$ when $\alpha = 3$. Although the present range of α with these boundary conditions are found to be consistent for different non-stationary self-affine signals obeying fractional Brownian motion but this linear relation between α and H does not seem to be agreeable in all such cases. To resolve this issue instead of taking a linear relation we argue to take a cubic relationship between these two indices together with these boundary relationships. The present consideration possibly interprets the matter towards a convincing conclusion.

1. Introduction. A stationary signal is one whose primary statistical features like mean, variance, autocorrelation etc. remain more or less unchanged at different phases of time or space. On the contrary for a non-stationary signal these statistical properties show conspicuous changes at different phases of time or space. Non-stationarity is often revealed as time variability or space variability like periodicity, monotonic behaviour, step resembling trends, random walking etc.

A signal $x(\xi)$, where ξ is either time or space variable, is said to obey a fractional Brownian motion (Mandelbrot and van Ness, 1968) if



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2019 Sl. No. 46 Nabamita Chakraborty,
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Revisiting Motherhood: A Psycho-social Probe Exploring the Changing Trends in the Attitudes and Perspectives of Educated Women

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Motherhood and mothering have long been the subject of academic research, public discussion and debate. The changing times, the revolution and evolution of the woman's role in society have produced subsequent modifications in the normative prescriptions and expectations in the perception of motherhood. This study used a cross-sectional qualitative research method used on an attempt to investigate their experiences of motherhood, to hear what they had to say about their attitudes, values, concerns and needs. It also aimed to gather illustrative data on motherhood from female college students to investigate the perceptions and opinions regarding their own future mothering role. Data was collected through 40 individual interviews involving a semi-structured set of open-ended questions raised by three experts. Analysis of the interviews was conducted using a qualitative content analysis approach. Also, the perception of 70 female college students ranging from 18-24 years about their own future mothering role was taken. Results showed significant differences in a considerable portion of the study between the group of mothers interviewed and the college students. Also, important attitudinal differences between the two groups are revealed. Additionally, inconsistent with prior research, mothers have shown variations in their perception of motherhood with varying age of their motherhood experience.

Keywords: Motherhood, perception, conflict and role.

The recent times have witnessed dramatic transitions in the woman's role in the human society. The massive rise in the level of education a woman receives nowadays, together with the other simultaneous improvements in the woman's current socio-political-economical position, particularly in the urbanized set-up, have introduced powerful role revisions for the woman. Therefore, consequent modifications in the normative social time-table and prescriptions for the woman have begun to demand increasing research attention.

A crucial normative socio-cultural expectation from the woman is the attainment of motherhood, and the dedicated nurturing of her offspring(s). However, the gradual shifts in the familial role of the woman has also created scope for newer perspectives and attitudes to emerge in her about the predominant expectations in the society. Moreover, it would be justified to assume that the expansions in the role of the woman outside the immediate boundaries of the

home, would create obvious handicaps in her duties of child-rearing and caring for the family as a whole. Such increasing complexities and challenges of functioning are of high likelihood to alter perceptions, and attitudes of the early adult women who have to opt for motherhood in the near future as well as bring about changes in the experience of mothers (both early adults and middle adults).

Major theories on mother-child relationships and the role of the mother by psychoanalysts and other theorists (Freud, Klein, Winnicott, Bowlby and others) have been very popular. Motherhood is an essential part of many women's lives, particularly in societies where traditional gender roles persist (Watts et al 2015). Mothering is a primary identity for adult women, and women's gender identity is reinforced by mothering (McMahon, 1995). Marriage and childbearing almost often define a woman's position within the family and her community (Benza and Liampitong, 2015).



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Religious Tourism and Its Impact on Local Economy and Environment: A Case Study on Dakshineswar and Adyapeath, West Bengal, India

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Abstract

In last few decades tourism has become a rising industry throughout the world. But religious tourism which is mostly related to the pilgrimage is marked by its antiquity. Dakshineswar and Adyapeath are two famous religious tourist spot of West Bengal, India. The famous Dakshineswar temple which houses the Goddess Kali was founded by Rani Rashmoni in the year of 1847. On the contrary Dakshineswar Ramkrishna Sangha Adyapeath was founded in 1921 by Ananda Charan Bhattacharya who is popularly known as Sri Ananda Thakur. Thousands of tourists and visitors come here throughout the year. Undoubtedly tourism development leads to economic and infrastructural development of a region. But it has some negative impact also. The aims of the article are to discuss the prospects and problems of religious tourism of the said areas. Recent skywalk project of West Bengal Government and its impact on locality is also a major topic of discussion.

Keywords: religious tourism, pilgrimage, development, skywalk project

Introduction

Geography is an interdisciplinary subject and its novel branch Sacred Geography has emerged where interrelationship between 'Religion' and 'Space' has been exhibited. Interdisciplinary studies in Geography and Religion, then raise issues of power and knowledge in our understanding of Eliadean Sacred Space (Jamie S. Scott 2001). At the same time, interdisciplinary studies in literature and religion have begun to explore writings which give narrative, dramatic and poetic shape to different religions, myths and symbols, rituals and values, heroes and histories, and so forth. Rarely, however, have scholars sought to examine literature under

the double rubric of the religious and the geographical. While many branches of geography are scientific in perspective and method, what is clear from the Hindu India is that its geographical features—its rivers, mountains, hills, and coastlands—no matter how precisely rendered, mapped, or measured, are also charged with stories of gods and heroes. This feeling of "sacred" invokes a connectedness, a presence of the blessing of existence. It is "sacred" when it becomes for us a "window to the Kingdom of God" and a reminder of the sacredness of all space as space created by God (James M. Robenstein & Robert S. Bacon 1990).

Dakshineswar and Adyapeath are two renowned religious tourist spots of West Bengal. Thousands of Hindu pilgrims visit the spots throughout the year. Thus, different tourism related activities have been developed here and significant numbers of local people are directly or indirectly involved. But it has been observed that there are some negative impacts of religious tourism on environment.

Location

The Latitude and Longitude of Dakshineswar Kali Temple Kolkata is 22.665232°N 88.409447°E respectively. It is situated on the eastern bank of River Hughli and the elevation is almost 8m from MSL. Administratively the temple is under ward no. 14 of Kamarhati Municipality, North 24 Parganas, West Bengal. According to the earlier deed (1855) total area of the temple complex was 20 acres.

Adyapeath Kali Temple is located just one km away from Dakshineswar Kali Temple. The coordinate is 22°39'38"N and 88°21'48"E. It is also under Kamarhati Municipality (ward no. 14).



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Privatization of Education Vs Cultural Identity

Dr. Newton Biswas*

Privatization. It is a process that allows certain state's welfare services to be run by non-state or private parties. It is basically a policy through which government spurs from their responsibility and allows private individuals and institutions to execute things and do the job for money.

Today education sector is becoming an 'industry'. India is not an exception. Globally, Indian Education sector is one of the largest, with an extensive network of more than 1.4 million schools and more than 850 universities and 40,000 higher education institutes is expanding rapidly in light of rising income levels and growing demand for quality education in the country. Education sector in India is a mix of government-operated & privately operated educational institutions and allied educational products & services providers. Privatization of education in India is not a new concept at all. In fact it is very old. But recently the form and function of privatization of education have changed rapidly and extensively. Though India was a founder member of GATT (1948), Govt. of India restricted FDI in many ways. From 1962 to around 1977 govt. restricted FDI according to the interest of local industry and economy. From 1980 onwards with the Industrial policy 1980, govt. started the process of privatization and liberalization with a slow step. At last, with Industrial Licensing Policy 1991, Govt. of India abolishes the border and opens the door of globalization, in the modern sense. The process of globalization completes when India joins WTO in January 1995, and 'agree to stand by the regulatory framework of free global trade and competition.' Because of all these things today the foreign investors are investing in education sector. The education sector in India has witnessed a paradigm shift in recent times. The private sector in the field of education operates under the following stack of ownership.

- **Individual owners and Trusts:** Under this type of ownership, Educational institutes/organizations are owned and controlled by trusts created for the educational purposes by the individual(s) and corporate houses
- **NGOs (non-government organizations):** Under this type of ownership, organizations help in providing education to the segmented sections like women, disabled, rural and urban people

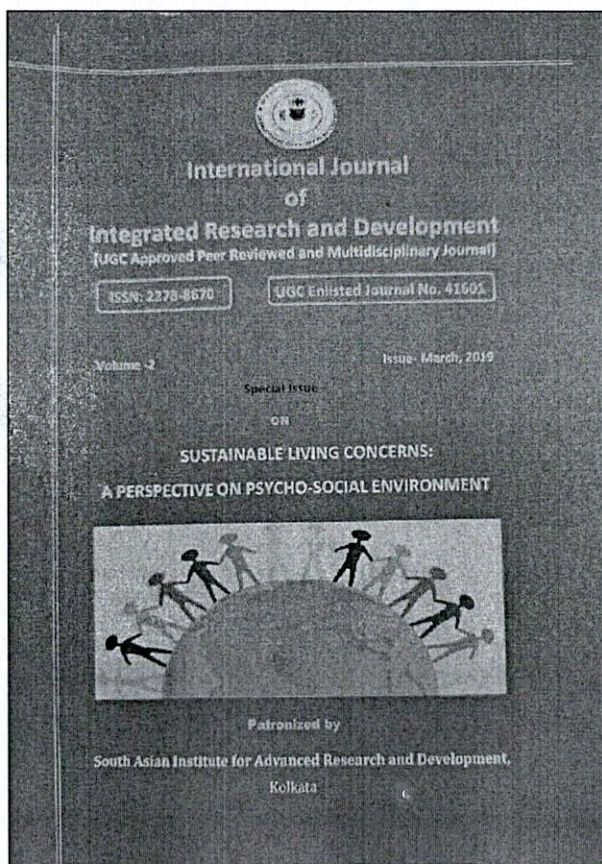


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INCLUSIVE ENVIRONMENTAL PHILOSOPHY OF VEDAS: FOUNDATION OF SOCIAL HARMONY AND DIVINITY

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Environmental awareness, however, is not a recent phenomenon and may be traced back to remote antiquity. Man has an 'inborn ecological sense' and environment awareness is an integral part of human culture ingrained in the philosophy and tradition of early civilization. The attitude of the Vedic seers towards the environment comes to light from their proclamation like: 'the Earth is our mother and we are her offspring'.

Vedas are the sacred Sanskrit texts of Hinduism and are particularly important from the perspective of forestry traditions, relevant to indigenous ecological knowledge, on which there is considerable interest now. The Vedic texts, in order to surmount hazards of pollution put a bar on indiscriminate cutting of trees and provided instructions not to pollute water with excrements.

The Vedic seer solemnly declares the enduring filial allegiance of humankind to Mother Earth: 'Mata Bhumi Putroham Prithivyah'— Earth is my mother, I am her son. Mother Earth is celebrated for all her natural bounties and particularly for her gifts of herbs and vegetation.

Vedas mention of negative ions in the context of environment; which carry oxygen atoms that are good for environment and human health. Rigveda and Yajurveda had pointers to the negative ions. Now modern scientific researchers are not only validating this Vedic wisdom, but have also found developed technologies to create such environments at homes, hospitals and work places to enhance cheerful temperaments, earlier healing in hospitals and less mental fatigue at workplaces. Ancient Indians saw divinity in all creatures.

So, it becomes evident that there is a constant relation between the macro-cosmic and micro-cosmic world. This is known as Loka-PurushaSaamayin Ayurveda. The body, soul and the mind are like a tripod that sustains all life forms. The ancient Hindu text proposes a holistic approach to life based on a philosophical trinity that encompasses: ecology, spirituality and humanity which are translated as 'Soil', 'Soul' and 'Society'.

Key words: Ecology, Vedas, Soil, Divinity, Soul

MAIN BODY

Human beings live in the realm of nature; they are constantly surrounded by it and interact with it. The most intimate part of nature in relation to man is the biosphere, the thin envelope embracing the earth, its soil cover, and everything else that is alive. Our environment, although outside us, has within us not only its image, as something both actually and imaginatively reflected, but also its material energy and information channels and processes. This presence of nature in an ideal, materialized, energy and information form in man's Self is so organic that

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Shrinkhla Ek Shodhparak Vaicharik Patrika

Money for Nothing A Comparison of the Rural Credit System between India and Bangladesh

Abstract

Agriculture needs working capital to operate. Smooth credit availability boosts and ensures agricultural productivity. This paper focuses on India and Bangladesh which are considered to be developing, though at different paces, are heavily dependent on the agricultural sector; and attempts to confirm the role and utmost importance of credit availability and rural banking system for agricultural growth and wellbeing of the mass engaged, in a comparative way in these two economies by examining the current state of the agricultural and rural banking in both the nations.

Keywords: Rural, Credit, India, Bangladesh, Agriculture, Loan, Bank.

Introduction

Credit is an important input for rural development, which can be short term or long term; it is distributed to meet the needs of the farmers during the gestation period between sowing, harvesting and marketing cycles. Long term loans are provided to purchase irrigation equipment, agricultural machinery, livestock, land, agro based industries etc. short term loans on the other hand are provided with a shorter time period for repayment (usually after harvest) for the farmers' short term needs such as the purchase of seed, fertilisers, payment of wages for workers. In India farmers face a great deal of rural indebtedness and are exploited by the credit market due to high interest rates and lack of convenient access to credit. Cash flows and savings in the majority of rural households are low and so the dependency on credit is quite high for consumption needs such as education, housing, food, household functions, etc. Rural households need access to financial institutions that can provide credit at lower rates and at reasonable terms from the traditional money lenders and thereby avoid the debt traps that are predominant in rural India. Agriculture in Bangladesh, comprises of around 14% of the national GDP, agriculture production should be kept up to sustain the GDP growth. Convenient access to agriculture credit promotes agricultural productivity and therefore ensures production stays high. The farmer population is consisted of mainly small or marginal farmers and out of that a small proportion has access to institutional credit. Almost all farmers of all size categories report the need for credit to obtain agricultural inputs, without adequate access production cannot be finished on time. The people involved in agriculture are mainly poor and subsistence farmers, they depend on their production of food supplies. A lack of agricultural inputs due to a lack of capital will hamper production and therefore hamper their food security as well as the nation.

Structure of the Banking System (India)

The Indian agriculture banking system started in 1975 with the goal of expanding banking facilities to the rural areas. The Government and the Reserve Bank of India (RBI) encouraged agricultural banking, in 1975 the Regional Rural Bank (RRB) was set up by the RBI to promote banking in the rural areas and for the farmers to benefit from the banking facilities. In 1982, RBI further established the National Bank for Agricultural and Rural Development (NABARD), an agricultural financial corporation, to provide finance and carry out agricultural schemes and policy in favour of the farmers. In 1949 the State Bank of India was established after the banking regulation act was enacted. It handles the central and state's banking transactions while also functioning as a principle agent of the RBI, they also provide agricultural credit to the rural farmers- a major source of credit in India.



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Akshar-Nama An Analysis of the Growing Role and Impact of Online Education in India

Abstract

This paper aims to chalk out the significant importance of Online Education and the growing internet system on the Indian Education Structure that can abysmally hit the majority of students belonging below the poverty line. While the system of age-old classroom teaching comes with a limited spread due to presence of Rivalry & Excludability, Online Education can reach to the mass with unlimited access to endless information just on a click of a finger at a minimum cost and affordable time saving all opportunity costs.

Keywords: Online, Education, Internet, Classroom, Teaching, India, Virtual, Market.

Introduction

Free Internet is a medium. Education if connected is subjugated to a format of booming literacy no one could dream of. Surveys on how handful online education companies of India are changing the market is included as the motivation for the next big paradigm shift of the country. Students are juggling work, family and education altogether, so the flexibility and variety of courses that are being offered by the multiple e-learning apps are attracting them at a high pace. Online Education requires creating Mobile Applications or E-Learning Platforms and establishment of Websites. This certainly requires a magnum of Initial Capital. Also, constant up gradation of technical devices require applications or Platforms to go through regular software checking which requires flowing of working capital. However, the return to Capital is best indeed. Interestingly, it indirectly contributes to the society at large. From saving time to creating an essence of convenience, Online education can literally change the very fundamentals of Education. In this era of out reached connectivity, Internet can push Education to the mass at large. It is not that only the students who are benefitted from the system of E-Learning but the teachers can constantly review their work and update themselves even more to cope up with the race of unparalleled dynamics. People who are working or are engaged at different professions can take up a lecture anywhere anytime which can indeed promote them to a new height. It is hard to believe but by recent research conducted by KPMG and Google Insight, market of Online Education could be at \$1.96 Billion in 2021. Perhaps this is one of the finest profit-making mechanisms soon. The growth is significant. Over the last years, search for Online Education across Internet has increased like Byjus founded in 2011 or Unacademy which came into existence at 2015 has risen to a new height. Applications like these are helping people across the country to study and attract over 1.5 crores users each. However, this stands to a mere 5 % of Indian Students as a whole. Emitting awareness and engaging more people into this will pave way for a better future. The most significant thing is that it even attracts Foreign Direct Investment through Private Placements of Equity Shares. Byju's has engaged a \$344 Million from across the world. This pushes India to a better tomorrow.

Aim of the Study

Will online or E-Learning method of education make reach Education to a greater number of people? The focus of the paper is to study the immediate impact that Online Education can bring in the current Literacy Level of the country. Owing to Free Internet, Online Education can reach greater number of people thereby making a significant shift of literacy



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Game Makers: A Comparative Analysis of Fiscal versus Monetary Policies in The Pre Reform and Post Reform Era in Indian



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Abstract

This paper aims to draw a comparison between the fiscal and monetary policies set in the pre(1948-91) and post reform era(since 1991) in India. Pre-reform era witnessed anti-inflationary monetary policies. After reforms Cash Reserve Ratio(CRR) and Statutory Liquid Ratio(SLR) were reduced, Self Help Groups(SHG) became important, monetary policies were separated from fiscal policies which in the pre-reform era included high and complex tax structure and in the post reform phase witnessed a reduction and abolition of multiple taxes, tariffs, introduction of VAT, and fertilizer subsidies to accelerate growth with price stability.

Keywords: Monetary, Fiscal, Bank, Tax, Policy, Economic, Government, Growth, Reform, Rate

Introduction

Fiscal policies of the government not only uses taxation and government expenditures as its levers but it also partly determines the nature and course of monetary policies of the central bank which in turn uses the supply of money and the repo rate as its triggers. This study examines and assesses the difference between fiscal policy measures in the pre and post reform era and monetary policy measures in the pre and post reform era. Earlier, several papers have been written on fiscal policy measures and monetary policy measures in India but none of these papers have compared the fiscal and monetary policies set in the pre and post reform era. Here in our paper, I will mainly highlight the key differences between the policy measures (both fiscal and monetary) and compare their impacts on the developing economy of India.

Pre-reform

In the pre-reform era, monetary policies were mainly anti-inflationary. In the First Plan (1951-56), the policy was mainly confined to allocation of resources. During the Second Plan period (1956-61), bank rate was raised further. In the Third Plan (1961-66) and Annual Plans (1966-69), the RBI adopted a credit policy of restraint. It raised the bank rate even further. Credit Authorisation Scheme, a system of differential interest rates (DIR) were introduced; SLR was raised followed by the nationalisation of major commercial banks. The Fourth Plan (1969-74) witnessed the adoption of restrictive credit control measures, stipulation of Net Liquidity Ratio (NLR), further enhancing of SLR to 30% and NLR to 37%. The Fifth Plan (1974-79) mainly targeted inflation. In Sixth Plan (1980-85), efforts have been continuously directed towards containing the inflationary pressures with an increase in SLR.

Post-reform

In contrast to the pre-reform era, the post-reform era witnessed considerable reductions in CRR and SLR; increased focus on SHG; the RBI signed an agreement with the government to separate the Monetary policy from the fiscal policy and interest rate structure was changed to the market oriented or liberal rate of interest. The banking sector got more autonomy and operational flexibility. More freedom to banks for methods of assessing working funds and other functioning empowered and assured market orientation.

In the pre-reform era, fiscal policy measures in this period included wealth and expenditure tax; high personal & marginal income tax rates encouraging tax evasion; numerous excise duties besides sales tax and high import tariff. Deficit financing was used as a means to cover the



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A Study of Teachers Educators Attitude towards Information and Communication Technology in Education

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Received: 12 March Revised: 19 March Accepted: 25 March

Abstract

The main objectives of the study were to find out the attitude of teacher educators towards information and communication technology and the problems faced by the teacher educators in utilizing ICT. Survey method was employed to carry out the research work. The researcher self-administered the tools for collection of data, like opinionnaire and Interview. The sample consisted of 40 Teacher Educators. Sample was selected using stratified technique. Collected data were analyzed by t-test. Result showed that The Teacher Educators are positive opinions regarding effective use of ICT in education. These findings will be helpful to take necessary step for improvement of teaching learning process with the help of ICT.

Introduction:

Now with the speed of the clock the technology is moving forward. We were free to bond around us. Science and technology are accelerating the development process of education. Today the Teacher must have knowledge of ICT as well as the knowledge of use.

According to World Bank Report (2002) "Information and Communication Technologies consist of the hardware, software, networks, and media for collection, storage, processing, transmission and presentation of information (voice, data, text, images), as well as related services. ICTs can be divided into two components viz. Information and Communication Infrastructure (ICI) which refers to physical telecommunication systems & networks (cellular, broadcast, cable, satellite, postal) and the services that utilize those (Internet, voice, mail, radio, and television) and Information technology (IT) that refers to the hardware and software of information collection, storage, processing, and presentation."

According to ICT Policy, 2012 "Information and Communication Technologies are defined as all digital devices, tools, content and resources, which can be deployed for realising the goals of teaching-learning as well as management of the educational system".

Review of related literature:

- Anbuhezian, M. (2006) studied about A Study of Information and Communication Technology in Colleges of Education in Tamilnada.

The author's highlights to study the availability of information and communication technology facilities in the colleges of education and the attitude of teacher educators and student teachers in the colleges of



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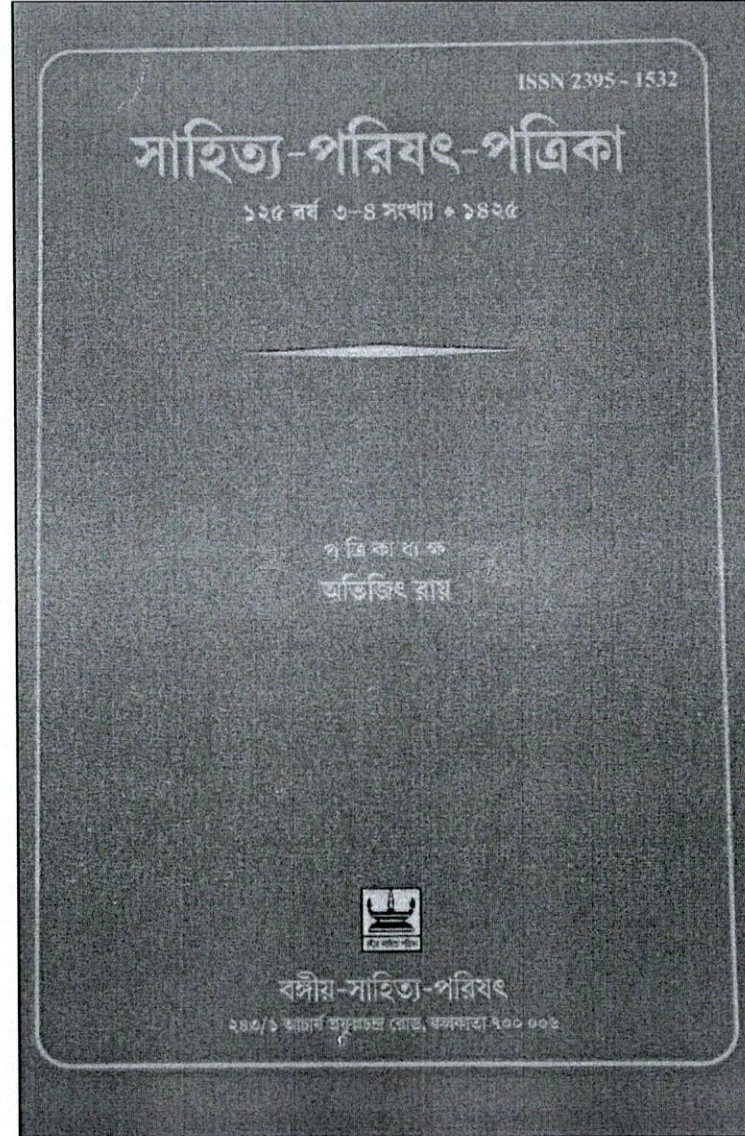
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Ranamoy Sarkar



রবীন্দ্র নাট্যবোধ ও না-হওয়া রক্তকরবী রণময় সরকার

রবীন্দ্রপ্রতিভার সৃজন অভিমুখের বিভিন্নতা আমাদের বিস্মিত করে। তাঁর সুবিপুল সৃষ্টির বহুমাত্রিক বহিঃপ্রকাশ, চেতনাকে দেয় এক বর্ণিল সমৃদ্ধি। রবীন্দ্রদর্শনের সঙ্গে নিজেকে সঙ্গীকৃত করতে হলেও প্রয়োজন এক সুনিবিড় প্রকৃতির, সীমাবদ্ধ পরিসরের ক্ষুদ্রতাকে ছাড়িয়ে অসীমের দ্যোতনায় নিজেকে প্রতিষ্ঠিত করার এক শ্রদ্ধাসম্বিত, শ্রমলব্ধ আত্মনিবেদনের প্রয়াস। তাঁর বহুমুখী সৃষ্টির মূল সুরটিকে আত্মসাৎ করতে চাওয়ার অর্থ, তাঁর সৃষ্টির প্রকৃতির সঙ্গে একাত্ম হওয়া। কবি রবীন্দ্রনাথ, ঔপন্যাসিক রবীন্দ্রনাথ, ছোটগল্পকার রবীন্দ্রনাথ বা প্রাবন্ধিক রবীন্দ্রনাথের পাশাপাশি নাট্যকার রবীন্দ্রনাথ এক অনারকম মেরুকরণ ঘটিয়েছেন বাংলা নাটকের, এই বিষয়ে রবীন্দ্রনাথের নাট্যবোধের অনুসন্ধান ভীষণ জরুরি। নাটক রচনার বিষয়ে তো বাটাই, উক্ত নাটকটির মঞ্চায়নের বিষয়েও রবীন্দ্রনাথ ছিলেন ভীষণ পেশাদার। তাঁর চিঠিপত্রে বিভিন্ন মানুষকে প্রয়োজনীয় বার্তাটি দেওয়ার পরে, বহুক্ষেত্রে তিনি ওই সময় কোন নাটক লিখছেন বা কোন নাটকের অভিনয়-প্রকৃতি চলছে বা কোন নাটক দেখতে যাচ্ছেন—এই সমস্ত বিষয়ে স্বতঃস্ফূর্তভাবে অবগত করেছেন। সারা পৃথিবীর বিভিন্ন প্রান্তে বিভিন্ন সময়ে তাঁর সফরের সময় যতটা পেরেছেন অভিনয় দেখেছেন পরিস্থিতি অনুযায়ী।

ঠাকুরবাড়ির সাংস্কৃতিক আবহ রবীন্দ্রনাথের নাট্যচেতনাকে দিয়েছিল বহুতর সদর্থক সংযোজন। বিশেষ করে, তাঁর 'জ্যোতিদাদা' (১৮৪৯-১৯২৫) তাঁর ভাবজগতে রেখে গিয়েছিলেন এক চিরকালীন নান্দনিক প্রভাব। জীবনযাত্রিতে বলেছেন রবীন্দ্রনাথ—

সাহিত্যের শিক্ষায় ভাবের চর্চায়, বাল্যকাল হইতে জ্যোতিদাদা আমার প্রধান সহায় ছিলেন। তিনি নিজে উৎসাহী এবং অন্যকে উৎসাহ দিতে তাঁহার আনন্দ। আমি অব্যাহত তাঁহার সঙ্গে ভাবের ও জ্ঞানের আলোচনায় প্রবৃত্ত হইতাম—তিনি বালক বলিয়া আমাকে অবজ্ঞা করিতেন না।

দবশ্রীকুমার সান্যাল রবীন্দ্রজীবনে জ্যোতিরিন্দ্রনাথের প্রভাব সম্পর্কে বলেছেন—

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Home

कहानी: उपकार

गोवर्धन बाबू निम्न मध्यवर्गीय समाज के जाने-माने अच्छे व्यक्ति थे। वह समाज की भलाई के लिए हमेशा किसी भी कार्यों में सबसे आगे रहते थे। जनता के दुख-दर्द को अपना दुख-दर्द समझते थे। गाँव के लोग भी उनका आदर और सम्मान करते थे, उनके द्वारा कही बातों का पालन करते थे। समाज का कोई भी ऐसा वर्ग नहीं जो गोवर्धन जी की बातों का अनादर करते हो। किन्तु उनके दो पुत्र शेखर और रतन समाज में उतने ही कुख्यात थे, वे पिता के स्वभाव से पूरे



अमर कुमार चौधरी

विपरीत थे, पिता जीतने मिठबोले और मिलनसार थे, बेटे उतने ही विषबोली और अकेला रहने वाला। एक तरह से गोवर्धन को विशुद्ध बुद्धिजीवी भी कहा जा सकता है। उनका जीवन इतना व्यस्त था कि घरेलू मामलों के लिए उनके पास बहुत कम फुर्सत होता था। अपना अधिकांश समय वह समाज के लोगों के साथ व्यतीत करते थे।

शेखर और रतन दोनों निरक्षर थे। उनमें सभी प्रकार की बुराई व्याप्त थी। पिता के मृत्यु उपरांत वह शहर में आकर नगरपालिका द्वारा निर्मित मकान की एक छोटी कोठरी में रहता था। शहर में आकार भी वे दोनों भाई निरक्षर होने के कारण एक सेठ के यहाँ मोटियागिरि करते थे तथा अपने स्वभाव के कारण कुख्यात हो गया था, लोगों द्वारा कुछ भी पुछे जाने पर दोनों भाई सबसे ऐठकर बोलते थे। जिनके कारण उनके जाती समुदाय के लोग भी उनसे बातें नहीं करते थे। शेखर जवान, फुर्तीला, मेहनती, अहंकारी और काइयाँ था, जबकि रतन अपने भाई शेखर की तरह जवान, लंबा होते हुए भी दुबला-पतला, मरियल, बुद्धू, लापरवाह और घुमक्कड़ था। अपने भाई रतन के ऐसे प्रवृत्ति के कारण शेखर उसे हमेशा समझाता-बुझाता की वह यह सब छोड़ दे, और मेहनत-मजदूरी करे, लेकिन रतन अपने भाई की बातों पर ध्यान नहीं देता और अपना वाला ही करता था। जिसका परिणाम यह हुआ कि एक दिन दोनों भाइयों में खल-पल पकड़ गई। दोनों बेटे अपने और रतन को गाँव के

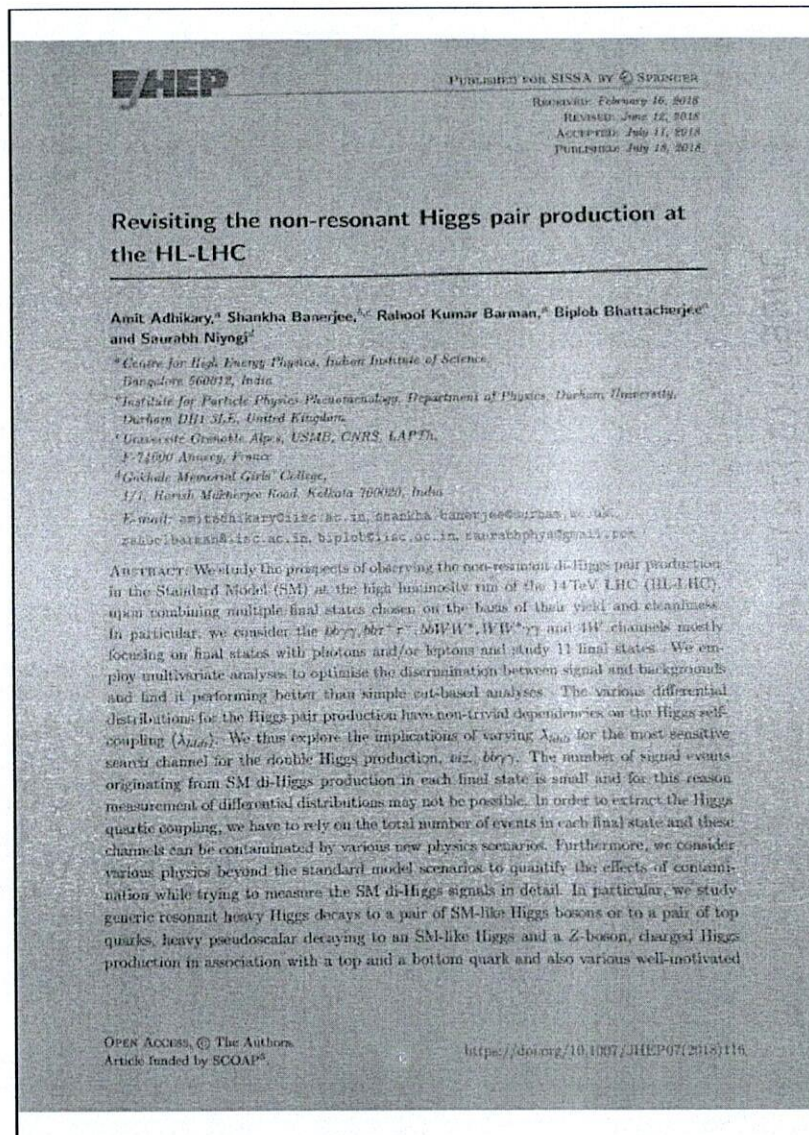


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Probing the type-II seesaw mechanism through the production of Higgs bosons at a lepton collider

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We investigate the production and decays of doubly-charged Higgs bosons for the Type-II seesaw mechanism at an e^+e^- collider with two center of mass energies, $\sqrt{s} = 380$ GeV and 3 TeV, and analyze the fully hadronic final states in detail. Lower mass ranges can be probed during the 380 GeV run of the collider, while high mass ranges, which are beyond the 13 TeV Large Hadron Collider discovery reach, can be probed with $\sqrt{s} = 3$ TeV. For such a heavy Higgs boson, the final decay products are collimated, resulting in fat-jets. We perform a substructure analysis to reduce the background and find that a doubly-charged Higgs boson in the mass range 800–1120 GeV can be discovered during the 3 TeV run, with integrated luminosity $\mathcal{L} \sim 95 \text{ fb}^{-1}$ of data. For 380 GeV center of mass energy, we find that for the doubly-charged Higgs boson in the range 160–172 GeV, a 5σ significance can be achieved with only integrated luminosity $\mathcal{L} \sim 24 \text{ fb}^{-1}$. Therefore, a light Higgs boson can be discovered immediately during the run of a future e^+e^- collider.

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1. INTRODUCTION

With the discovery of the Higgs boson at the Large Hadron Collider (LHC), we start to develop an understanding of how the standard model (SM) fermion and gauge boson masses are generated in terms of the Brout-Englert-Higgs (BEH) mechanism. However, one of the main puzzles that still remains unclear is the origin of light neutrino masses and mixings. The same BEH mechanism can, in principle, be employed to generate Dirac mass of SM neutrinos by extending the SM to include right-handed neutrinos. However, the required large hierarchy of the Yukawa couplings raises uncomfortable questions. A completely different ansatz is that neutrinos are their own antiparticles and hence, their masses have a different origin than the other SM fermions. A tiny eV Majorana neutrino mass can be generated by the seesaw mechanism, where light neutrinos acquire their masses from a lepton

number violating $\Delta N = 1$ $d = 5$ operator $LLHH/\Lambda$ [1,2]. Such operator is not forbidden as the lepton number is only a classical symmetry of the SM, violated by quantum effects.

There are three proposed categories, commonly known as, Type-I, -II, and -III seesaw mechanisms in which the SM is extended by a $SU(2)_L$ singlet fermion [3–9], $SU(2)_L$ triplet scalar boson [10–13], and $SU(2)_L$ triplet fermion [14], respectively. In particular, the second possibility, i.e., where a triplet scalar field with the hypercharge $Y = +2$ is added to the SM, is the simplest model with an extended Higgs sector. The neutral component of the triplet acquires a vacuum expectation value (vev) v_Δ , and generates neutrino masses through the Yukawa interactions. Perhaps, the most appealing feature of this model is its minimality. The same Yukawa interaction between the lepton doublet and the triplet scalar field generates Majorana masses for the neutrinos, and also dictates the phenomenology of the charged Higgs bosons.

A number of detailed studies have already been performed for the Higgs colliders like, Tevatron [15] and LHC [15–29] to search for the triplet Higgs scenario. One attractive feature of this model is the presence of the doubly-charged Higgs boson, and its distinguishing decay modes. Depending on the triplet vev, the doubly-charged Higgs boson can decay into same-sign dilepton, same-sign gauge bosons, or even via a cascade decay [16–18].

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Probing nonstandard neutrino interactions at the LHC Run II

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ABSTRACT

Searching for non-standard neutrino interactions, as a means for discovering physics beyond the Standard Model, has been one of the key goals of dedicated neutrino experiments, current and future. This has received recent impetus in the wake of reported anomalies in leptonic B -decays. We demonstrate here that much of the parameter space accessible to such dedicated neutrino experiments is already ruled out by the LHC II data of the Large Hadron Collider experiments.

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1. Introduction

Precision measurements of the neutrino mixing parameters, made over the past few decades has significantly shortened the list of unanswered questions in the standard scenario to just the issues of the neutrino mass hierarchy i.e., sign(m_{21}^2), the CP phase and the correct octant for the mixing angle θ_{12} . While the simplest way to generate neutrino masses is to add right-handed neutrino fields to the Standard Model (SM) particle content, it is hard to explain the extreme smallness of the said masses. Several scenarios going beyond the SM have been proposed to this end, often tying up with other unanswered questions such as (electroweak) leptogenesis [1,2], neutrino magnetic moments [3–6], and even dark energy [7,8] (by involving neutrino condensates). An agnostic alternative is to add dimension-five terms consistent with the symmetries and particle content of the SM, which naturally lead to desired tiny Majorana masses for the left-handed neutrinos. In respect of the approach, once new physics is invoked to explain the non-zero neutrino masses, it is unnatural to exclude the possibility of non-standard interactions (NSI) as well. Indeed, NSI has been studied in the context of atmospheric neutrinos [9–14], CPT violation [15,16], violation of the equivalence principle [13], large extra dimension models [17], sterile neutrinos [18–20] and collider experiments [21–24].

While no incontrovertible evidence for such NSI exists, certain anomalies in leptonic B -decays [25–30], together, strongly indicate a new physics scale of a few TeV [31]. Not only is the existence of analogous neutrino-NSI conceivable, there exist theoretically well-motivated scenarios wherein NSI would manifest primarily in the neutrino sector (e.g., those referred to earlier). Consequently, the search of NSI constitutes a major stated goal of neutrino experiments. We demonstrate, in this letter, that much of the parameter space that such a future dedicated neutrino experiment would be sensitive to, can already be ruled out by an analysis of the LHC data.

At sufficiently low energies, a wide class of new physics scenarios can be parametrized, in a model independent way, through the use of effective four-fermion interaction terms.¹ The investigation of these assumes further importance as the aforementioned anomalies in B -decays are quite well-explained on the introduction of such terms [31]. While these, in general, would incorporate both charged-current (CC) and neutral-current (NC) interactions, we shall confine ourselves largely to the latter (coming back to the former only later). The dimension-6 neutrino-quark interactions can, then, be expressed, in terms of the chirality projection operators P_X ($X = L, R$), as

$$\mathcal{L}_4 = -2\sqrt{2}G_F\epsilon_{\alpha\beta}^{\pm\pm}(\bar{q}_\alpha\gamma_\mu P_X q_\beta)(\bar{\nu}_\mu\gamma^\mu P_L\nu_\mu) + H.c., \quad (1)$$

¹ The obvious caveat is the situation where the NSI is occasioned by a light (well below the weak scale) mediator [32–34]. Not only do such models avoid ultraviolet fermion couplings, the model-dependence is extreme and no unified treatment is possible. Hence we shall eschew a discussion of the same.

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SMARTPHONE – HABIT OR ADDICTION OF THE STUDENTS? – A COMPARATIVE STUDY

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Technology becomes a part of the human life. Our personal life is highly dependent on the technology and it has significantly changed cultural norms of behaviour of individuals. One of the popular applications of the technology is the smartphone and it has affected the students' behaviour. Smartphone, the new obsession of the human beings have now become an integral part of the daily lives of most of the individuals of the world. It allow us to write message or text, check, and interact on social networking sites such as Facebook, Myspace, Twitter, Instagram etc., check their e-mails, play games online, and even watch TV. But at the same time this is extremely distracting for not only the individual (because they are obviously not paying attention), but can also become distracting for other individual around them.

Smartphone users could access information, communication, business and entertainment content almost everywhere whenever they want to. This could lead to addiction in the form of frequent checking or habitual checking. People are now less attentive to whom they are with in person and indulge themselves in their smartphones.

Review of related literature

Chen, Y. N. K. & et al. (2013) made a study entitled "A Comparative Study of the Relationship Between Mobile Phone Use and Social Capital Among College Students in Shanghai and Taipei". The results of frequency analysis show that the respondents used their mobile phones very frequently. The average number of calls made in a day was 4.15 (SD = 3.88) and the average number of calls received per day was 4.09 (SD = 4.74). The average number of messages sent per day was 7.06 (SD = 12.05) and the average of messages received per day was 7.73 (SD = 12.60).

Lee, G. & et al. (2014) conducted a study entitled "Hooked on Smartphones: An Exploratory Study on Smartphone Overuse among College Students". They investigate smartphone usage for 95 college students using surveys, logged data, and interviews. They first divide the participants into risk and non-risk groups based on self-reported rating scale for smartphone overuse. Compared with the non-risk group, their results show that the risk group has longer usage time per day and different diurnal usage patterns. Also, the risk group users are more susceptible to push notifications, and tend to consume more online content.

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Discovery prospects of a light Higgs boson at the LHC in type-I 2HDM

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* (Received 22 September 2017; published 22 March 2018)

We present a comprehensive analysis of observing a light Higgs boson in the mass range 70–110 GeV at the 13/14 TeV LHC in the context of the type-I two-Higgs-doublet model. The decay of the light Higgs to a pair of bottom quarks is dominant in most parts of the parameter space, except in the fermiophobic limit. Here its decay to bosons (initially a pair of photons) becomes important. We perform an extensive cut-level analysis for the $b\bar{b}$ and $\gamma\gamma$ final states. The light scalar is lightest in the highly boosted regimes for the $b\bar{b}$ mode to reduce the enormous QCD background. This decay can be observed with a few thousand fb^{-1} of integrated luminosity at the LHC. Near the fermiophobic limit, the decay of the light Higgs to a pair of photons can even be probed with a few hundred fb^{-1} of integrated luminosity at the LHC.

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I. INTRODUCTION

The recently discovered scalar particle at the LHC [1,2] closely resembles the Higgs boson conjectured in the Standard Model (SM), as its measured couplings with the gauge bosons and fermions are in reasonable agreement with the SM predictions [3]. However, the current measurements [3] still do not rule out the possibility of the observed particle belonging to an extended scalar sector of a beyond-the-SM scenario. Usually the additional scalars are considered to be heavy, and in some cases they are even decoupled from the low-energy effective theory. However, there may exist scenarios where some of the new physics particles are lighter than the observed Higgs. We explore this possibility in the context of the two-Higgs-doublet model (2HDM) at the 13/14 TeV LHC.

The 2HDM is one of the simplest extensions of the SM with an additional scalar doublet charged under $SU(2)_L$. The generic structure of the 2HDM induces large flavor-changing neutral currents (FCNCs) at the tree level and consequently faces severe constraints from the experimental data. These FCNCs can be suppressed by imposing a discrete Z_2 symmetry. This classifies 2HDM into four categories: type I, type II, flipped, and lepton specific [4].

Any 2HDM model comprises of eight real scalar degrees of freedom. In the process of the spontaneous breaking of $Sp(2)_C \times U(1)_\phi$ symmetry, three of these eight fields generate masses for W^\pm and Z bosons, leaving behind five physical scalars, namely, a light CP -even Higgs (h), a heavy CP -even Higgs (H), a pseudoscalar (A), and charged Higgs bosons (H^\pm).

The Higgs boson discovered at the LHC, being CP -even [5,6], can be identified with any one of the CP -even scalars of the 2HDM. We are interested in the scenario where the observed Higgs corresponds to the heavier CP -even scalar and h is lighter than 125 GeV. The phenomenology of such a light Higgs has been thoroughly studied for all types of 2HDM. However, the constraints from vacuum stability, perturbativity, unitarity, electroweak precision measurements, flavor observables, and LHC Higgs searches are weakest for the type-I 2HDM [7–10]. We therefore focus on the type-I 2HDM for our analysis and study the discovery prospects of the light Higgs at the future runs of the LHC¹. We choose the mass range 70–110 GeV to avoid decay of the observed 125 GeV Higgs to a pair of on-shell light Higgses, i.e., $H \rightarrow hh$. As a result, the bounds coming from the total decay width measurement of the observed scalar [3], the measurement of Higgs signal rate [3], and direct decay of the observed Higgs to a pair of light Higgses, i.e., $H \rightarrow hh$ [32] are irrelevant in our case.

¹The phenomenology of such a light CP -even scalar has also been studied in the context of various supersymmetric models; see Refs. [17–20] and references therein. Also see Refs. [21,30] for analyses where the lighter CP -even Higgs boson was identified with the observed scalar and the remaining scalars (H , H^\pm and A) were assumed to be heavy.

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2018 Sl. No. 62 Sarthak
Roychowdhury

A Study on the Upsurge and Impacts of the App Based Taxis on the Urban Transport Sector

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ABSTRACT

Luxury taxi aggregators have turned more of a necessity in Kolkata where the traditional yellow cabs-a quintessential Kolkata symbol (one of the oldest forms of private transportation) are more in the news for frequent strikes, refusal, furious drivers or tampered meters. The commuter's growing preferences for the app-cabs has led to a surge in operators applying for permit. According to West Bengal Transport Department the number of application seeking permit for the luxury cabs has multiplied. While the standard yellow cabs still continue to be in majority, the number of applications for permits to run them is witnessing a steady decline. The visibility of app-based cabs in the eastern metropolis streets are increasing by an enormous rise in demand for clean and air-conditioned cabs. The most important differences between this yellow cabs and app based cabs are ease of availability, reliability, cost and trust. There is a huge socio-economic impact on the yellow cab drivers, owners and users therefore the demand for yellow cabs are falling in turn strikes are rising. It is a comparative study to understand the cause, effect and future of private transportation in Kolkata.

Keywords: Cab, Demand, Taxi, Driver, Smartphone, Government, Industry, Transport Sector

Introduction

In Kolkata however the yellow taxis have been up in arms against the online taxi hailing services. The drivers of yellow taxi resort to strike to cancel out app-based cabs permissions but simultaneously there is a section of drivers who are making a move to join app-based cabs platform. The life of drivers of app-based taxis is far better than them as they not only earn ten times more income but also they don't have to suffer due to the polluted busy streets and the uncomfortable cars. The Bengal Taxi Association which has been against the taxi aggregators has demanded the fares of the app-based cabs be regularised by the government. Unlike different operators have different fares they can fix the fares according to their will which creates unfavourable competition. They have been agitative for long but the government allows them to operate illegally.

The customers instead of chasing a taxi they can now easily book a taxi in one touch through their smartphone from any location in the city within minute's payment can be done cash free through credit cards which reduces the chances of theft. One phone can book one taxi only at a time. For passengers with expense account an email is sent. The taxi driver only gets the information of the place when he reaches the destination and tallies his records therefore this reduce the chances of refusal by drivers to undesirable parts of town though it is not always. Unprofessional drivers are weeded out because customers need to rate their rides. The cars are clean comfortable and air-conditioned. Drivers are hassle-free due to cash-less transactions. The work hour tends to be long for yellow cab drivers but the app-based cab drivers have freedom and flexibility, they can log in and log out of their devices as their convenience. Rude, aggressive and disruptive passengers can be weeded out as they also need to rate their customers and consecutive reports filed may cause deactivation of their accounts too. App-based cabs have occupied a very valuable space in the transportation market as it provides most of the benefits while reducing most of the difficulties. These services have created fierce competition increasing the supply of cars and drivers thereby generating employment.

Though the customers enjoy greater access to safer more stylish service in more reliable cars but 'surge pricing' or 'primetime pricing' is the most controversial part. It means a method of pricing

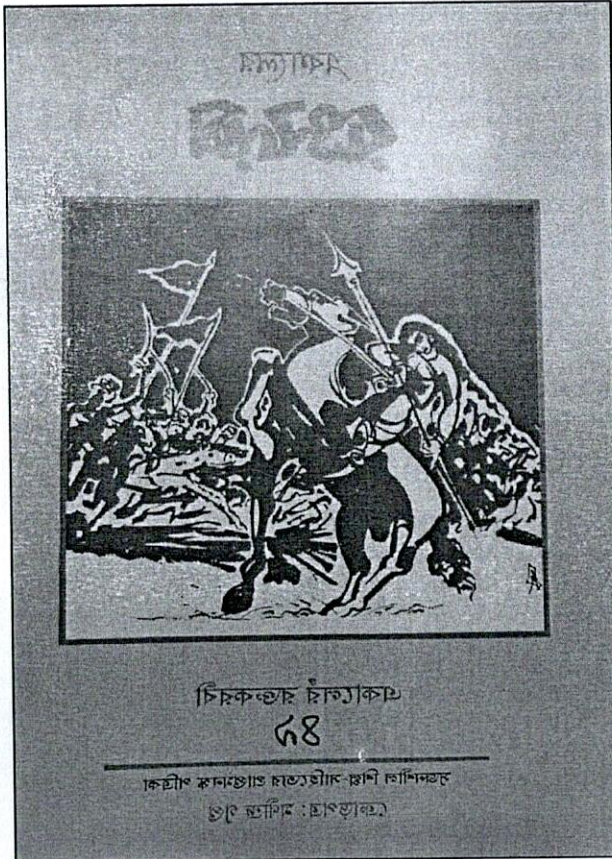


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মেঘনাদবধ কাব্য, ঠাকুরবাড়ি ও বিবেকানন্দ
রশ্ময় সরকার

২৮ মে, ১৯০৩ তারিখে অজিতকুমার চক্রবর্তীকে রবীন্দ্রনাথ লিখেছিলেন, 'কোন বৃহৎ প্রতিভার প্রকৃত মনোহাণে পৌঁছিতে সমর্থ জাতি। ইটালি একটি কোম শত্রুর মাথা নিশ্চিতভাবে নিজেকে ধাক্কা করিলে অনেক সময় পক্ষা প্রকাশ পায়।' এর চকিত্র বছর পর, ৩ অক্টোবর ১৯০৪ তারিখে রানানন্দ চট্টোপাধ্যায়কে লিখেছিলেন, 'আমার বাস ঘর ৯ আমি ম্যাকবেথ তর্জমা করেছি।' এই বিবরণই জীবনস্মৃতি-র 'ঘরের পড়া' লিখেছেন, 'আনন্দচন্দ্র বোদোবাগীশের পুত্র জানানন্দ চট্টোপাধ্যায় মহাশয় বাড়িতে আমাদের শিক্ষক ছিলেন। ইংরেজের পড়া ঘর তিনি কোনোটাই আমাকে বাঁধতে পারিলেন না, তখন গ্রাম ছাড়া গিয়া অন্যথা ধরিলেন। আমাকে বাংলায় অর্থ করিয়া কুমারসংগ্রহ পড়াইতে লাগিলেন। তাহা ছাড়া বানিকটা করিয়া ম্যাকবেথ আমাকে বাংলায় মনে করিয়া বলিতেন এবং বক্তৃতা তাহা বাংলা ছন্দে আমি তর্জমা না-করিতাম ততক্ষণ ঘরে বদ্ধ করিয়া রাখিতেন। সমস্ত বইটার অনুবাদ শেষ হইয়া গিয়াছিল।' এই ল-বছর ব্যতীতই রবীন্দ্রনাথ পড়েছিলেন মাইকেল মধুসূদন দত্ত-র মেঘনাদবধ কাব্য: জীবনস্মৃতির প্রথম পাণ্ডুলিপিতে লিখেছেন, 'আমরা যখন মেঘনাদ বধ পড়িতাম তখন আমার পয়স বোধকরি নয় বছর হইবে।' রবীন্দ্রনাথের কাছে মেঘনাদবধ কাব্যের পাঠ-অভিজ্ঞতা সুবন্ধ ছিল না মোটেই।

দারুন 'সাহিত্য সীতার বনবাস ঘোষ একদম চট্টো মেঘনাদ বধ কাব্য।' এ ধনদে তাঁর প্রাতিষ্ঠানিক শিক্ষার সঙ্গে সম্পৃক্ত পাঠ অভিজ্ঞতার পরিচয় নেওয়া আবশ্যিক। রবীন্দ্রনাথ লিখেছেন, 'ভোলোবেলায় বাংলা পড়িতেছিলাম বলিয়াই সমস্ত মনোনিবেশ সন্তান হইয়াছিল।' বন্ধন চারিদিকে ছুঁব কলিলা-ইংরেজি পড়াইবার পূর্ব পড়িয়া গিয়াছে, তখন যিনি সাহস করিয়া আমাদের পাঠ্যপুস্তক বাংলা লিখাইবার ব্যবস্থা করিয়াছিলেন, সেই আমার স্বর্গীয় নেত্রদার উদ্দেশ্যে সন্তুত পণ্ডিত নিবেদন করিতেছি।' বাংলা ভাষার শিক্ষা এবং বাংলা ভাষার শিক্ষা-পুস্তকেই ঠাকুরবাড়ির মনোভাব সুস্পষ্ট। ১০ ফাল্গুন ১৮৬৮ বঙ্গাব্দে শতাব্দিকতন-নবপাঠ ছাত্রদের রবীন্দ্রনাথ বন্দোবস্ত, পঞ্চদশ বছর পূর্ণ হইবেই তিনি। ইংরেজি যে ভাল করে জানি তা রাখা ছিল না। মাতৃভাষাই তখন আমার সফল ছিল।' 'ভোলোবেলা' লিখেছেন, 'সেইদিন' বলাতন, আশে চাই বাংলা ভাষার গাথনি, তার পর ইংরেজি শেখার পড়া' এবং 'সেইদিন' তাঁর ভেঁড়া মেয়েকে শিখিয়ে তুলতে লেগেছিলেন। যথাসময়ে তাতে নিজেছিলেন লোরেটোয় ভর্তি করে। তার পূর্বেই তার ভাষায় প্রথম স্থল হতে গেছে বাংলায়।' ১৯৭০ শকাব্দে দেবেন্দ্রনাথ ঠাকুর, রাজনারায়ণ বসুকে লিখেছেন, 'জ্ঞানেন্দ্রবাবু খ্রিস্টিয়ান হইয়াছেন, এইক্ষণে তাঁহার ইংরেজি বক্তৃতা করিবার সাধ মিটিবে। পূর্বে আমার

মাইকেল মধুসূদন দত্ত

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Interactions of Fluorescein Dye with Spherical and Star Shaped Gold Nanoparticles

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UV-vis absorption, FT-IR, steady state fluorescence and fluorescence lifetime measurements were made on Fluorescein dye (Fl dye) molecules in presence of gold nanoparticles of different morphologies: spherical gold nanoparticles (GNP) and star shaped gold nanoparticles (GNS). The experimental observations demonstrate that Fl dye molecules form dimers when adsorbed on nanosurface of spherical gold particles. On the other hand possibly due to lack of adsorption on the surface of GNS the dye molecules were unable to form dimers. The projected tips on the surface of GNS may possibly hinder the dyes to adsorb on the surface of this nanoparticle. From the spectral analysis and measurements of thermodynamic parameters it is inferred that two different types of ground state interactions occur between Fl-dye-GNP and Fl dye-GNS systems. Both the observed negative values of the thermodynamic parameters ΔH and ΔS in the case of the former system predict the possibility of occurrences of hydrogen bonding interactions between two neighboring Fl dye molecules when adsorbed on the nanosurface of GNP. On the other hand in Fl dye-GNS system electrostatic interactions appear to occur, as evidenced from negative ΔH and positive value of ΔS , between the positive charges residing on the tips of the nanoparticles and anionic form of Fl dye. It has been concluded that as the adsorption of organic dyes on solid surfaces is prerequisite for the degradation of dye pollutants, the present experimental observations demonstrate that GNP could be used as a better candidate than GNS in degradation mechanism of the xanthenes dyes.

Keywords: Fluorescein Dye, Gold Nanoparticles, Adsorption, Dye Pollutants, Thermodynamic Parameters, Gold Nanostar.

1. INTRODUCTION

The textile, printing and photographic industries use many organic dyes and these dyes finally being released as waste products from the industries contaminate rivers, seas and other water reservoirs. These dyes thus become sources of water pollution creating serious problems to the ecosystem, human and marine lives. It is urgently needed to degrade these dyes coming as industrial effluents to save the human and animals from contaminations of several life-threatening and chronic diseases.^{1,2} Until several studies have been reported regarding the degradation of the different organic dye pollutants by using various semiconductor nanoparticles.^{3–7} On the other hand relatively fewer investigations were made on photocatalytic degradation of xanthene dyes by

gold nanoparticles.^{8–10} Mrowetz et al.¹¹ reported that in increasing the efficiency of the photocatalytic degradation of an azo dye, deposition of gold nanoparticles on TiO_2 surface is necessary. Grunwaldt et al.¹² examined the effect of size of gold nanoparticles on their catalytic and photocatalytic performance in degradation of dyes. The application of nanosized gold as a drug system has been reported by Ganguly et al.¹³ The various other important applications of noble metal gold nanoparticles have been described in details by Eutis and El-Sayed.¹⁴ Lately gold nanoparticles have become the subject of great research interest due to their size and shape dependent properties.^{15–18}

Among the various techniques used for dye-polluted water purification, adsorption methods appear to possess advantages over the other processes as the cost is small and do not release any toxic matter.¹⁹

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सेमल के फूल : एक अधूरी प्रेम-कथा


‘सेमल’ के फूल मार्कण्डेय की प्रेम-परक उपन्यास है जिसके नायक-नायिका सुमंगल और नीलिमा हैं। ‘सेमल’ के फूल उपन्यास में नीलिमा और सुमंगल के असाफल्य प्रेम को दर्शाया गया है। इस उपन्यास को असाफल्य प्रेम-कथा इसलिए माना जाता है क्योंकि नीलिमा और सुमंगल कहीं भी अपने प्रेम को एक-दूसरे पर प्रकट नहीं होने देता है। परिणाम स्वरूप दोनों कभी नहीं मिल पाते हैं। सुमंगल एक सामाजिक कार्यकर्ता बनकर समाज की सेवा करता है। वह एक जमींदार का बेटा है किन्तु उसके चरित्र में कोई दुर्गुण नहीं दिखायी पड़ता। वह अत्यन्त ही आदर्शवादी और संवेदनशील व्यक्ति है। वह अपने पिता की ही भूमि समाज की सेवा करना चाहता है और राष्ट्रीय आन्दोलन में अपना सब-कुछ त्याग देता है और माँ के साथ आश्रम में रहता है। नीलिमा भी एक समृद्ध सामन्ती परिवार की माता-पिता विहीन लड़की है। जन्म होते ही उसके पिता की मृत्यु हो जाती है और जब वह विवाह करने योग्य हुई तो उसने माँ भी चल बसी। अपनी व्यथा का वर्णन करते हुए नीलिमा कहती है- ‘मैं जब जन्मी तो पिता गये और अब जब कन्या पराग्री धरोहर होकर घर वालों के गले की फाँस बन जाती है तो माँ भी चुपके से खिंचकर गयी। किसी अपशकुन थी- कितनी अचानक।’ माँ की मृत्यु के बाद उसके जीवन के बाकी दिन उसकी माँ की यादों में गुजरते हैं और वहीं पर उसकी मुलाकात सुमंगल से होती है। दोनों एक-दूसरे के प्रति आकर्षित होते हैं किन्तु संकोचवश अपने प्रेम को व्यक्त करने में असमर्थ रहते हैं जिसका नतीजा यह होता है कि नीलिमा का विवाह किसी दूसरे व्यक्ति से हो जाता है और दोनों अजीवन एक-दूसरे की यादों को अपने हृदय में संजोये रहते हैं। नीलिमा के विवाहोपरान्त सुमंगल स्वयं को सामाजिक कार्य में व्यस्त रहता है और नीलिमा को भूलने का प्रयत्न करता है। नीलिमा भी सुमंगल की यादों को अपने हृदय में बसाये अन्दर ही अन्दर घुटती रहती है जिसके कारण रोगग्रस्त हो जाती है और अन्ततः उसकी मृत्यु हो जाती है।

मार्कण्डेय ने इस सामान्य प्रेम-कथा को नयी विचार-पद्धति के माध्यम से प्रस्तुत कर इसमें समाज की उस वास्तविकता को उजागर किया है जहाँ प्रेम के नाम पर कुछ ऐसा हो देखने को मिलता है। हमारे समाज में आज भी प्रेम करने वालों को हेय दृष्टि से देखा जाता है और साथ ही उन्हें समाज एवं परिवार की मुश्किलों का सामना करना पड़ता है। यदि इस कथा को एक सामान्य प्रेम-कथा के रूप में प्रस्तुत किया जाता तो इसमें किसी प्रकार की प्रभावशीलता या नयापन न दिखायी पड़ता और यह एक सामान्य-सी रचना बन कर रह जाती। किन्तु मार्कण्डेय ने अपने कथा चित्रण के मौलिक हुनर एवं नवीन विचारों के माध्यम से उपन्यास को एक अलग अंदाज में प्रस्तुत कर सफलता अर्जित की है। समूची कथा नीलिमा की दायरी से ली गयी है, जिसमें नीलिमा ने स्वयं के जीवन से सम्बन्धित प्रसंगों को दायरी में अंकित किया और मार्कण्डेय ने दायरी में वर्णित नीलिमा की दुःख भरी आजीवनी को उपन्यास का रूप दे दिया। नीलिमा अपनी कथा में भूल एवं भविष्य दोनों स्थिति को उजागर करती है क्योंकि नीलिमा वर्तमान में कम रहती है और भूल-भविष्य

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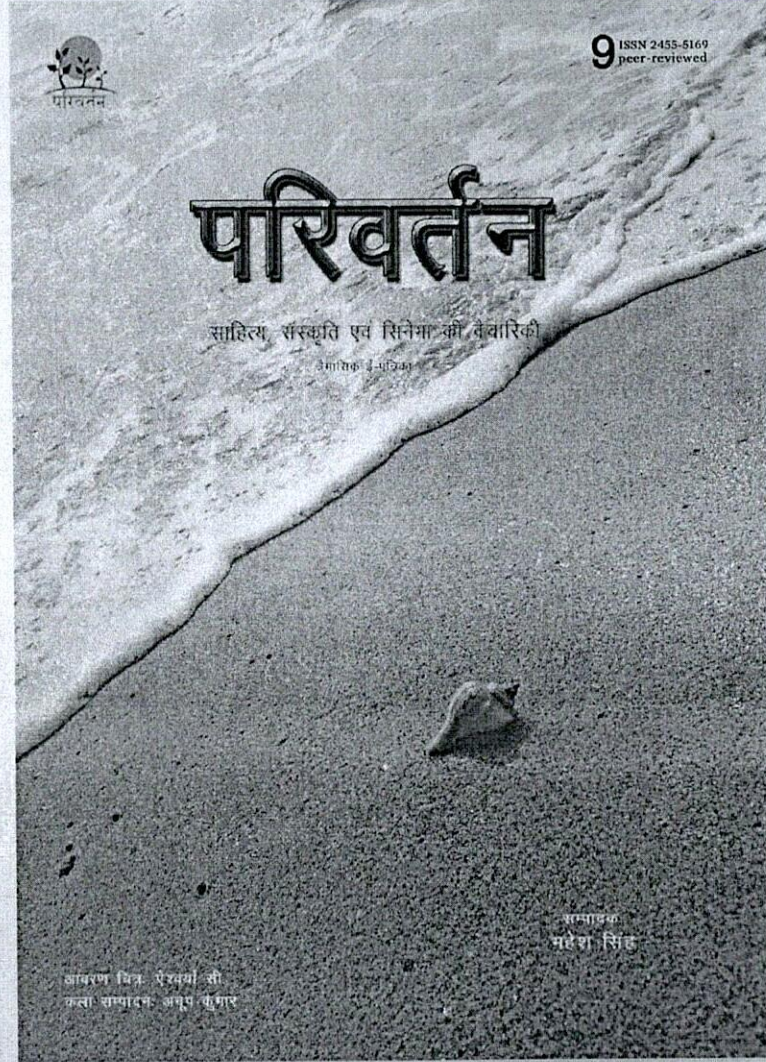
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Kanpha
Principal

Gokhale Memorial Girls' College

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"अनुवाद : कला व शिल्प या विज्ञान"

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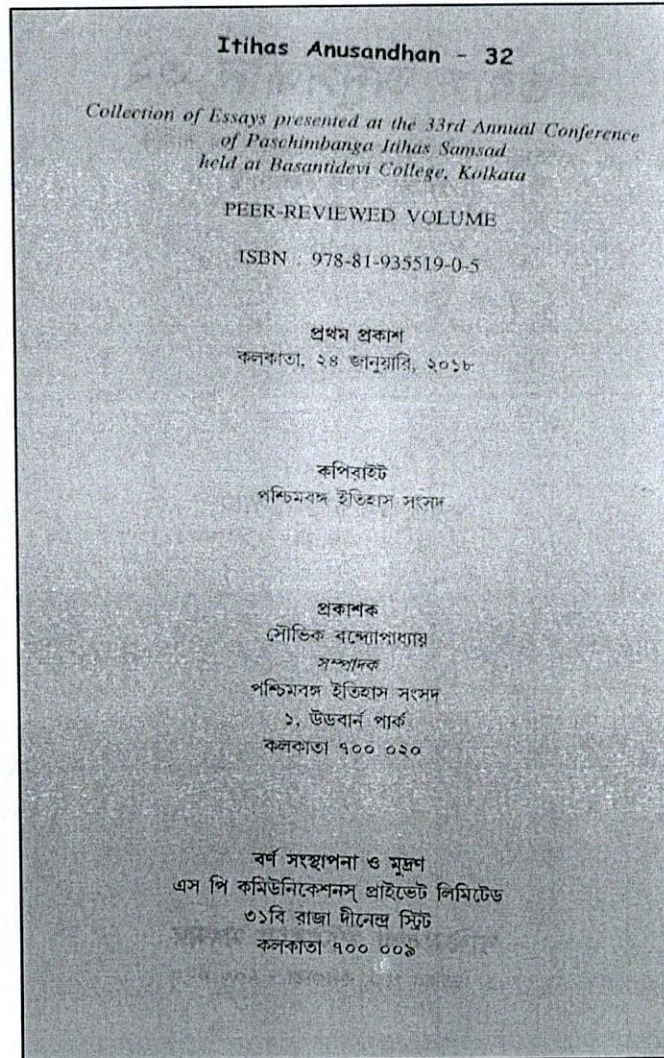
'कला' शब्द का प्रयोग सौंदर्य और लालित्यमय अभिव्यक्ति के लिए होता है। यँ तो संगीत, गीत, चित्र, स्थापत्य आदि सभी कला के भिन्न क्षेत्रों के परिचायक हैं, किन्तु काव्य भी एक उच्चकोटी की कला है। अनुभव और अभिव्यक्ति के बीच की रहस्यमय खाई, फंतासी, प्रतीक, बिम्ब इत्यादि कला के माध्यम से पूर्णाकार ग्रहण करते हैं। साथ ही साहित्यिक, अनुवादक-कलाकार की भाँति कृति के रेशे-रेसे, संरचना तथा चुनाव, रूप तथा विषय-वस्तु से गहरे-से-गहरे अन्वेषण करता है। ऐसी दशा में उसे सौंदर्य-तत्त्व प्राप्त होता है अर्थात् वह सौंदर्यानुभव करता है। कृति के साथ उसका यह अंतर साक्षात्कार उसे निवैयक्तिक अनुभूति में बाँधता है और कलाकार की भाँति अनुवादक अपने वैयक्तिक आलोचनात्मक निर्णय को स्वरूपित कर देता है। कहना न होगा कि अनिवार्यतः वह कला के सौंदर्य के वास्तविक पथों से संबद्ध हो जाता है। अनुवादक कलाकार की भाँति सृजनकर्ता नहीं है, क्योंकि सृजन आत्म-साक्षात्कार के क्षणों की अनिवार्य प्रक्रिया है, जिसका परिणाम है- आत्माभिव्यक्ति। परंतु अनुवादक इस अर्थ में कलाकार है कि वह कलाकार की आत्माभिव्यक्ति को अपने में उतारता है। अनुवादक का व्यक्तित्व पुनरुत्पादक कलाकार का व्यक्तित्व है। कला सृजन है और अनुवाद पुनर्सृजन।

इसमें स्पष्ट है कि अनुवाद-कर्म किसी शिक्षित तर्जुमे या अंतरण का नाम नहीं है। इसमें निहित कला जैसी आस्था, अमूर्त कल्पनाओं एवं बिंबों की अवतारणा प्रतिभा, लाक्षणिक, आलंकारिक अर्थच्छायाँ इत्यादि को समझने और उन्हें लक्ष्यभाषा में पुनः कथित करने की आवश्यकता होती है। यह सत्य है कि वैज्ञानिक तकनीकी, प्रचारात्मक, सूचनात्मक आदि साहित्य के अनुवाद में कलात्मकता की अपेक्षा नगण्य होती है। वहाँ तो स्पष्ट और शुद्ध कथन तथा शाब्दिक अनुवाद की महत्ता ही अधिक है तथा भाव प्रधान अनुवाद वांछित नहीं है, किन्तु साहित्य अनुवाद में कलात्मकता से स्पर्श से सजग अनुवादक बच नहीं सकता। बिना अपना व्यक्तित्व आरोपित किए साहित्यिक अनुवाद काना कठिन हो जाता है। प्रसिद्ध कवि एज़रा पाउण्ड, राबर्ट फ्रॉस्ट आदि ने मत व्यक्त किया है कि कविता का अनुवाद संभव है, क्योंकि कविता मात्र कागज पर उतारे गए शब्द ही नहीं हैं, भाव और अनुभूति के संक्षिप्त रेशों से जुड़ी हुई कोई आंतरिक वस्तु है। अतः जो कुछ अनुवाद से छूट जाये, पकड़ में न आये, वही कविता है। अनुवाद की कलात्मकता को सिद्ध करने के लिए इतना कहना पर्याप्त है कि- "Translation is not really the old meaning in a fresh dress. It is a new product, something like the poem though, if one chooses to say, more like it in.....the aspect of meaning than in the aspect of form."

कारणों की प्रतिभा होना और मूल लेखक के व्यक्तिगत मन को समझना अनुवादक के लिए आवश्यक है, जो पुनः अनुवाद को एक कलात्मक घरे में ही प्रतिष्ठित कर देता है। वैसे भी अनुवाद करते समय लक्ष्य भाषा में बिम्ब और भावार्थ पूर्ण करने के लिए प्रायः अनुवादक अपनी ओर से कुछ जोड़ ही देते हैं।



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সৌভাগ্য এবং সমৃদ্ধির দেবী বসুধারা— একটি প্রতিবেদন সংযুক্তা দে*

প্রাচীন ভারতবর্ষে ব্রাহ্মণ্য ধর্মের ন্যায় বৌদ্ধধর্মও ক্রম-জনপ্রিয়তা অর্জন করেছিল। বৌদ্ধধর্মের দুটি মুখ্য বিভাগ হল—হীনযান ও মহাযান। হীনযান হল পুরাতন তথা বুদ্ধদেবের বচনের উপর প্রতিষ্ঠিত ধারা আর মহাযান হল নবীন তথা দার্শনিক ভিত্তির উপর প্রতিষ্ঠিত ধারা।^১ এই মহাযান বৌদ্ধধর্মেই বিবিধ বৌদ্ধ দেব-দেবীর রূপকল্পন এবং মূর্তি নির্মাণের প্রক্রিয়া সর্বপ্রথম শুরু হয়। যদিও ভারতবর্ষে গুপ্ত-সময়ের পূর্ব পর্যন্ত হীনযানের প্রাধান্য ছিল অধিক।^২ খ্রিস্টীয় তৃতীয়-চতুর্থ শতক থেকে পঞ্চম-ষষ্ঠ শতকের মধ্যে ভারতবর্ষে যখন মহাযান ধারার প্রভাব বিশেষ লক্ষ্য করা যায়; তখন বৌদ্ধ দেবতাদের সুনির্দিষ্ট রূপকল্পনা এবং তাকে মূর্তিরূপে দানের প্রবণতা আরও বৃদ্ধি পায়। বৌদ্ধধর্মে দেবীর রূপকল্পনা প্রথমদিকে দেখতে না পাওয়া গেলেও পরবর্তীকালে খ্রিস্টীয় পঞ্চম থেকে সপ্তম শতকে যখন তান্ত্রিক সাধনার উপাদান বৌদ্ধধর্মে অন্তর্ভুক্ত হয় তখনই দেবীর রূপকল্পনারও আবির্ভাব ঘটে।^৩ ড. বিনয়তোষ ভট্টাচার্য স্পষ্ট করে বলেছেন যে, বৌদ্ধধর্মে তান্ত্রিক সাধনার প্রভাবের ফলে বজ্রযানের উদ্ভব ঘটেছে এবং ভারতবর্ষে পাল রাজত্বের সময় বাংলায় ও বিহারে বহু বৌদ্ধ দেব-দেবীর মূর্তি প্রস্তুত করা হয় যার অধিকাংশই ছিল বজ্রযান দেবতা-মণ্ডলের অন্তর্গত। এই সকল দেবতাদের মূর্তির মধ্যে অন্যতম হল ধন-সমৃদ্ধির দেবী বসুধারার মূর্তি।^৪ বৌদ্ধধর্মে উনি হলেন পীতবর্ণা চির-সমৃদ্ধির এক তরুণী দেবী। দেবী বসুধারা সম্পর্কে বিস্তৃত জ্ঞান অর্জন তথা গুণার রূপ-কল্পনা, বৈশিষ্ট্য, মূর্তি-তান্ত্রিক উপস্থাপনা, উপাসনা সম্পর্কে সুস্পষ্ট ধারণা লাভ এবং তার মধ্য দিয়ে কতকগুলি চিত্রাচারিত বিতর্কের উপর আলোকপাত করাই হল এই প্রতিবেদনের মূল লক্ষ্য। নিম্নে সেই প্রয়াসই নেওয়া হল।

বজ্রযান দেবী বসুধারার উপস্থিতি মহাযান দেবতামণ্ডলেও সার্বিকভাবে লক্ষ্য করা যায়। মহাযান সাহিত্য, উপাসনা ও মূর্তিভেদে বৌদ্ধ দেবীরা প্রকৃত মনোযোগ ও গুরুত্ব লাভ করেছিলেন যার ব্যতিক্রম বসুধারা নন।^৫ বজ্রযান ও মহাযান-বৌদ্ধধর্মের উভয় ধারাতেই উনি হলেন সম্পদ প্রদানকারী পরম প্রাচুর্যের এক অতি শক্তিশালী দেবী যার উপাসনা শুধুমাত্র প্রাচীন ভারতে নয়; এমনকী নেপাল, তিব্বত ও বার্মাতেও হত এবং যা বর্তমানেও প্রচলিত।

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Edible Oil Consumption among Housewives in Kolkata

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Abstract: India is one of the major producers of many oil seeds and thus various types of edible oils are available in the country. Edible oils are made from respective oil seeds by extraction process and there are some national as well as regional brands. Traditionally, Indians consume substantial quantity of edible oils mainly as a cooking medium. The Eastern region of the country consumes mustard oil in large quantity. Oil properties and health effects depends on its composition. Hence the choice of cooking oil is important. A survey was carried out on cooking oil awareness among 100 housewives in Kolkata within age group of 20-50 years by questionnaire method. Their idea of perfect cooking oil was found to be one that is high in unsaturated fats, low in saturated fats, has high smoking point, is utilised rapidly and has low chance of deposition in blood vessels. Awareness regarding use of oil combinations for health improvement and reuse of leftover oil after frying would help in prevention and management of non communicable diseases.

Key Words: Cooking Oil, Composition of Edible Oils, Smoking Temperature Of Oils, Properties of Edible Oils.

Introduction

India is the second largest importer of edible oil in the world, ranking just behind China. (7) Consumption of edible oil is substantial throughout the country. All Indian households use it every day. The plant oils contain certain useful substances such as lignans (sesame oil), sterols, tocopherols (vitamin E), tocotrienols (palm & rice bran oil), oryzanol (rice bran oil), carotenoids -all of which reduce serum cholesterol, repair oxidant damage due to ageing and inflammation which occur in chronic diseases and prevent fats from going rancid. (1) Below average edible oil consumption is seen as one of the factors contributing to the inadequacy of energy and micronutrients in India. (7) With a shift in diets towards increased use of edible oils and sugar-sweetened beverages, increased reliance upon processed foods, increased away-from-home food intake, reductions in physical activity and increase in sedentary behaviour, diabetes, hypertension, and obesity began to dominate the globe. (8)

When oils are heated to a high temperature, decomposition of oil occurs and finally a point is reached at which visible fumes are given off. This is called smoking point and the temperature is called smoking temperature of oil. Smoking temperature is defined as the lowest temperature at which visible fumes consisting of volatile gaseous products of decomposition are evolved. The amount of free fatty acids present is an important determinant of smoking temperature of oils. (2)

The American heart association (AHA) recommends oils that have an equal proportion of saturated fatty acids (SFA), mono unsaturated fatty acids (MUFA) & poly unsaturated fatty acids (PUFA). National Institute of Nutrition (NIN) & Indian council of Medical Research (ICMR) also recommend a near equal ratio of SFA (27-33%), MUFA (33-40%) and PUFA (27-33%) in healthy oil. Hence, the choice of cooking oil suggested is as follows: Groundnut/Sesame/Rice bran +Mustard/ canola/ olive or Safflower / Sunflower oil suggested is as follows: Groundnut/Sesame/Rice bran +Soyabean or Sunflower / Safflower +

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A Note on Fuzziness in Inventory Management Problems

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From traditional view point, Science should strive for certainty in all its manifestations (precision, specificity, sharpness, consistency, etc.); hence, uncertainty (imprecision, non-specificity, vagueness, inconsistency, etc.) is regarded as unscientific. But according to the modern view, uncertainty which is unavoidable is considered essential to Science and has great utility. Imprecision and uncertainty is a notable change among the various formal changes in Science and Mathematics in this century.

The modern concept of uncertainty evolved with the publication of a seminar paper by Zadeh, L.A. (1965), where he introduced a theory whose objects - *fuzzy sets*, are sets with boundaries that are not precise. The membership in a fuzzy set is not a matter of affirmation or denial, but rather a matter of a *degree*. Zadeh's paper challenged not only probability theory as the sole agent for uncertainty, but the very foundations upon which probability theory is based: Aristotelian two-valued logic. A fuzzy set can be defined mathematically by assigning to each possible individual in the Universe of discourse a value representing its grade of membership in the fuzzy set. Individuals may belong in the fuzzy set to a greater or lesser degree as indicated by a larger or smaller membership grade. Following Zadeh a membership grade allows finer detail, such that the transition from membership to non-membership is gradual rather than abrupt. Given a collection of objects U , a fuzzy set A in U is defined as a set of ordered pairs $A \equiv \{(x, \mu_A(x)) \mid x \in U\}$ where $\mu_A(x)$ is called the membership function for the set of all objects x in U . The membership function relates to each x a membership grade $\mu_A(x)$, a real number in the closed interval $[0,1]$. So here we see that it is necessary to work with pairs $\{x, \mu_A(x)\}$ whereas for classical sets a list of objects suffices, as their membership is understood. Thus the definition of a fuzzy set is the extension of the definition of a classical set, since



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Deterioration and its Uncertainty in Inventory Systems

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Abstract

Deterioration cannot be avoided in business scenarios. Deterioration is defined as change, damage, decay, spoilage obsolescence and loss of utility or loss of original value in a commodity that results in the decreasing usefulness from the original one product. Normally inventory models of deteriorating items such as food products, vegetables, etc. involve imprecise parameters like imprecise inventory costs, fuzzy storage area, fuzzy budget allocation, etc. In this paper, it is observed that time to time different EOQ models have been developed for deteriorating items for fixed deterioration rate in fuzzy environment, along with the models with fuzzy deterioration rate. Fuzzy set theory which is primarily concerned with how to quantitatively deal with imprecision and uncertainty, is an important tool used by the decision makers in modelling real-world problems. The present study investigates different fuzzy economic order quantity models for deteriorating items. Fuzziness is applied by allowing the cost components (holding cost, deterioration, shortage cost, etc) to be imprecise; also considering the uncertainty of several other parameters which are represented by different fuzzy numbers.

Keywords: Inventory cost; deteriorating items; uncertainty; Fuzzy inventory; fuzzy numbers; inventory cost parameters; fuzzy deterioration rate; defuzzification

INTRODUCTION

An important part of cost controlling in business is Inventory management and control. For the last thirty years, researchers in this area have extended investigation into various models with considerations of item shortage, item deterioration, demand patterns, item order cycles and their combinations. In an inventory model



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An EOQ Model with Certain Uncertainties When Payment Periods are Offered

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Abstract

An economic order quantity model has been developed for a constantly deteriorating item for which the supplier permits a fixed delay in payments or in other words trade credit, the demand rate being time-dependent. This inventory model with no shortage is also considered under fuzzy environment. The costs involved – ordering cost and holding cost, being imprecise in nature, are considered as fuzzy parameters. Different decision making situations are illustrated with the help of numerical examples.

Keywords: inventory, trade credit, EOQ, fuzziness

INTRODUCTION

The concept of *uncertainty* is a notable change among the various formal changes in Science and Mathematics in this century. According to the traditional view, Science should strive for certainty in all its manifestations (precision, specificity, sharpness, consistency, etc.); hence, uncertainty (imprecision, non-specificity, vagueness, inconsistency, etc.) is regarded as unscientific. But according to the modern view, uncertainty which is unavoidable is considered essential to Science and has great utility.

An important point in the evolution of the modern concept of uncertainty was the publication of a seminar paper by Lofti A. Zadeh [1], where he introduced a theory whose objects – *fuzzy sets* – are sets with boundaries that are not precise. The membership in a fuzzy set is not a matter of affirmation or denial, but rather a matter



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ড. রাখী মিত্র



রবীন্দ্রনাথ শরৎচন্দ্র : শিক্ষা-বিষয়ক একটি বিতর্ক

মহাত্মা গান্ধীজি আমির, ফকিরী ভাবাই না। সনাতন-সংস্কারের প্রাচীনত্বের দ্বারা অন্ধ, কিন্তু সূর্য হলে উঠবে না কোনো মানসিক অন্ধকার। নিরন্তর চিন্তাশক্তি আর কর্মমুগ্ধতা ছাড়া জীবন অর্থহীন। শ্রমের চূড়ান্ত রূপরূপকে ছাপ খেলে। অত্যাধুনিক সেই শক্তিই জীবন শিক্ষার প্রয়োজনীয় করে তোলে। এই হল একমুখী ভাবের দ্বারা হয় রাগি রাগি আর অন্যথায় বাগাইন পাকবৎ। নিজেকে স্বীকার করে কারকরূপে শিক্ষা নিয়ে এই অকৃতপূর্ণ কাণ্ডই তো চলছে আমাদের দেশে। শিক্ষাকে আমাদের মস্তিষ্কে স্থান চিহ্নিত করে শিক্ষিত ভাবগুলো যেন মানসিক আশ্রয় দিয়ে ছুড়ে আছে আমাদের দেশে। চলকানে করে যাতে হলে হা। অত্যাধুনিক রবীন্দ্রনাথের। কিন্তু মজার কথা হল ১৮৯২-এ বঙ্গা এই সর কথা ২০১৭-এও একই কথা চলছে আমাদের দেশে। তাই তো?

শিক্ষার 'হেরফের' নামক সেই প্রবন্ধ শিক্ষার সঙ্গে জীবনের এই হেরফের প্রসঙ্গে তথ্যসমৃদ্ধ করে সিন্ধুজীবন হয়েশীর ভাষায়। ঔপনিবেশিক শিক্ষাব্যবস্থার গাড়িয়ে নিরাক্রম প্রদেশপ্রতি মন, পদ্য ভাষার সাক্ষাৎকারি বোধ বা ধারণাও যে কী আশ্চর্যকর সম্প্রতি, বোধগোচ্য চেয়েছিলেন সেইসঙ্গে। কল্যাণ, বাল্যবাল্য থেকেই যদি আত্মশিক্ষার সঙ্গে ভাবেরও শিক্ষা হয় এবং চাবের সঙ্গে নিরন্তর এক প্রাথমিক জীবনমাত্রা, তবেই আমাদের জীবনের মধ্যে স্থাপিত হয় মধ্যম সামগ্র্য। উদাহরণ দিচ্ছি বঙ্গদেশে। নারায়ণ বাগ্যবাক্য আমায়ের মধ্যে কামার একটা ধারণা যখন জন্মায় তখন মনের মধ্যে ভাব ততটা তরুণ দাঁড় করে না। আবার উৎসাহিত হয়ে হলে মনের মধ্যে এসে জমা হয় অজর ভাব। কিন্তু কী অজর? অজর কিছুতেই অর্থাৎভাবে নাগাল পাওয়া যায় না তাকে ধরার কামার মধ্যে যথার্থ ভাবের। কামার একমুখী শিল্প শূণ্য-শেষকে ঘিরে কাজ করে একটা স্থিতি এবং একটা প্রত্যক্ষতা। শব্দকে ঘিরে তার বেতার তৈরি হয় একটা প্রতিবেশ। ফলস্রমে যে-অভিজ্ঞতা ক্রমশ পৌছয় ভাবের পরিণতিতে। অন্যথায় বিদেশীয় শব্দের উপস্থিতি যে বাস্তবতা তার অনুপস্থিতি শব্দের কাছে সবসময়ে প্রত্যক্ষ নয় বরং তার কলার সঙ্গে বাস্তব-প্রত্যক্ষের পারস্পরিক যোগবিন্যাস ক্রমাগত থাকে বলে তোলে ভিতর। আর যিক তখনই দূরবর্তী হয়ে থাকে তার। শিক্ষালব্ধ-ভাবের সঙ্গে প্রত্যক্ষ-বাস্তবতার সংযোগবিন্যাস শিক্ষার প্রবর্তন কেবলমাত্র হতে দেয় না বিবর্তন। আপিসে চাকরি-জোড়ানো শিক্ষার বাইরেও যে রয়েছে শিক্ষার অন্যতম দৃষ্টি উদ্দেশ্য সেই অনুভূতিটিকে এই শিক্ষাধিকার করে রাখে অথবা। মনে রাখতে হবে, পাশ্চাত্য শিক্ষার অপর্যাপ্ত ইন্দ্রিয়ের চিরনিই তো কখন কলেনে রবীন্দ্রনাথ। কিন্তু বিশেষত এই প্রেক্ষিতে নিজের ভাবের শব্দে প্রবর্তনকে কী অসামান্য দক্ষতায়ই বা ব্যাখ্যা করলেন তিনি। আমাদের মূল বিতর্কের বিষয়টিতে হবে, তার আগে একটা ধান জায়ে শিল্পের গীত গেয়ে নিচ্ছি। শিক্ষাব্যবস্থার মূল উদ্দেশ্যের প্রাথমিক দৃষ্টান্তের নিকট ভাষাপাতের সুরে যদি এই ১৮৯২-র লবয়ে রবীন্দ্রনাথ ব্যাখ্যাচনা করে থাকেন, তো এর পরে যোগে পরে অন্য একটা প্রবন্ধে তিনি দেখানেন আমাদের তৎকালীন আধুনিক ও ঔপনিবেশিক শিক্ষাব্যবস্থা কীভাবে পারস্পরিকভাবে নকল করছে মধ্য ইউরোপীয় শিক্ষার। আর যোগ্যতাই চাইলে, এই মঙ্গলদর্শিনীতে কীভাবে প্রতিগ্রহ হতে আমাদের নিজের দেশীয় শিক্ষাব্যবস্থাটি।

১৯০৬-এ প্রকাশিত হল 'শিক্ষামঙ্গল'। অর্থাৎ এর পরে পাঠকে পূর্ণ রবীন্দ্রনাথ গ্রহণ করেছেন

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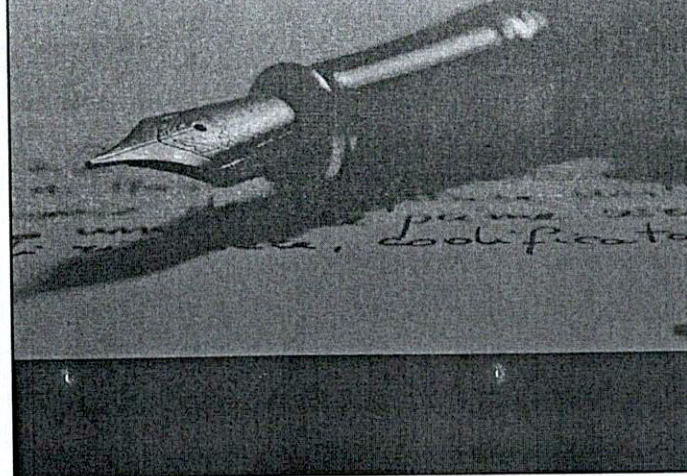
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বঙ্গদেশে প্রতিষ্ঠিত। ১৯৩

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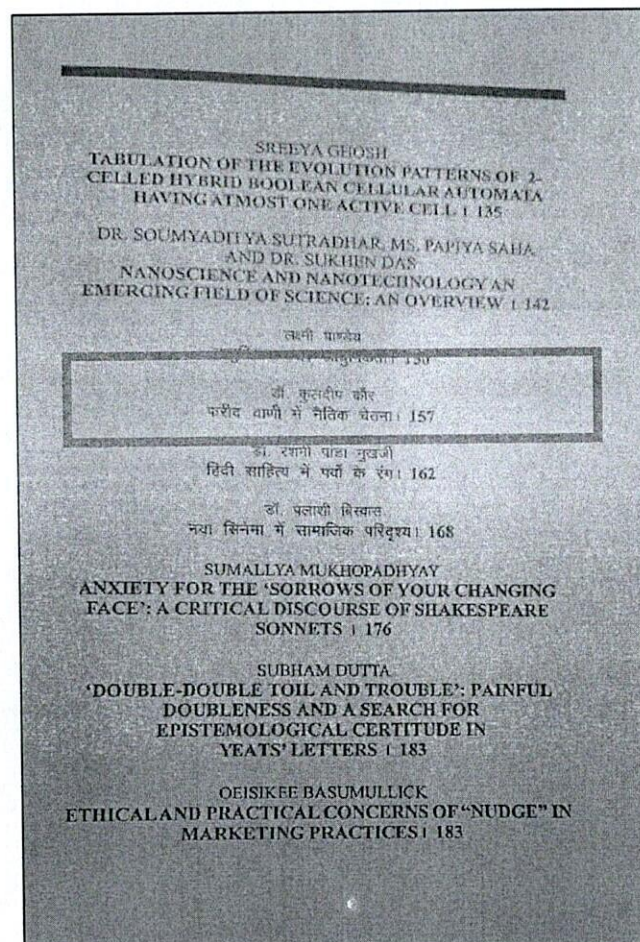
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Principal

Gokhale Memorial Girls' College

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फरीद अतुमबी, छद्मराज्यी शाही फकीर हो। पंजाबी भाषा के प्रसिद्ध कवितामं हो। लोहन सिंह फरीद जी एक महान् मूर्खतावान् दरवेश मानते हैं। फरीद, अरबी-फारसी भाषा के विद्वान् हो। गुरु गुरु साहिब ने फरीद के १३० सलोक एवं ४ सन्दर्भ शामिल हैं।

फरार सूची सम्प्रदाय के गिरिजी सूची भावने से थे, परन्तु उन्होंने स्वयं को किसी सम्प्रदाय से जोड़ा नहीं। गिरिजी सम्प्रदाय में फरारी को लोकोपनिबि रह है। ठीक किन्तु दीप कीर फरारी के बारे में लिखती हैं, 'उन्होंने अपने सबसे स्पष्ट सलाहों द्वारा लोगों को सही राह दिखाया। अज्ञान के अंधारे को दूर कर ज्ञान के प्रकाश की ओर प्रेरित किया।'

संसार के अन्दर एकमात्र ही के विद्यमान हैं। श्रीगुरुदेवजी में जग, धरा, तारा, धनु, सितारान, पंचतारा, सदाचार, सत्यलक्षणका और नीतिरक्षा का गुण विद्यमान है। कहीर को स्वयंसेवी में गुण प्राप्त हो में मे भाव मिलते हैं - ईश्वर पर भरोसा, त्याग एवं अहंसी, सब मिलता, पूरे को भी भला करना, सामाजिक नमस्कार आदि। सदाचार का गुण्य के जीवन में बहुत महत्व है। सदाचार का एक संकल्प है, जो आचार गुण्य को अमृत करवा है। सत्यार्थ के अर्थ अहंसे में पूर रहता है। आचरने के साथ धीमे याना व्यक्ति ईश्वर को प्राप्त नहीं कर सकता। जगती में अन्तर्ने में क्या कायदा प्रत्यक्षा है। हमारे हृदय में ही बता है -

फरीदा जंगल जंगल किआ भयहि, पणि कडा मोडेहि॥

दसी एवं हिमालीय, जंगल विद्या बूढ़ेहि।

फरीद ने ईश्वर के नाम-स्मरण को महत्व दिया है। उनके अनुसार परमात्मा का नाम धितन्त्रादी है। फरीद काले है कि शाबर, दीनो, मिश्री, मुह, शब्द, दूध सह मोठे पदार्थ हैं; परन्तु इनकी मिठाई अस्थायी है। केवल परमात्मा का नाम ही पीछा एवं ममुर है, स्थायी है। उसी की तत्परा करनी चाहिए -

१४१०दा सकर खह निवात गुड माखिल मांझा दुध॥

समये यत्तु मिठीआ रब न पुजनि तुष्टा।

समय वस्तु मित्रिजा नच न पुजन पुरी।
फरीद का समय राजनीतिक अस्थिरता का समय था। दिल्ली के सितारनगर पर एक के बाद एक सुलतान आसून हुए, पर जल्द ही उनके के मुहलके में खी गरा उनके सामने में आपसी सौम्य भी होते रहते थे। वे सौम्य एवं विघ्नता की जगह शांति और समता की स्थापना चाहते थे। अपने विरोधी के साथ नम्रतापूर्वक व्यवहार करना कठिन है। यदि कोई क्रोध कर रहा हो,

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Karpiy -

Principal

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डॉ. पलाशी बिस्वास



नया सिनेमा में सामाजिक परिदृश्य

जीवन की अभिव्यक्ति का साहित्य-कलादि माध्यमों की भाँति, फिल्म भी एक माध्यम है। एक ऐसा माध्यम जिसकी अनंत शक्ति है। जिस प्रकार अपने उत्पादनों में साहित्य, कला और संगीत जीवन की अभिव्यक्ति करते हैं। उसी प्रकार फिल्म भी अपने उत्पादनों में जीवन की अभिव्यक्ति करती है।

सिनेमा माध्यम का सबसे अधिक प्रयोग कथात्मक आख्यानों की दृश्यात्मक प्रस्तुति के लिए किया जाता है। सिनेमा का आविष्कार कला और विज्ञान के योग से हुआ है। इसी वैज्ञानिक तत्त्व के कारण सिनेमा अन्य कला शिखरों से महंगा है। सिनेमा का निर्माण कथा, आक, आवृत्त तथा व्यंग्य से युक्त संवाद, संगीत, नृत्य, फैशन तथा अभिनय आदि विविध कलाओं के सम्मिश्रण से होता है अर्थात् सिनेमा कलाओं की भी कला है। प्रत्येक कला विधाओं की अपनी-अपनी खासियत और महत्व होता है। इस प्रकार सिनेमा का भी अपना निजी महत्व है। एक आलोचक ने सिनेमा के महत्व को स्पष्ट करते हुए कहा है कि - "देश की नित नवीन उपस्थित समस्याओं का निवारण करने, समाज के सम्मुख जीवन का नया रूप रखने, राष्ट्रोत्थान में सहायक होने और सदियों से चले आने वाले प्रचीन रूढ़िवादों और परिपाटियों पर कठाराघात करने के लिए चित्रपट एक शक्तिशाली साधन है।"¹

भरतमुनि ने नाटक के लिए दृश्यात्मक शब्द का प्रयोग किया है। सिनेमा वस्तुतः दृश्यात्मक का ही विकास है। भारत में सिनेमा का आविष्कार पश्चिमी देशों ने किया है। भारत में सिनेमा का आगमन विदेशियों द्वारा ही हुआ था लेकिन भारतीय सिनेमा को स्थापित तथा विकसित करने में भारतीय मनीषियों का ही हाथ रहा है। भारत में सिनेमा ने अपनी बाल्यवस्था में कई लोगों के हाथ पकड़कर चलने की कोशिश की लेकिन दादा साहब फाल्के ने ही भारतीय सिनेमा को खड़ा होना तथा चलना सिखाया। दादा साहब फाल्के के युग से लेकर आज तक अर्थात् पिछले तीस वर्षों से भी अधिक समय में भारतीय (हिन्दी) सिनेमा वैज्ञानिक, तकनीकी तथा सामाजिक परिवर्तनों के कारण अत्यंत विकसित हो चुकी है। आज भारत में सिनेमा का अत्यंत व्यापक प्रसार है, जिसका प्रतिनिधित्व हिन्दी भाषा में निर्मित होने वाली फिल्में करती है।

साहित्य के भाँति फिल्मों में भी सामाजिक, सांस्कृतिक, राजनीतिक, राष्ट्रीय, ऐतिहासिक, काल्पनिक तथा प्राकृतिक विषयों की अभिव्यक्ति होती है। फिल्म और समाज परस्पर संबंधित है, यही कारण है समाज में जो घटित होता है उनकी प्रतिप्रवियों कलात्मकता के साथ फिल्मों में नज़र आती हैं। भारतीय सिनेमा में सामाजिक कथानकों पर आधारित फिल्मों का प्रारंभ मूल युग से ही हो गया था लेकिन इनका विस्तार सवाक युग में निर्मित होने वाली फिल्मों के ज़रिये हुआ। मूल युग की फिल्मों की कथानक मूलतः पौराणिक तथा धार्मिक विषयों पर आधारित होता था, यही कारण था फिल्म निर्माताओं का ध्यान सामाजिक विषयों की ओर बहुत ही कम जा पड़ा। मूल युग की सामाजिक फिल्मों के कथानकों में अनेकरूपता का अभाव पाया जाता है। उनमें सीमित

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OBLIGATIONS OF THE SECONDARY SCHOOL TEACHERS OF WEST BENGAL TOWARDS THEIR PROFESSION AND COLLEAGUES

Introduction

Change is an inevitable part of human life, society and civilization as a whole. If this change comes gradually, step-by-step then it becomes spice of life, if not, the individual or society may suffer from aloofness, loneliness and above all they may suffer from Identity Crisis. The India of 1980s and the India of today have very few similarities. The change that is going in Indian society is not only rapid but it is changing in a supersonic speed, where people are becoming a part of this change unconsciously. Suddenly, we realize that we are on the verge of losing our Culture, tradition, philosophy- in one word our Identity-our Root.

The only greatest weapon that we have in our hand to preserve our cultural identity and to construct peace in the mind of the individual is Education. Only knowledge of science, technology, agriculture and management will not be able to take us to our desired goal. Only with the amalgamation of scientific, philosophical, technological, cultural, moral and value education, we can reach to the ultimate goal of education.

The present situation is that "our outdated system of examination has contributed to a mad rush for 'ranks', 'seats' and 'jobs'.... making us wonder whether we have, at some point of time, lost sight of the real objectives of education. (Report of the Committee on Integration of Culture Education the School Curriculum, Central Advisory Board of Education)

Teachers are the greatest assets of any education system. It is the teacher, who can shape or reshape the entire society and determine the quality of life in the community and the nation. Today often, it is said against the teachers that they are not playing their role as it is expected. That is why may be in today's society people respect their teachers low, compared to the respect that they use to get twenty or thirty years back. A teacher must be highly motivated to do good to the society. They must be professional. According to Susie Kay, professionalism 'is for everyone, at all stages of our careers and at all level of every organization'. "Professionalism is knowing how to do it, When to do it and actually doing it." Government of many countries have made certain professional code of ethics for the teachers, as that they can perform well and can save our cultural heritage and identity, at the same time can take our society in front line in the world of science

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06 MAR 2023

SK SARIFUL ISLAM
D.P. MUKHERJEE



IMPLEMENTATION OF ICT IN THEORY AND PRACTICE

Introduction:

Communication Technology is mainly based on the electronic systems used for communication between individuals or groups. It facilitates communication between individuals or groups even when they physically present at the same location. Systems such as telephone, radio, mobile, T.V. and Video are included in it as well as computer based technologies with extensive use of internet.

National Curriculum Framework for Teacher Education (NCFTE, 2009) has emphasized on the new concerns of school curriculum regarding transactional modalities and use of ICT in the same.

With the onset and proliferation of Information and Communication Technology (ICT), there is a growing demand that it be included in school education. It has become more of a fashion statement to have computers or multimedia in schools, the result being that in spite of its potential in self learning, its implementation is often not more than cosmetic. It is also often touted as a panacea for the problem of shortage of teachers. Teacher education needs to orient and sensitize the teachers to distinguish between the developmentally appropriate use and the cosmetic use of ICT. In a way ICT can be effectively used for professional development of the pre-service and in-service teachers.

The movement of Educational Technology (ET) was started in 1972 during the IV Plan. Under the scheme 100% assistance was given to 6 State Institutes of Educational Technology (SIET) and the States/UTs were assisted for procurement of radio cum cassette players and colour TVs. Further, in recognition of the importance of role of ICT in education, the Computer Literacy and Studies in Schools (CLASS) Project was introduced as a pilot project in 1984-85 with the use of BBC micros. The project was adopted as a Centrally Sponsored Scheme during the 8th Plan (1993-98) and its scope was widened to provide financial grants to educational institutions and also to cover new Government and Government aided secondary and higher secondary schools. The use and supply of software was limited with coverage confined only to higher secondary Schools. The National Task Force on Information Technology and Software Development (IT Task Force), constituted by the Prime Minister in July, 1998 made specific recommendations on introduction of IT in the education sector including schools for making computers accessible through the Vidyarthi Computer Scheme, Shikshak Computer Scheme and School Computer Schemes.

Some selected Schools were recommended on a pilot basis in each State for demonstration purposes. It was also stipulated that 1 to 3% of the total budget was to



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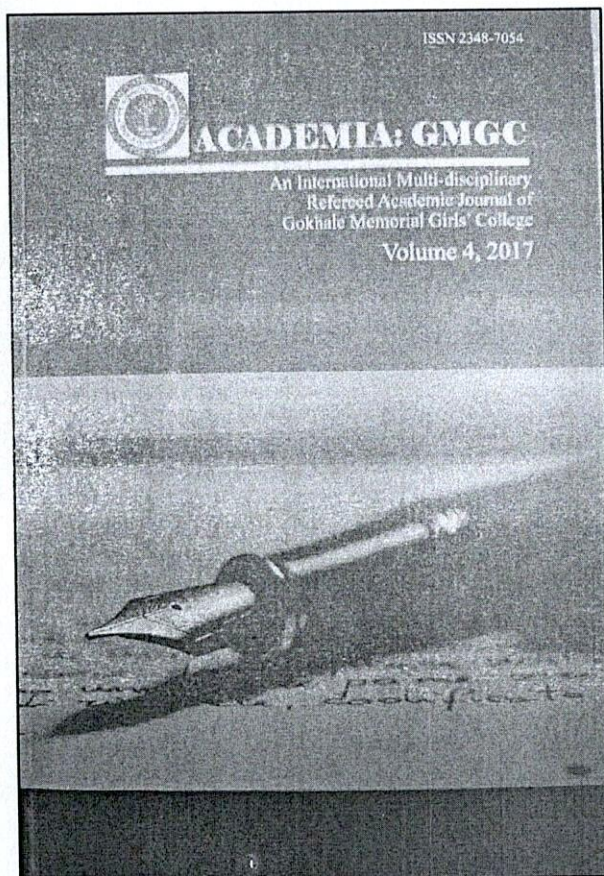
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06 MAR 2020

2017 Sl. No. 77 Lalita Agrawal



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ROLE OF INNER PEACE IN MAINTAINING WORLD PEACE

Peace is not merely the absence of war and hatred called negative peace but also the presence of cooperation, compassion and worldwide justice called positive peace. World peace is much more than that. There are many ways to spread peace in the world but perhaps the best way is to spread it within ourselves. Being "at peace" is considered by many to be healthy (homeostasis) and the opposite of being stressed or anxious but it may be considered as a negative interpretation of peace; positively speaking, peace of mind is generally associated with bliss and happiness. The moment we know what peace is, immediately the question comes to our mind: How can we achieve Peace on Earth? First and utmost, we must find it within ourselves. By achieving our inner peace and then sharing it with others, peace will spread.

Inner peace or peace of mind refers to a state of being mentally and spiritually at peace, with enough knowledge and understanding to keep oneself strong in the face of discord or stress. Tenzin Gyatso, the 4th Dalai Lama, emphasises the importance of inner peace in the world: "The question of real, lasting world peace concerns human beings, so basic human feelings are also at its roots. Through inner peace, genuine world peace can be achieved. In this the importance of individual responsibility is quite clear, an atmosphere of peace must first be created within ourselves, then gradually expanded to include our families, our communities, and ultimately the whole planet".

The whole Indian Philosophy emphasises on inner peace as it is the most important key to peace and world peace can be achieved only by those who have succeeded in achieving inner peace and is the absolute presence of worldwide justice, freedom, cooperation, negotiation (working with both friends and enemies), education, mutual respect, sharing, compassion, kindness, happiness, equanimity, human dignity and harmony with nature, animals and mother earth.

In Indian culture and tradition, "peace" or "shanti" means the state of inner tranquillity. It also means the enlightened condition sometimes referred to as "nirvana" in Buddhism. With respect to the state of inner peace, a Buddhist text describes this as follows: "Tranquillity of mind comes from having successfully abandoned greed, hatred and ignorance". As this passage makes clear, the Buddhist approach to peace starts from the fundamental act of surmounting these three impediments or inner poisons. The state of having brought these impediments under control, however, is not a static and private inner peace. Rather, it is inherently dynamic, responsive and evolutionary in its nature.

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সাহিত্য চর্চা

রস : 'যেজুর গাছে হাঁড়ি ঝাঁপো মন'

নবোদয় নামে নিবের বহুল পঠিত গদ্যটিকে শিল্পসংগঠনের
বিচারে নতুন দৃষ্টিতে পড়ে দেখলেন রাধী মিত্র।

সাহিত্যিক মাঝানিখি যেজুর বাগান 'করতে' গুরু করায় দিন পনেরের মধ্যেই মোতালেফ
নিম্ন করে নিয়ে এল মাছুখাতুনকে। বাগান জলিপ আর নিকা দুটো জালাল বিয়া নর
বরং অন্যান্যনিষ্ঠর। বুদ্ধতার একটি হাঁড়ি যদি যেজুর গাছে বেঁধে থাকে মোতালেফ,
তবে অন্যটি বেঁধেছে শুই নকল নিকর। মাছুখাতুনের সঙ্গে নিজের নিকাকে সে দেখেছে
হুই গাছ আর 'গাছির সম্বন্ধেই। পেশাতেই নর শুধু মোতালেফ 'গাছি' স্বভাবেও।
প্রতিটি রসতার লুকিয়ে থাকা রস আর মাছুখাতুনের 'অট-সটি' নারীপ্রকৃতির মাঝে
সংশয় বসনত এই শীতের মরমুনে দুটিকেই সে চেয়েছে পুরোপুরি উন্মুল করতে।
করশ তার অভিমুখিতে তখন চলেছে এক অন্য 'রস' এর ঘোঁষ। শীতের মরমুন
যুরোহেই মাছুখাতুনকে বিদেয় দিয়ে যে মারে আনবে 'বদনের চেউ' ফুলবানুকে। মজা
হল, বস নামানোর 'বিদ্যার' মাঝে মোতালেফ দেখেছে বোশধকে। বিদ্যাকে সে ভেবেছে
বলি। 'দেব' আর 'শেহনত' দুটোকেই জেনেছে ব্যাপারির মন নিয়ে। তাই রস নামানোর
মুখে লুকিয়ে থাকা ঐশ্বর্যকে টের পায়নি সে। প্রত্যাক আর প্রয়োজনকেই সবটুকু গুরুত্ব
দিতে গিয়ে অথরা গেকে গিয়েছে কাছের বিশ্বম্বটি। শক্ত রঙ্গ শরীরের ভেতর কোন
অপার বহলো গাছ বইয়ে বেথেছে রসের ধারা আর স্পর্শের কোন জ্বলুতেই বা তা চুইতো
পড়ছে রাতভর গাছের সঙ্গে নিত্য বোয়ামোপেও প্রাণের সেই রহস্যটিকে চিনতে পারেনি
মোতালেফ। যেমন চিনতে পারেনি মাছুখাতুনকেও। মাছুখাতুনের নারীপ্রকৃতিতেও সে
খুঁতেছে প্রয়োজনকে। 'অট-সটি' শক্ত গড়নের মাছুখাতুনের মধ্যেও কি অবলীলার
বইছে দাম্পত্যের সুধারস, সেই গভীর কথাটিও বুঝতে পারেনি বলিই রসের দন্ধানে
আকে ছুঁতে হয়েছে বাইরে। রসের 'ব্যাপারি', রসের কারবারি ভবু রসের অধিকারিও
সে নয়, নর অধিকার।

এই পদের মজা এখানেই। মোতালেফ আর মাছুখাতুন, বস আর শুইয়ের গল্প বলতে
বলতেই নারজনাথ মিত্র কখন বলে নেন গুঢ় অন্তঃস্থিময় এক উপলব্ধির কথাও। লর
সম্পর্কের উল্টোপাশে অর্জিত সম্পর্ক বা বিশেষত দাম্পত্য বিষয়ে কথা বলতে চেয়ে
তিনি খুঁতে নেন এক অভিনব প্রতীককে। দুটো অপরিসীম মানুষের সহবাসেও বাহ্য
পতাবের আগছাকে সরাতে হয় সন্তর্পণে। বহু মৈত্রীর স্পর্শে একদিন সাড়া দেয় চেডনা।
জীবনের সেই পরম অমৃত লাভেরই গল্প 'রস'।

আন্তর্জাতিক পাঠশালা • বার্ষিক সংখ্যা ২০১৭

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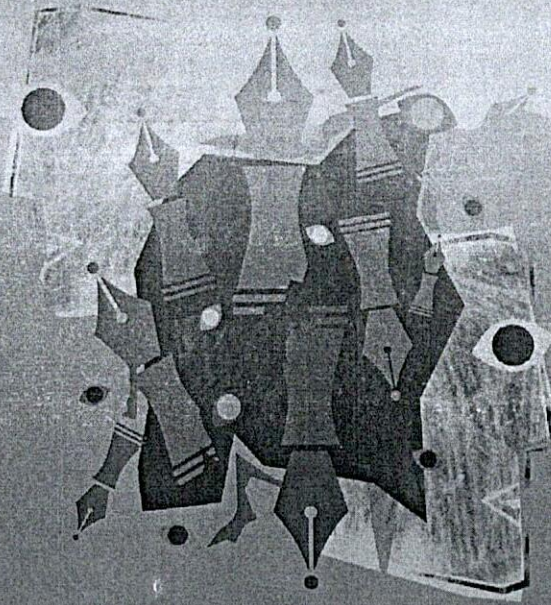
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আন্তর্জাতিক পাঠশালা

বার্ষিক সংখ্যা ২০১৭



রাধী মিত্র • রস : 'যেজুর গাছে হাঁড়ি ঝাঁপো মন' ১৫৯

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Asian Resonance

Demonetisation: It's Effect on Indian Economy

Abstract

After 1947 and 1978 the "Demonetisation" of 2016 a sensational economic move designed to make India a cashless economy targeting black money, forged currency stocks fuelling anti-state activities shock every stratum of the society. It lacks factual support to a great extent to put it as the only possibility and loses transparency to evaluate its short run and medium-term impacts on the economy depending on the extent of demonetisation. This paper aims to find out the positive and negative aspects and implications of demonetisation on the mass and the economy as a whole.

Keywords: Demonetisation, A.T.M, Bank, Currency, Denominations, Transactions, Government, R.B.I.

Introduction

This is not the first time the Indian government had demonetised bank notes. On two prior occasions—once in 1946 and in 1978, the goal was to combat tax evasion by "black money" held outside the formal economic system. In 1946, the pre-independence government anticipated demonetisation would penalise Indian businesses that were concealing the fortunes amassed supplying the Allies in World War II. In 1978, the coalition government demonetised banknotes of 1000, 5000 and 10,000 rupees, again in an expedition to curb counterfeit and black money. From the midnight of 8 Nov 2016 Prime Minister Narendra Modi announced the striking of Rs 500 note and Rs 1000 as legal tenders and announced the introduction of higher Rs 2000 denomination bank note from November 10 and gradual introduction of new 500 rupee notes in a broader anticipation to combat the evils of our nation.

Table 1

Arithmetic Of Demonetisation of High Denomination

Notes in circulation (value in INR billion)	7654	6326	14180
Notes with government sectors and banks@ 30%	2355	1898	4254
Notes with PUBLIC@ 70%	5498	4428	9926
Conversion of new notes by old notes by public	60	40	-
Total value of converted by Public INR billion)	3299	1771	5070
Scenario 1: Total value not converted by Public@ 50%(INR billion)	2199	2657	4856
Scenario 2: Total value not converted by Public @50% of 20% of black money (INR billion)	-	-	4520
Scenario 3: replicating 1978, with 25% not coming back	1374	1107	2482

Source: SBI Research, RBI

The table depicts the public holding of high denomination notes worth Rs. 9926 billion as on march 2016. There are 3 scenarios. In scenario 1 and 2 it is assumed that 50% of the notes of higher denomination do not return to the system. It is also reasonable to expect that 60% of Rs. 500 notes and 40% of Rs. 1000 notes would be exchanged at banks/ post offices and RBI before March 31, 2017. Based on such estimates, roughly round Rs. 4.5 lakhs crore of money could be taken away from the system.

Objective of the Study

There are multiple reasons why a country demonetizes its currency, such as to check inflation, to curb corruption, to put a check on forgery and to promote cashless transactions, which in turn creates an unanticipated shock and pulls the levers of an economy down. Whether



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Shrinkhla Ek Shodhparak Vaicharik Patrika

The Greek Tragedy: An Enquiry into the Financial Crisis of Greece

Abstract

The Greek Government debt crisis (also known as the Greek depression) started in late 2009. Greece is the first developed country to fail to make an IMF loan repayment. On June 2015, this crisis destroyed one quarter of the GDP of the economy and has led more than a quarter of labor force to unemployment, in a period of five years. This economic crisis in Greece spilled over to other European countries including Ireland, Portugal and Cyprus very soon. The case study provides the deeper knowledge about the causes, results and probable solutions for The Greek financial crisis.

Keywords: Greece, Crisis, Government, Depression, IMF, European, GDP, Debt.

Introduction

The 2001 introduction of the euro as a common currency reduced trade cost among the euro zone countries, increasing the trade volume, however labor cost increased more in peripheral countries like Greece relative to core countries like Germany. This made Greek export less competitive in the world market. Greece saw its current account deficit rising significantly. As the Greek depression that began in the US in 2007-09 spread to Europe and the flow of fund from European core countries to Greece began to dry up. In 2009 Greek fiscal management and deception increased borrowing cost that only means that Greece could no longer borrow to finance its trade and budget deficit. A country facing sudden stop in private investment and a high debt load typically resorts to currency depreciation to encourage investment and to repay loans. But this was not an option for Greece while remaining on the euro. In the meantime to become more competitive Greek wages fell nearly 25% in mid 2010-14. This resulted in significant decline in income and GDP which however led to a severe recession. Syriza is not traditional left wing party of Greece; it is a different, further left party's rose to power by displacing the traditional Greek social democrats. In present day Europe, Greece is the only country whose coalition government led by a far left party. What began as a debt crisis in Greece in late 2009 has evolved into a broader political crisis. Current prime minister, Alexis Tsipras was elected in late January 2015 following a campaign in which his far left anti-establishment Syriza party pledged to remain in the euro zone. In late June, Tsipras called a surprise referendum asking voters to decide whether its government should accept the creditor's terms. Greece voted overwhelmingly to reject the terms.

There are several causes responsible for this crisis, like huge fiscal deficit in the years 2004-09, government debt, poor budget compliance, tax evasion and subsidies, misreported debt statistics. In 2004, Athens was the host of Olympics and its expenses for this were seven times of previous Sydney Olympics in 2000. This increased government debt as well.

The Greek crisis had severe adverse effect on socio-economic changes. Greek GDP suffered its worst decline in 2011 when it reached (-) 6.9%, 111000 Greek companies went bankrupt. In February 2012 it was reported that 20000 Greek had been made homeless during the preceding year. By 2015 unemployment of Greece had reached 26%, nearly 20% of Greek lacked sufficient funds to meet daily food expenses. In October 2011, minister of finance, Yanis Varoufakis, announced that the Government would establish a new fund, aimed at helping those who were hit the hardest from the government austerity measures. The money for the agencies would come from crack down on tax evasion.

However there were several solutions discussed to get rid of this crisis like exit the euro zone, introduce Digital currency card, negotiate another bail out and arrange European Debt Conference. Though none of these have proved to be fruitful yet. The austerity measures helped Greece



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Remarkings An Analisation

Wheels on Fire: A Study on Declining Freight Transportation Trends of Indian Railways in Comparison to Other Competitive Modes

Abstract

The key activities of Indian Railways are transportation of freight and passengers. IR transports more than one billion of traffic annually. As against a growth rate of 4% to 4.5% in the last few years, IR is likely to achieve only 1% growth in 2016-17. This is indicative of a plateauing of the growth in freight traffic which accounts for nearly two-third of IR's revenue. IR is losing its market share in high rated freight commodities and its overall share of freight has come down from 89% in 1950-1951 to 40% in 2000-01. This paper traces the factors leading to this decline and searches for a set of solutions.

Keywords: Freight, India, Railways, Transport, Growth, Traffic, Demand, Ministry.

Introduction

"Railways, perhaps along with post offices, are the only two institutions in India with a deep network, which if tapped judiciously can create substantial improvements in the hinterland. Railways was always considered only as a mode of transport in our country, we wait to see Railways as the backbone of India's economic development."

-Shri Narendra Modi, Prime Minister of India December 25, 2014

Indian Railways is the lifeline of the nation. It traverses the length and breadth of the country providing the required connectivity and integration for balanced regional development. The system, never rests; it has been up and working unceasingly for the last several decades. It is an integral part of every Indian's being.

It is one of the pillars of the nation. In an earlier era, the Indian Railways have been described as "imperium in imperio" an empire within an empire. The size and scale is gigantic. The USA, China and Russia are the only countries that have longer railway lengths, measured in kilometres.

Transport Sector is the lifeline of any developing economy. The growth and development of any nation truly rests on the growth of its transport sector. Transport provides access to people, supports economic activities, and facilitates social interactions. India's transport sector is large and diverse and caters to the needs of about 1.03 billion people. In terms of modal share, road sector is much ahead of other forms of transport for both passengers as well as freight movement. In terms of passenger movement (passenger kilometre), the share of roads, railways and air is 86.70%, 12.90% and 0.40% respectively. The shares in freight movement (tonne kilometre) for roads, railways, air and water transport is 61.20%, 38.60%, 0.02% and 0.20% respectively. This study aims to discuss the competition issues in one of the most important transport sector- the Indian Railways. To identify and understand the aspects and results of competition, the study has referred to the Competition Assessment Framework (CAF) developed by Department of Internal Development (DFID).

Problem

There has been a continuous decline in the share of rail in the total goods traffic. Between 1970-71 and 2004-05 share of railways in freight movement declined from 70% to 39%. Several factors have contributed to the decline in railways freight segment. There has been substantial development of motorized road transport in freight movement. The greater share of the road mode in transport demand is



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Periodic Research

The Growth and Effect of Smart phone Based Applications in Indian Markets

Abstract

India has become the world's fourth largest mobile application using economy. App downloads were up by 15%, time spent in apps was up by 25%, and the revenue paid to developers increased by 40%. Forrester's estimated that 85 percent of the time spent on smartphones is in mobile apps having important productivity enhancing impacts throughout the economy. The growth of the mobile application market has led to a more digital and modernized way of living but has created a social barrier among the masses and challenges for the existing offline businesses. This paper focuses on and analyses the growth of the mobile application market from 2008 to 2016 with high projected growth rate for the upcoming years.

Keywords: Market, Mobile, Growth, India, Apps, Smartphone, Users, Economy.

Introduction

Origins of the 'app economy' can be traced back to the launch of the iPhone in 2007 followed by the App Store in 2008. Since then, the global market for apps has been growing at an unprecedented rate. Analysts estimate that app downloads have increased from \$ 24.9 billion in 2011 to \$ 81.4 billion in 2013. This number is expected to rise to \$ 310 billion by 2017.

The app market has grown over the past couple of years and it is estimated that by 2020, the app economy could double in size to \$101 billion, according to market researcher "App Annie". The growth will be driven by increasing usage of apps and by greater smartphone adoption around the globe.

A mobile application or app is a computer program or code or design that runs on mobile phones (smartphones), tablets, computers and various smart gadgets. A mobile application is most commonly referred to as an app. It is software which is designed to run on only smartphones and tablets. Most such devices are sold with several apps bundled as pre-installed software such as a web browser, calendar, mapping program etc. Mobile apps are designed after keeping in mind the demands and constraints of the devices and also to take advantage of any specialized capabilities they have. A gaming app, for example, might take advantage of the iPhone's accelerometer.

There are many apps now that help users learn about new languages, read music, navigate cities, share files, read the news, learn recipes, and record important health-related information among many other things. The growth of apps across many regions underlines why this sector is regarded as an 'economy' in itself. India is a source of enormous demand for apps. Even though the use of smartphone has been estimated at just 10% of total mobile users, still India experiences 100 million downloads per month placing it amongst the top five regions for Google Play, the official Android app store. India's rapidly expanding middle class will inevitably make the switch from feature phones to smartphones.

All the apps present in our smartphones are not always pre-installed, some of the apps are supposed to be installed from the app stores inbuilt in our smartphones, tablets and computers. Mostly apps are installed for free but certain apps are not for free installation, we need to pay some kind of charges through online payment to the respective apps. For example apps like Zomato, WhatsApp, Uber etc. are installed for free but certain apps like Antivirus pro, Cut the Rope, Books, Movies etc are not free apps.

This growth of the application market in India is vast and has a great bearing on the economy directly or indirectly. It has created pressure and immense competition for the offline businesses. For example the Uber



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Shrinkhla Ek Shodhparak Vaicharik Patrika

The Graph of Smileys: in Search of the Correlation between Growth and Well-Being

Abstract

Well-being is a general term for the condition of an individual or group. Growth, on the other hand, demands more work hours and sleep at the cost of leisure which might be judged as a loss of quality personal time and a toll on the level of well-being of an economy. This paper tries to establish a link between average levels of subjective well-being and GDP per capita to find out whether growth and well-being go hand in hand or comes to a conflict as they put their costs on each other.

Keywords: Happiness, Well-being, Growth, Leisure, Development, Income, Family.

Introduction

Economic growth usually refers to increase in the volume of GDP, the adoption of new technologies, transition from agriculture to industry, and general improvement in the standard of living. Economic development can be referred to as the quantitative and qualitative changes in various indicators of an economy including development of human capital, social infrastructure, regional competitiveness, social inclusion, health, safety standards, literacy and other initiatives. Economic growth and development is a two-way relationship. The first chain consists of economic growth benefiting human development, since economic growth is likely to lead families and individuals to use their increased incomes to increase their expenditures, which in turn lead to further human development and vice versa. Increased consumption spending, health, education and infrastructure growth and adds to economic growth. In addition to increase in private incomes, economic growth also generates additional resources that can be used to improve social service. By generating additional resources for social services, unequal income distribution can be minimized, so that social services are equally among each community thereby benefiting each individual. Gross Domestic Product (GDP) has become popular for measuring a nation's economic performance among economic policy makers of national economic development. Academicians, particularly the neoclassical school, has backed GDP as the most useful and reliable indicator, under the assumption that economic growth should exceed population growth if people are to see growth in economic well-being. This also makes GDP the indicator for assessing the economic well-being of any nation, partly because people tend to place higher priority on economic stability and prosperity to ensure overall well-being. However, recently it has been pointed out that GDP does not capture well the non-economic part of a nation's well-being with growing environmental deterioration, social instability, regional conflicts, youth unemployment, child labor, human trafficking and atrocities against women becoming important factors which need serious considerations. On the other hand, GDP does not tell us about the nature and quality of goods and services that are produced and consumed, nor does it tell us how individuals value their growth of purchasing power. GDP growth could be attained by the performance of large multinational companies, which seek to maximize their profits and minimize their costs to compete in the global market. Companies tend to emphasize short-term profits at the cost of long-term impacts, including those of the environment and quality of human life. These behaviors could enhance GDP expansion, which might have little connection with the improvement of people's overall well-being. To know the actual state of well-being of a nation, it is important for us to investigate whether people in general are satisfied with their overall lifestyle entangled with the mega drama of growth. The urban mass earning relatively higher wages suffer in their personal lives as they have little quality family time and a satisfactory



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Remarkings An Analysis

War and Depression: A Comparative Study

Abstract

Out of the thirteen recessions (at least) which took place in the United States (U.S) after "The Great Depression", war has played a key role in at least eight of them leading to a combined GDP decline of 51.6% over the years. Even though the attacks of 9/11 caused a mild recession of 0.3% decline in the GDP, it led to the U.S-Iraq war. One can say that war is either a pre-condition or a consequence of recessions. This paper aims to highlight that such might not always be the scenario. The major meltdowns that we have chosen to study thus establish such a result.

Keywords: War, Depression, Economy, Crisis, Boom, Mortgage, Unemployment, Europe, Stocks.

Introduction

What exactly perpetuated The Great Depression is a question that has been answered and analysed in many different ways, however the core essence of it remains the same. The pre-conditions of this depression was set by WWI. Because of The United States' participation in WWI which was sufficiently costly, the U.S. economy had turned inward during the 1920s. Top of it all the stock markets crashed worldwide (due to extensive buying on the margin). A banking collapse took place in the United States. Extensive new tariffs and other factors contributed to an extremely deep depression. The United States did remain in a depression until World War II, which helped the U.S. economy to combat the depression to quite an extent. In 1936, unemployment fell to 16.9%, but later returned to 19% in 1938. Again war and depression is strongly connected in the case of the Vietnam war.

Owing to the recession of 1957, U.S. entered the decade of the 60s with unemployment and excess capacities.

In the early 1960s the US economy was in the average prosperity period preceding the boom. In the industrial cycle of 1965 it entered the boom phase properly. This transition was assisted by economic policies, such as, the Kennedy-Johnson tax cuts along with the escalated participation in the Vietnam war. The official US price index after remaining stagnant throughout 1964 suddenly surged by 3.5% in the year 1965, the same year escalation in the Vietnam war was in its earnest. Such correlation can thus be seen between war and depression time and again with 2007-08 subprime crises being a strong exception. Whether this exception dilutes the strength of such correlation is what we attempt to analyse in this paper.

Aim of the Study

To clarify the connection between war and depression.

Problem

Is war and depression always strongly connected? This paper aims to discuss that by focusing on the following with respect to the given recession periods.

- (i) The factors leading to the depression and the co-relation of war with such slumps and its subsequent effects on the economy.
- (ii) The policies implemented to handle the crises and prepare the economy for recovery.

Analysis and Findings

A Look into the Subprime Crisis of 2007-09

The global recession of 2007-9 was without a doubt the most severe since the great depression of the 1930s. A large part of the wealth of US households evaporated: Household net worth in the US (including nonprofit organizations) went from \$42.1 trillion (4.4xGDP) in 1999 to \$51.7 trillion (3.6xGDP) in 2008 while the consumer price index (CPI) increased



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ঔপনিবেশিক শাসন কালে হুগলি ও বর্ধমানের রোগ, মহামারী ও জনস্বাস্থ্য চেতনা: দ্বি-
বর্গীয় প্রেক্ষিতে উৎস সন্ধান।

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সারসংক্ষেপ

রোগ, মহামারী ও জনস্বাস্থ্য চেতনার ইতিহাসচর্চা সামাজিক ইতিহাসকে আরো সমৃদ্ধ করেছে। ইতিহাসের ভূগোলমূলক এই লবী-ধারার সূত্রপাত ঘটে পশ্চিমী গবেষকদের মাধ্যমে। ফলে ভারতের পেশা-এদেশীয় রোগ, রূপা, জনস্বাস্থ্য ও মহামারীর প্রকৃত ছবি আঁশা করা বাতুলভাষ্য। তাই ঔপনিবেশিক জনস্বাস্থ্য ও মহামারীর ইতিহাসের পুনর্নির্মাণ শুরু হয় এবং সরকারী লিখিত ও ভাষ্যের বাইরে, মানুষের সামাজিক আচার-আচরণ ও নৈতিক ধর্ম-বিশ্বাসে যে চেতনা লিখিত, তাকে দেশ, কাল ও রাষ্ট্রের প্রেক্ষাপটে বাচাই করার প্রয়োজনীয়তা দেখা দেয়। মার্কিন নু-কিগানী র্যালফ নিকোলাস, ব্রিটিশ ঐতিহাসিক ডেভিড আর্নল্ড এবং অরবিন্দ সামন্ত, দীপক কুমার, চিত্তরত্ন পালিত প্রমুখ ভারতীয় গবেষক প্রমাণ করেছেন যে, পরিবেশগত কারণ বা দেশীয় লোকস্বাস্থ্যের মহামারীর প্রধান ও একমাত্র কারণ নয়; বরং অনুচ্চ মাত্রা প্রকৃত কারণ লিখিত ছিল ঔপনিবেশিক শাসনের শোষণমূলক চরিত্রের মধ্যে। সম্পদের লাগামহীন লুণ্ঠনের ফলে একদিকে বাংলার স্বনির্ভরশীল গ্রামীণ অর্থনীতি যেমন ভেঙে পড়েছিল, তেমনি অন্যদিকে কেউনিহেছিল মানুষের রোগ প্রতিরোধক ক্ষমতা। ফলে কলেরা, গুটিবসর, ম্যালেরিয়া প্রভৃতি রোগ অতি সহজেই মহামারীর রূপ নিয়েছিল। নিজেদের স্বার্থে সরকার নতুন স্বাস্থ্যবিধি তৈরি করল। পশ্চিমী চিকিৎসা ও ঔষধ চালিয়ে দিল এদেশীয় দেশ উন্নয়ন। ফলে স্বাস্থ্য সুরক্ষার দেশীয় প্রকৌশল ওলির প্রাণিকরণ ঘটে গিয়ে ও তা বেক্টেরিওল নৈতিক ধর্ম ও সংস্কারে। এই প্রেক্ষিতে হুগলি ও বর্ধমানে মহামারীর প্রভাব ও নিশ্চয়বর্ধী স্বাস্থ্য চেতনতার স্বরূপ উদ্ঘাটন করাই আনোচ্য লিখকের মূল লক্ষ্য।

মুচক শব্দ: বর্ধমান জর, টিকাদার, মাসুরিকা, ওলাইচড়ী, স্বরাসুর, বেনিয়া-চিকিৎসক, নেটিভ পাড়া, বসন্ত গৌরী।

সাম্প্রতিককালে চিকিৎসা বিদ্যার ইতিহাস চর্চা ও 'রোগ-রোগী-রাষ্ট্র'- এই ত্রীণ আন্তঃ-সম্পর্ক নির্ণয় সামাজিক ইতিহাস চর্চার অন্যতম দিক। আর, বরতে কোন দ্বিধা নেই যে, এ বিষয়ে Edwin Chadwick-এর মত পশ্চিমী গবেষকরাই ('Ultra Sanitarian') ছিলেন আগ্রগন্য। তাঁদের হাত ধরেই মূলত প্রচুর রোগ, রোগী ও মহামারীর ইতিহাস চর্চার সূত্রপাত ঘটেছে। ভারতবর্ষ তথা বাংলাকে রোগ, মহামারীর দেশ হিসেবে নির্মাণ। তারা

প্রচুর অস্বাস্থ্যকর পরিবেশ, লোকস্বাস্থ্য ও ধর্মীয় কুসংস্কারই রোগ-ব্যাদি ও মহামারীর উৎস বলে মনে করেছেন। অন্যদিকে অরবিন্দ সামন্ত, পুনম বালা, দীপক কুমার, চিত্তরত্ন পালিত-দের প্রচেষ্টায় নবকলব্রের নির্মিত হয়েছে সাম্রাজ্যবাদ ও মহামারীর আন্তঃসম্পর্ক এবং প্রাচ্য ও পাশ্চাত্যের চিকিৎসা পদ্ধতির দ্বন্দ্বিক ভাষ্য। ঔপনিবেশিক বাংলার মহামারীর ইতিহাস নির্মাণ-বিনির্মালের এই দ্বন্দ্বিক দিকটি স্মরণ রেখেই উনিশ শতকে হুগলি ও বর্ধমান-



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Constraining compressed versions of MUED and MSSM using soft tracks at the LHC

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ABSTRACT: A compressed spectrum is an anticipated hidden¹ for many beyond standard model scenarios. Such a spectrum naturally arises in the minimal universal extra dimension framework and also in supersymmetric scenarios. Low p_T leptons and jets are characteristic feature of such situations. Hence, a monojet with E_T has been the conventional signal at the Large Hadron Collider (LHC). However, we stress that inclusion of p_T -biased track observables from such soft objects provide very efficient discrimination of new physics signals against various SM backgrounds. We consider two benchmark points each for minimal universal extra dimension (MUED) and minimal supersymmetric standard model (MSSM) scenarios. We perform a detailed cut-based and multivariate analysis (MVA) to show that the new physics parameter space can be probed in the ongoing run of LHC at 13 TeV center-of-mass energy with an integrated luminosity $\sim 20\text{--}50\text{ fb}^{-1}$. When studied in conjunction with the dark matter relic density constraint assuming standard cosmology we find that compressed MUED (with $\Delta R \approx 2$) can be already excluded from the existing data. Also, MVA turns out to be a better technique than regular cut-based analysis since tracks provide uncorrelated observables which would extract more information from an event.

KEYWORDS: Phenomenology of Large extra dimensions, Supersymmetry Phenomenology

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Dynamical behaviour of an exploited fish species obeying modified logistic growth function with taxation as a control instrument

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Abstract

In this paper we discuss and analyse a mathematical model to study the dynamical behaviour of an exploited fish species which obeys the *modified logistic growth function* [1]. Fishing is permitted after imposing tax per unit harvested biomass by the Government or private agencies in order to control over exploitation. The steady states of the dynamical system are determined. The local stability for the non-trivial steady states is discussed. The global stability of the non-trivial interior equilibrium is also studied. It is also examined whether the system possesses any limit cycle. All the results are illustrated with the help of four numerical examples.

Keywords: modified logistic growth function, steady states, variational matrix, local stability, limit cycle, global stability.

1. INTRODUCTION:

Fish is a major renewable resource for the human community. However, some of the fish species are likely to become extinct due to excessive harvesting. So the Government or the private agencies have to monitor and regulate the over exploitation of the species. Various techniques in regulating fisheries have been discussed by



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Comparative Study of Gompertz and Logistic
Laws of Growth Functions

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ABSTRACT: This paper deals with the comparative study of the Gompertz [1] and Logistic law of growth functions [2]. It is considered here that the fish species obey the two laws of growth functions separately. We then discuss their growth rate, steady states and dynamical behaviours, in case of both unexploited and exploited fishery. The general and particular solutions satisfying the initial conditions are determined for both the growth equations in case of exploited as well as unexploited system. All the results are illustrated graphically.

KEYWORDS: Gompertz law of growth, Logistic law of growth, environmental carrying capacity, steady states, exploited and unexploited fishery, harvesting effort.

1. INTRODUCTION

The Logistic law of growth function is $F(x) = rx\left(1 - \frac{x}{k}\right)$, where r is a positive constant, called the intrinsic growth rate of the population and k is also a positive constant, called the environmental carrying capacity. This growth function was first proposed by P.F. Verhulst [2] in the year 1838 and first used in the model of human population. Logistic growth function is first used in the commercial marine fishery by the biologist M.B. Schaefer [3]. Schaefer considered a fish species obeying the logistic law of growth and adopted the CPUE (catch-per-unit-effort) hypothesis [1] to represent the catch-rate function.

In spite of various limitations of the Logistic growth function, this function is still being used in the commercial marine fishery for its simplicity. Researchers like Pradhan and Chaudhuri [4], Ganguly and Chaudhuri [5], Ray and Pradhan [6] and many other researchers discussed several mathematical fishery models by using Logistic growth function as the growth function of the fish species.

Many alternative forms for the growth function $F(x)$ have been suggested by May [7]. Gompertz law of growth function is one of the important growth functions. Gompertz law of growth function is in the form $F(x) = rx \ln\left(\frac{k}{x}\right)$, where r is a positive constant, called the intrinsic growth rate of the population and k is a positive constant, called the environmental carrying capacity. Pradhan and Chaudhuri [8] discussed a bioeconomic modeling of a single species fishery with Gompertz law of growth.

In this paper we have discussed the growth rate, the steady states and the dynamical behaviours of a fish species obeying both the growth laws separately in cases of exploited as well as unexploited fishery. It is also proved that the non trivial steady state for the Logistic growth function exists only when the harvesting effort is less than the BTP, whereas no restriction is required for existence of the non trivial steady state of the Gompertz law of growth function. In the exploited fishery it is proved that in the Gompertz law of growth the population reaches earlier to the steady state compared to the Logistic law of growth. It is also seen that the growth rate of the exploited fishery in the Gompertz law of growth ceases later than the Logistic growth law. The general and particular solutions of both the growth equations are found for the exploited and unexploited systems and the solutions are then compared for both the laws analytically and graphically. Comparing all the results of the two cases we have proved that the Gompertz law of growth is more



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৩১বি রাজা নীলেন্দ্র স্ট্রিট
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ইন্দ্রাণী রায় স্মৃতি পুরস্কার প্রাপ্ত প্রবন্ধ

ভুবনেশ্বরের দুই শৈব মন্দির সিদ্ধেশ্বর ও কেশবেশ্বর— একটি তুলনামূলক আলোচনা

সংযুক্তা দে*

ভারতবর্ষের দক্ষিণ-পূর্ব দিকে অবস্থিত অন্যতম রাজ্য উড়িষ্যা মন্দিরের দেশ হিসাবে সুপরিচিত। খ্রিস্টপূর্ব সপ্তম শতক থেকে ঐয়োদশ শতকের মধ্যবর্তী সময়ে বিভিন্ন রাজবংশ যেমন—শৈলোদ্ভব, সোমবংশী, গঙ্গ, সূর্যবংশী প্রভৃতি শাসকদের আমলে উড়িষ্যার ব্রাহ্মণ্য স্থাপত্যকীর্তি তথা মন্দিরগুলি নির্মিত হয়। নাগর শৈলীতে মন্দিরগুলি নির্মিত হতে শুরু করলেও পরে স্থানীয় বৈশিষ্ট্যসমূহ মন্দিরগুলিকে অনন্যতা দান করে। ভূমি-পরিকল্পনার দিক দিয়ে উড়িষ্যার মন্দিরগুলি যেমন—ত্রিভুজ, পঞ্চভুজ, সপ্তভুজ প্রভৃতি ভাগে বিভক্ত, তেমন শিখর পরিকল্পনার দিক দিয়ে সেগুলি রেখা, গাঁড় ও খাখরা দেউলে বিভক্ত।

উড়িষ্যার বর্তমান রাজধানী ভুবনেশ্বর 'মন্দির নগরী' হিসাবে পরিচিত এবং এই স্থানের প্রধান ভূমীশ্বর হলেন মহাদেব। এক্ষেত্রে প্রাচীন এ ভুবনেশ্বরকে এক্ষেত্রে ক্ষেত্র বলা হচ্ছিল। যার অর্থ বেড়া দেওয়া অশ্রুপুঞ্জ, সেখানে দেবদেবের একাধারে তপস্যা করেছিলেন এবং এখানেই ভুবনেশ্বরী তথা দেবী পার্বতীর সহিত ওনার মিলন ঘটে। ৭ খ্রি. চতুর্থ শতক থেকেই শৈব উপাসনার অন্যতম বিখ্যাত স্থানে পরিণত হয় ভুবনেশ্বর। তাই এখানে শৈব মন্দিরের উপস্থাপনা অধিকমাত্রায় দৃষ্টিগোচর হয়। ভুবনেশ্বরেরই দক্ষিণ দিকে বর্তমানের 'Old Town' নামক স্থানে স্থাপিত দুটি শৈব মন্দির হল সিদ্ধেশ্বর ও কেশবেশ্বর।

সিদ্ধেশ্বর মন্দিরটি মুক্তেশ্বর মন্দির চত্বরের উত্তর পশ্চিম প্রান্তে অবস্থান করছে এবং অনতিদূরেই স্থাপিত কেশবেশ্বর মন্দির। স্থাপত্য শৈলীতে সাদৃশ্যের দিক দিয়ে উভয় মন্দির পরস্পর প্রতিরূপ তথা যমজ হিসাবে পরিচিত। কিন্তু মন্দিরদুটিকে ঘিরে বর্তমান প্রচলিত লোকগাথা এবং স্থাপত্য ও ভাস্কর্য অলঙ্করণ কেন্দ্রিক কিছু পার্থক্য দুটি মন্দিরকে পৃথক ও অনন্য পরিচিতি দান করেছে। নিম্নে একটি তুলনামূলক আলোচনার মধ্য দিয়ে এই সকল পার্থক্যগুলি তুলে ধরার প্রচেষ্টা করা হল এবং তার মধ্য দিয়ে কতকগুলি বিশেষ স্থাপত্যগত ও ভাস্কর্যকেন্দ্রিক বৈশিষ্ট্যের পুনর্মূল্যায়নের চেষ্টা করা হল।

প্রথমেই আসা যাক এই দুটি মন্দিরের প্রতিষ্ঠা সংক্রান্ত লোকগাথার প্রসঙ্গে। এক্ষেত্রে

* এম.ফিল. গবেষিকা, প্রাচীন ভারতীয় ইতিহাস ও সংস্কৃতি বিভাগ, কলিকাতা বিশ্ববিদ্যালয়

06 MAR 2023

06 MAR 2023

Authenticated

Principal

Gokhale Memorial Girls' College