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Sri Aurobindo and Human Unity in Diversity – A Brief Review

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Abstract

Sri Aurobindo's philosophy is an in-depth study of unity of human race. In his book The Ideal of Human Unity, Ideals and Progress, and Thoughts and Glimpses reflect his attitude towards human unity. Many thinkers spoke of this ideal differently but Sri Aurobindo does not accept those notions of ideals. He designed his view of ideals through reality.The ideal of human unity, which was already present at the dawn of civilisation, has never appeared so close to realisation. It is at the onset of the 21st century the need for human unity has been inevitable, perceived as somewhat threatening. It has been proved that egoism is the biggest obstacle to a life of harmony and peace on earth, but after so many centuries of civilization no amount of religious preaching or moral teaching has been imparted to convince the ego, to forego its claims, as to speak to him of fraternity is to speak to him of something fundamentally contrary to his nature. Man is a transitional being, said Sri Aurobindo shortly after the First World War, evolution continues and man will be surpassed. The evolutionary process of human unity is possible not through rationality, but through Yogic experience. The way which leads to the life divine are "integral yoga" .This is why Aurobindo thinks that every man is a Yogi, but not a conscious one. Those who have become conscious of this process through the Yogic experience can help the others. But for this, we have to reverse the process, said Sri Aurobindo, and instead of using external means, we have to turn inward, because without a change in man's nature no real changes in the external circumstances are likely to take place. The only way we can move towards unity is to progressively realise that there is a secret Spirit, a divine Reality in which we are all one - not only realise it mentally but discover it in ourselves and live this knowledge. The secret of unity is within, said Sri Aurobindo; the secret of brotherhood is within. There is no unity except by the soul; there is no real brotherhood except in the soul and by the soul. Only when we live from the soul and not from the ego will a real unity reign on earth. For this Sri Aurobindo said that psychological factors are indispensable for unity

and he found this factor in the religion of humanity. Finally, Sri Aurobindo's view is the best way to create a life of unity, harmony and peace.

Key words: Egoism, Human unity, Integral yoga, Life Divine.

1. Introduction

Today the ideal of human unity is making its way to impact upon our consciousness. An ideal in human thought is to test how far it is ready for the harmony and allow and incite man to attempt and fail so that he may learn and succeed better another time. The intellectual and material circumstances of time have initiated scientific discoveries and made our earth so small like provinces of a single country. However, material circumstances may bring about failure of the ideal; for when material circumstances favour a great change, but the heart and mind of the race are not really prepared to accept, especially the heart - failure may be predicted, unless indeed men are wise in time and accept the inner change along with the external readjustment. At present, the human intellect has been mechanised by physical Science that is likely to make any revolution through mechanical means, social and political adjustments. However, unity of the human race can be fruitfully accomplished by way of social and political devices.

It must be remembered that a greater social or political unity is worthwhile to ensure a better, richer, happier and puissant individual and collective life. If we consider the past of humanity, an interesting periods of human life when humanity was able to organise itself in little independent centres acting intimately upon each other but not fused into a single unity.

Modern Europe owes two-thirds of its civilisation to three such supreme moments of human history, the religious life of the congeries of tribes which called itself Israel and, subsequently, of the little nation of the Jews, the many-sided life of the small Greek city states, the similar, though more restricted, artistic and intellectual life of mediaeval Italy. For India, she was divided into small kingdoms, many of them were no larger than a modern district. Her most wonderful activities and most vigorous and enduring work at the sacrifice of all else, belonged to that period; the second best came afterwards in larger, but still comparatively small, nations and kingdoms like those of the Pallavas, Chalukyas, Pandyas, Cholas and Cheras. In comparison, she received little from the greater empires of the Moghul, the Gupta or the Maurya - little indeed except political and administrative organisation, some fine art and literature and a certain amount of lasting work in other kinds, not always of the best quality.

However, there was always a defect which compelled a tendency towards large organisations. The defect was a characteristic of impermanence, often of disorder, especially of defencelessness against the onslaught of larger organizations.

And here it is noticed first that it is the groupments of smaller nations which have had the most intense life and not the huge States and colossal empires. Collective life diffusing itself in too vast spaces seems to lose intensity and productiveness. However, the unity of mankind is evidently a part of nature's eventual scheme and must come about. Only it must be under other conditions and with safeguards which will keep the race intact in the roots of its vitality, richly diverse in its oneness. Against this backdrop, the objective of the study is to review human unity in diversity in light of Sri Aurobindo's philosophy.

2. HUMAN UNITY IN DIVERSITY

The enormous diversity in the land of India and the world at large it is very difficult to unite human beings at one point. Sri Aurobindo enlightens humanity to move towards unity of soul and prescribes the following ways to reach the noble mission.

2.1Transnational human being

It becomes urgent to understand what this unity is towards. Man is a transitional being, as Sri Aurobindo said shortly after the First World War, evolution continues and man will be surpassed. Not only did Sri Aurobindo foresee the next step in the evolution of man but he guided that but for remaining a passive spectator in a painful and incomprehensible process, it should better consciously collaborate in our own evolution and break free of our seemingly inextricable bonds.

2.2 Awakening inner self

Sri Aurobindo suggests that instead of using external means, move to wakeup inner self, only then real changes in the external circumstances are likely to take place. The only way to move towards unity is to progressively realise that there is a secret Spirit, a divine reality in which we are all one - not only realise it mentally but discover it in ourselves and live this knowledge. The secret of unity is within, said Sri Aurobindo; the secret of brotherhood is within. There is no unity except by the soul; there is no real brotherhood except in the soul and by the soul. A real unity reigns on earth only when human beings live from the soul and not from the ego.

2.3. Evolution of consciousness

In the new age opening for humanity, or 'supra-mental' age, the soul will become the centre of all life and activities. A new stage in the evolution of man with a new consciousness in which the dualities, hesitations and limitations of the mind and the greed and blindness of the ego will no longer exist, has already started to appear, and all the upheavals and convulsions that are at present so painfully tearing our earth are the outward signs of this evolutionary crisis. This new

consciousness is already at work in the atmosphere of the earth, connect with it, and use it to transform our entire nature and consequently the world in which human beings live.

3. Conclusion

Aurobindo enlightens the evolutionary process of human unity through conscious Yogic experience that is "integral yoga" where human beings can help each other through the Yogic experience that, " All mankind is one in nature… Nothing which any individual race or nation can triumphantly realize …has any permanent value except in so far as it adds something for this human march." However, he was interested in "a new synthesis of religious thought and experience, a new religious world-life from intolerance, yet full of faith and fervor, accepting all forms of religion because it has an unshakable faith in the One." Aurobindo forecast great stage of human progress as a moral and spiritual one and believed that India had leading role to teach world religion. In his view India was an old civilization. "She is commissioned to rise from time to time from her ages of self-communion, self-sufficiency, self-absorption and rule the world for a season…when the restless spirit of Europe has added a new phase of discovery to the evolution of the science of material life, has regulated politics, re-based society, remodeled law, rediscovered science, the spirit of Asia, calm, contemplative, self-possessed, takes possession of Europe's discovery and corrects its exaggeration, its aberrations by intuition, the spiritual light she alone can turn the world.. Asia has always initiated, Europe completed. The strength of Europe is in details, the strength of Asia is in synthesis…It is therefore the office of Asia to take up the work of human evolution, when Europe comes to a standstill and loses itself in a clash of vain speculations, barren experiments and helpless struggles to escape from the consequences of her own mistakes. Such a time has now come in world's history." Aurobindo was convinced that India would survive as an independent state and it had to be conscious about its spiritual force and its diversity. Indian unity would be achieved because of Indian diversity. "Diversity", proclaimed Sri Aurobindo, "is as necessary as unity to our true completeness." However, he realised unity and uniformity as the law of life, even though he foresee world union as the ultimate goal. According to him, the progress of the civilization depends on its advance towards human unity. "The perfect society", affirmed Aurobindo, " will be that which most entirely favours the perfection of the individual; the perfection of the individual will be incomplete if it does not help him towards the perfect state of the social aggregate to which he belongs and eventually to that of the largest possible human aggregate, the whole of a united humanity." Aurobindo realised the perfection of the individual as a widening

and a heightening in human and cosmic development. This heightening result is in the integration of all levels of life and the achievement of unicity by the mind. As such salvation does not have a religious meaning. It is a rebirth of Man as a supramental being. "Man", writes Aurobindo. " is a transitional being; he is not final. For in man and high beyond him ascend the radiant degrees that climb to a divine supermanhood. There lies our destiny and the liberating key to our aspiring but troubled and limited mundane existence…Supermind is superman; a Gnostic supermanhood is the next distinct and triumphant evolutionary step to be reached by earthly nature." In other words, the Supermind helps Man to achieve integral realization of his personality and of ultimate reality. The Supermind is, according to Aurobindo, the supreme truth-consciousness. It is the infinite principle of knowledge. It is the necessary link between the existence, consciousness and bliss (Saccidananda) and the phenomenal worlds of life and mind. As long as the mind is separated from the Supermind it perceives only the particular and not the universal. That is to say, "the mind cannot possess the infinite…it can only lie blissfully helpless under the luminous shadow of the Real cast down on it from planes of existence beyond its reach." The Supermind , therefore, can bring a big spiritual change in the nature of Man making it possible the new integral personality. Agreeing that realization of non-duality is the purpose of life, Sri Aurobindo holds that each unique individual has a singular path to realization of integral non-dualism. For this reason, he insists that daily action is itself the means of realization. Just as one practices yoga for the purpose of developing one's inner spirituality, so participation in worldly experience is of the same importance. This is true because, as Aurobindo insists, "All life is yoga." In other words, the integral yoga prepares the conditions for the descent of Supermind. The yogi realizes himself through the cosmos and through the social life. This is why Aurobindo believes that the process of evolution has a purpose, which is advancing ineluctably toward the realization of the Life Divine here on Earth. Sri Aurobindo elaborated his educational ideas in relation to ideals of human unity and "travel towards divine perfection". For him, the goal of education was the study of the human mind, because he considered the mind as the principal instrument of knowledge. Thus, the aim of education, according to Aurobindo is: " the building of the powers of the human mind and spirit, it is the formation or… the evoking of knowledge and will and the power to use knowledge, character, culture…" For Aurobindo, Man has to be transformed and spiritualized through the educational practice. This process begins with self-knowledge which is self-mastery and it brings ultimately the transformation of Man into a spiritual being. Aurobindo's integral yoga contends that the union with the Divine Supermind is also possible through a complete cooperation with the cosmic creative power. "Yoga", asserts Aurobindo, " is the exchange of an egoistic for a universal or cosmic consciousness lifted towards or informed by

the super-cosmic, transcendent Unnamable who is the source and support of all things." Yoga and education are one and the same process through which spirituality emerges in mind. That is why to Sri Aurobindo the eternal truths of ancient wisdom had an appeal. Spirituality unlike religion does not lay excessive stress on dogmas. " A total spiritual direction given to the whole life and whole nature can alone lift humanity beyond itself", writes Aurobindo in his book '*The Life Divine*'. For it is true that, according to Aurobindo, without the higher spirit, the lower mind cannot be spiritualized. As a spiritual internationalist, Aurobindo puts a lot of emphasis on the transcendent aspect of Man. For Aurobindo the only answer to the crisis in the human world is an enlightened awareness of the spiritual unity of our existence through which a sustainable world unity can be achieved. "The truth of the Spirit", says Aurobindo, " may step in and lead humanity to the path of its highest possible happiness and perfection." According to Sri Aurobindo, the perfection is yet to come, because Man has not constituted yet the final step in his evolutionary process. Aurobindo's concept of human unity is not based on rational norms. It is not aimed at creating a more rational Man. Aurobindo's goal is mainly aimed at achieving an enlightened spiritualized community. This spiritualized community would not have nation-states fighting with each other, because in such a community men are not egoistic and look beyond their self-interests. Similarly Aurobindo defines human unity as "the attempt of human mind and life to grow out of national idea and form and even in a way to destroy it, in the interest of larger synthesis of mankind." For Sri Aurobindo the idea of "unity in diversity" would provide a solid basis for a durable synthesis of mankind. He wrote "East and West" in 1949 where he concluded that there was a common destiny and a common hope for both the East and the West.

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PRIONS: "The Proteinaceous Infectious Agent"

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Introduction:

Prions are very different from every other known infectious pathogen. Typical pathogens such as eukaryotic protists, bacteria, or viruses, are all made up of the essential building blocks of life: nucleic acids. However, the prion is the altered form of a protein particle built of amino acids. A prion has been defined as "**small proteinaceous infectious particles which resist inactivation by procedures that modify nucleic acids**". The discovery that proteins alone can transmit an infectious disease has come as a considerable surprise to the scientific community. The term Prion was coined by Stanley B. Prusiner of the University of California, San Francisco and he was awarded the Nobel Prize in Physiology or Medicine in 1997 for his research into prions. Prions cause neurodegenerative disease by aggregating extracellularly within the central nervous system to form plaques known as amyloid, which disrupt the normal tissue structure. This disruption is characterized by "holes" in the tissue with resultant spongy architecture due to the vacuole formation in the neurons. Human prion diseases include Creutzfeldt-Jacob disease (CJD), kuru, Gerstmann-Straussler-Scheinker disease (GSS), fatal familial insomnia (FFI) and the animal diseases believed to be caused by prions are scrapie in sheep, bovine spongiform encephalopathy (BSE or "mad cow disease)" and transmissible encephalopathy in mink.

Discovery:

The radiation biologist Tikvah Alper and the mathematician John Stanley Griffith developed the hypothesis during the 1960s that some transmissible spongiform encephalopathies are caused by an infectious agent consisting solely of proteins. Their theory was developed to explain the discovery that the mysterious infectious agent causing the diseases scrapie and Creutzfeldt–Jakob disease resisted ultraviolet radiation (UV radiation damages nucleic acids). Stanley B. Prusiner announced in 1982 that his team had purified the hypothetical infectious prion, and that the infectious agent consisted mainly of a specific protein – though they did not manage to isolate the protein until two years after Prusiner's announcement. While the infectious agent was named a prion, the specific protein that the prion was composed of is also known as the Prion Protein (PrP), though this protein may occur both in infectious and non-infectious forms.

Prion Diseases Transmitted by Inoculation, Cannibalism, Genetic Inheritance:

Prion diseases are often called **transmissible spongiform encephalopathies (TSEs)** because of the post mortem appearance of the brain with large vacuoles in the cortex and cerebellum. Probably most mammalian species including human being develop these diseases. The first of these diseases to be recognized affected sheep, and its name, **scrapie**, derived from the observation that affected animals rubbed against the fences of their pens to stay upright, presumably reflecting the manifestation of ataxia. Some years later, a clinically and pathologically similar human disease, **kuru**, meaning "trembling," was identified in highlanders of New Guinea (Gajdusek and Zigas, 1959 ; Hadlow,1959). Here also, ataxia predominated, proceeding to death usually within 9 months. In the brains of these patients, characteristic "plaque" lesions, extracellular collections of proteinaceous material, were observed. Kuru was transmitted among members of the Fore tribe of Papua New Guinea via ritual **cannibalism.** Three other clinically or pathologically similar neurodegenerative diseases have been recognized in humans, and for all of these, as with kuru, disease has been observed to be transmissible to experimental animals by intracerebral inoculation. In 1936, **Gerstmann, Straussler, and Scheinker** described a condition with ataxia and progressive dementia, occurring after age 40, associated, as in kuru, with plaques in the brain of affected individuals (Gerstmann et al., 1936). Multiple affected family members were observed, in a pattern indicating autosomal-dominant inheritance. Similar genetic transmission has also been observed for a rare condition more recently described, **familial fatal insomnia (FFI),** exhibiting lethal insomnia and autonomic dysfunction associated with pathologic changes confined to nuclei in the thalamus (e.g., Manetto et al., 1992). By contrast, the more common condition, **Creutzfeldt-Jakob disease (CJD),** usually occurs sporadically and presents with dementia occurring after age 40, with pathology generally featuring spongiform degeneration.

Structure and cell biology of Prions:

PrP-C is the cellular form of the prion protein (33-35 KDa) which has been found in all mammals and birds throughout life. PrP-C is attached to the external surface of cells by a glycolipid moiety and its function is unknown although it is believed to be involved in cell signaling, adhesion and maintaining the insulation along nerve fibres. When this protein is produced in the abnormal form PrP-SC (SC refers to scrapie), it may lead to disease. The human PrP gene (*PRNP*) is found on chromosome 20 and encodes a protein of 253 amino acids. The N-terminal region of PrP contains a segment of 5 repeats of an 8–amino acid sequence (ie, octapeptide repeat region) that contains a high-affinity binding site for copper ions; hence, PrP may have a role in copper transport or metabolism. Recent evidence suggests that copper imbalance is an early change during prion infections. The function(s) of PrP-C is likely to be of some importance because PrP is highly conserved among mammals and is found in all vertebrates.

The infectious form PrP-SC, is able to convert normal PrP-C proteins into the infectious isoform by changing their conformation, or shape; this, in turn, alters the way the proteins interconnect. Although the exact 3D structure of PrP-SC is not known, it has a higher proportion of β-sheet structure in place of the normal α-helix structure. Aggregations of these abnormal isoforms form highly structured amyloid fibers, which accumulate to form plaques, which disrupt the normal tissue structure. This disruption is characterized by "holes" in the tissue with resultant spongy architecture due to the vacuole formation in the neurons. The end of each fiber acts as a template onto which free protein molecules may attach, allowing the fiber to grow. Only PrP molecules with an identical amino acid sequence to the infectious PrP-SC are incorporated into the growing fiber. Studies have shown that PrP-C is about 40% alpha-helix and about 3% beta-sheet, whereas it has shown PrP-SC to contain about 45% beta-sheet and 30% alpha-helix. This high beta-sheet content correlates with PrP-SC resistance to enzymatic digestion and infectivity.

Treatment:

To date, there is no effective therapy for **prion diseases** has come out. PrP overexpression facilitates the development of prion diseases. It may therefore follow that agents which reduce PrP expression will delay the onset of prion diseases.

One can speculate that chemicals which bind to and stabilise the PrP-C conformation may be beneficial. Similarly agents destabilising the PrP-SC conformation may be effective. Agents which interfere with the putative PrP-C-PrP-SC interaction might be effective. Quinacrine has recently been proposed as a treatment for Creutzfeldt-Jakob disease (CJD).

A Comedy of Ancient and Modern Life in Eugene O'Neill's 'The Hairy Ape'

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Abstract

There are four aspects of Eugene O'Neill's The Hairy Ape (1921) that, because of the play's strong naturalist-expressionistic stylistic component, have hitherto been neglected or completely ignored and this paper will surely emphasize on these issues: first its "comedy," as O'Neill describes it in the subtitle, "A Comedy of Ancient and Modern Life in Eight Scenes"; second, its connection, or opposition, to Italian futurism; third, its choice of so lowly a protagonist as Robert "Yank" Smith to symbolize humanity itself; and last, the relationship of The Hairy Ape to ancient Greek tragedy. It is a synopsis on the given aspects.

Introduction

Foremost among the experimenters was Eugene O'Neill, of whom it is only a slight exaggeration to say that during the 1920s he never wrote two plays in the same style. O'Neill, whose father had been a star actor in the nineteenth-century theater, and who thus had a sharp awareness of its literary limitations, was consciously experimenting, trying to shape and stretch the medium so that it could do what he wanted it to do—express his profoundly thoughtful insights and philosophies. But even the less determinedly innovative writers of the period found themselves making up the rules as they went along. Following the lead of European experimenters and staking out new stylistic and technical ground of their own, they and O'Neill redefined the boundaries of the medium, finding new artistic vocabularies with which to address new subjects, discovering what various styles of drama were capable of achieving and what was better left to the novel, the short story, and poetry. There are few, if any, such critics of the American theater today and that the quality of our drama is suffering as a result. Good theater critics, unaligned and unafraid, would have made sure that false messiahs and peddlers and charlatans like these were shown as such. And only by doing so could such critics have made way for the real messiah to arrive (Cardullo)

The Critical Appraisal

"[The Hairy Ape] remains one of my favorites. I have an enduring affection for it—always will have—and an enduring respect for it as drama, the more so because so few peopl have ever seen what it is all about." — Eugene O'Neill in a 1944 letter to Theresa Helburn.

Starting with The Hairy Ape's "Italian connection," or connections, O'Neill not only ironically invokes Dante's Divine Comedy (1321) but also implicitly responds to the futurist movement in the arts (including drama) founded by his contemporary Filippo Tommaso Marinetti. Originally called simply Commedia, like The Hairy Ape's own subtitle, "A Comedy," Dante's masterpiece was reissued in Venice in 1555 with the adjective divina applied to the work's title for the first time, thus resulting in the title still used today. The characters whom Dante meets on his journey in the Commedia, moreover, are drawn largely from ancient Roman as well as recent Italian history and even from contemporary Italian life. Hence this narrative poem could itself be called "A Comedy of Ancient and Modern Life," just as O'Neill describes his play. (Cardullo)

Additionally, even as O'Neill succeeded in The Hairy Ape in forging an urban American argot that assimilates the spoken English of immigrant Germans, Jews, Scandinavians, Frenchmen, Dutchmen, Italians, Cockneys, and Irishmen, so too, from a reverse angle, did Dante enrich courtly Italian with his native Tuscan dialect to create a serious literary language that would take the place of Latin and become the ancestor of modern Italian. In fact, Dante's use of language was one of the reasons for the "low" title of Commedia, for in this work he treated a serious subject, the redemption of man—one normally reserved for "high" tragedy—in the low and vulgar language of Italian, not Latin as one might expect. (Cardullo)

Finally, although in structure a journey to, or through, the Beyond of hell, purgatory, and paradise, the Commedia is actually a realistic picture and intense analysis of earthly human life. But Dante's literal journey, of course, is also a spiritual one: an allegory of the progress of the individual soul toward God and of the progress of sociopolitical mankind toward peace on earth—hence the "comedy," or happy-cum-heavenly ending, of the poem. Similarly, Yank takes a literal as well as figurative journey in The Hairy Ape. Like Dante, he also begins in hell—the inferno-like bowels of the stokehole of a transatlantic liner, as O'Neill describes it in Scene 3: The stokehole . . . murky air laden with coal dust . . . masses of shadows everywhere . . . [The men] use . . . shovels to throw open the furnace doors. Then from these fiery round holes in the black, a flood of terrific light and heat pours full upon the men . . . [as they] hurl [coal] into the flaming mouths before them. (187)

It is in hell, furthermore (a hell, appropriately, where men seem condemned or cursed to an eternity of hard labor, in the sweat from which they will slowly roast), that Yank meets Mildred—or, it could be said, that this Adam ("naked and shameless") (O' Neill 191) meets his Eve ("dressed all in white") (O' Neill 180), who turns out to be something other than Dante's idealized Beatrice. For Mildred not only violates the atavistic, animalistic Yank's territorial space, she also gives Yank knowledge or consciousness of himself—or of himself as others view him—for the first time, and with it the power to think. But "Thinkin' is hard" (230) for Yank, so hard that at least five times in the play, subsequent to his single encounter with Mildred, O'Neill has his protagonist

sit "in the exact attitude of Rodin's 'The Thinker' (193). This 1881 sculpture is often considered to be optimistic, even uplifting—the epitome of contemplative, intelligent man—but one must not forget that Rodin designed it as the central piece of his monumental work The Gates Of Hell (1880-1917), which would portray brutish man attempting to puzzle out the truth and meaning of human existence. So construed, thought or self-reflection is a kind of hell that separates or alienates humanity from nature, in contrast to the union with nature enjoyed by all other animals. (Cardullo)

Yank, however, is identified with the machine or the machine age; he "belongs" (one of his favorite words) to the age of steam, power, and speed. In the stokehole of this particular ship, moreover, he is the Supreme Being and unquestioned ruler—"fiercer, more truculent, more powerful, more sure of himself than the rest" (O' Neill 166). Or at least he was until Mildred's simple look of revulsion and her words "Oh, the filthy beast!" (O' Neill 192) topple Yank's confidence and self-respect, completely changing his perspective on his life and work. Just as Mildred descends the evolutionary ladder, so to speak, to see "how the other half lives" (O' Neill 184) in the nether regions of the ocean liner, so too does Yank ascend from the bowels of the ship, shortly after his encounter with her, to discover a world on high he never knew really existed and in which he does not fit. To be sure, he begins his actual as well as metaphoric journey in a quest, at first, for revenge against Mildred's upper class, only to have that journey become, more and more, a search for self. (Cardullo)

His journey takes Yank from hell progressively back through the evolutionary scale to four places on "earth," in New York City—Fifth Avenue, the prison on what was then known as Blackwell's Island (Roosevelt Island today, in the East River between Manhattan and Queens), the meeting hall of the International Workers of the World on the Brooklyn waterfront, and the zoo (possibly the Bronx Zoo, but probably the closer one in Central Park, because he spent the previous night on a bench in Battery Park at the southernmost tip of Manhattan)—purgatories, all, that lead to physical punishment (as opposed to spiritual penance) for Yank's "sins" and ultimately to his death. "I ain't on oith and I ain't in heaven', get me?" Yank tells a gorilla at the zoo—his closest "relative" in terms of appearance, strength, and outlook, and what the "evolved" but over bred Mildred saw in the stokehole when she looked into Yank's "gorilla face" (O' Neill 191)—"I'm in the middle tryin' to separate 'em, takin' all de woist punches from bot' of 'em. Maybe dat's what dey call hell, huh?" (O' Neill 230-31).

Maybe, but it could just as well be what they call purgatory. "Christ," Yank asks as he is dying at the hands of the un-caged gorilla, "Where do I get off at? Where do I fit in?" (O' Neill 232). The answer lies, not in the uniting of his immortal soul (if he has one) with God, but in the freeing of Yank from the prison-house of self and the reunion of his mortal body with the elements of nature. After what he has been through, one could say, this is heaven enough. As O'Neill himself once explained, Yank while alive had "lost his old harmony with nature, the harmony

often ends in festivity and marriage. Yank is all alone and "outside," in death as in life, on earth as in—the earth. And there "perhaps the Hairy Ape at last belongs" (O' Neill 232), unlike the usual comic protagonist, who really belongs from the very beginning and has only to wake up that fact in the end. (Cardullo)

Nonetheless, in his rejection and betrayal by all classes of society, Yank has something of the Christ-figure about him, as does the Cashier in the German Georg Kaiser's play From Morn to Midnight (1912)—which O'Neill read before he wrote The Hairy Ape, and which uses the station-play (or stations-of-the-cross) structure, borrowed from medieval religious drama, that became characteristic of both German and American expressionism. (qtd. in Clark and O'Neill 830). Like From Morn to Midnight and Shaw's even earlier Major Barbara (1905), The Hairy Ape also links capitalism and Christianity in a mutually beneficial political conspiracy to exploit the poverty-stricken masses. (That "conspiracy" takes the form of explicit Salvation Army scenes in the Shaw and Kaiser plays, but the Salvation Army gets only one passing and contemptuous reference from Yank 172). When, for example, Yank asks Long, on Fifth Avenue in Scene 5, where "her [Mildred's] kind" is, his friend replies, "In church, blarst 'em! Arskin' Jesus to give 'em more money" (O' Neill 203). When the wealthy churchgoers come out, they discuss ways to combat radicals (of the working class) and false doctrines (like anti-capitalism). At the same, they refer to their pastor as Doctor Caiaphas" (207), an allusion on O'Neill's part to the high priest Caiaphas, who presided at the council that condemned Christ to death and declared that "It was better that one man die for all people" (qtd. in Cardullo).

The authors of the other three gospels note that when Christ died "the curtain hanging in the temple was torn in two from top to bottom" (qtd. in Cardullo). The modern oppressors of humanity, for their part, specify in The Hairy Ape that proceeds from their "hundred percent American bazaar" will be used for repairing just such a curtain, i.e., for "rehabilitating the veil of the temple" (O' Neill 207). O'Neill thus suggests in the Fifth-Avenue Scene that the moneyed class, using the pretext of religious zeal, will ruthlessly crush any movement that threatens its economic position and will crucify anew any presumed—and presumptuous—rebel. Yank falls into this category at the end of Scene 5 when he is "clubbed . . . and fallen upon" (O' Neill 210) by the servants of the rich, the police, even as they subdue him at the end of Scene 6 when he tries to break out of jail. Something similar occurs again at the end of Scene 7, when Yank is overpowered by Wobblies, or members of the International Workers of the World, who suspect him of spying for their nemesis: the police. With immobilized arms and pinioned legs, as clumsy and artless as an animal, Yank takes on here the traits of a misunderstood savior—or the characteristics of a despised cross-bearer.

Christ-figure though he may be, Yank is meant as well—if only by O'Neill's choice of his first name, together with his melting pot of a "language," Brooklynese—to be the archetypal

erican, analogous to the archetypal Italian of futurist drama (which was still being produced Italy at the same time as The Hairy Ape was being staged in New York). The central occupations of the futurists were speed and technology; like Yank, they were particularly wn to the intoxicating power of machines, as Yank himself describes it in the following speech early in the play:

> Sure I'm part of de engines! . . Dey move, don't dey? Dey're speed, ain't dey? Dey smash trou, don't dey? . . Dat's new stuff! Dat belongs!.. I start somep'n and de woild moves!.. I'm de ting in coal dat makes it boin; I'm steam and oil for de engines; I'm de ting in noise dat makes yuh hear it; I'm smoke and express trains and steamers and factory whistles . . . And I'm what makes iron into steel! Steel, dat stands for de whole ting! And I'm steel—steel—steel! (O' Neill 176-77)

The futurists welcomed steel and all the other products of industrial society—with its ctricity, urbanization, and revolution in the means of transport and communication—with an -embracing optimism, for they saw them as the means by which people would be able to dominate ir environment totally. The speed, change, and motion of the industrial age were also fundamental the futurists' love of the modern and their rejection of the static, lethargic past—the very ural" past about which Paddy rhapsodizes in Scene 1 of O'Neill's play. As these Italians alized—in such plays as Genius and Culture (1915, by Umberto Boccioni), The Arrest (1916, F. T. Marinetti), and Lights (1922, by Francesco Cangiullo)—the effects of the speed of transport d communication on modern sensibility were such that people were aware not just of their mediate surroundings but of the whole world. (Cardullo)

In essence, then, the limits of time and space had been transcended—as they are, in a nse, in any production of The Hairy Ape, which moves from a transatlantic ocean liner bound r Southampton, England, to several locations on the streets of New York, and which takes place er a period of two months. Now it was possible to live through events both distant and near at nd: in fact, to be everywhere at the same time. Accordingly, Marinetti and his followers held at the speed of modern life called for a corresponding speed of communication in contemporary t, which should—unlike the conventional theater—be far briefer and more compressed or nthesized than even The Hairy Ape, yet at the same time incorporate simultaneous action curring in different places or at different times. Futurism took hold in Italy—and, in somewhat fferent, more metaphorical, as well as more short-lived, theatrical form, in the former U.S.S.R. hich, unlike soon-to-be Fascist Italy, restricted or completely suppressed the freedom even of ose artists, like the Russian futurists, who supported the Communist revolution)—as in no other estern nation partly because this country, like the Soviet Union, underwent industrialization (as ell as nationalization or consolidation) much later than, say, the United States. For this reason alian futurists embraced the machine age and all that it made possible—including war, which

they labeled the supreme, health-bestowing activity—to an extent unknown in American artistic circles. (Cardullo)

Here, by contrast, playwrights like O'Neill, Elmer Rice (The Adding Machine, 1923), and Sophie Treadwell (Machinal, 1928) were using techniques borrowed from the German expressionists (who themselves rejected or at least vigorously questioned modern technology along with the military industrial complex it spawned) to question both their country's rise to economic-cum-martial supremacy and its engineering of what amounted, in effect, to a second Industrial Revolution. Hence O'Neill's attempt, in The Hairy Ape, to depict the stokers—with the possible exception of Yank, "their most highly developed individual" (O' Neill 166) and consequently the very kind of individual (unsentimental, autonomous, hyper-efficient) championed by the Italian futurists—as soulless automatons who move and work mechanically, look alike, and speak with "a brazen, metallic quality as if their throats were phonograph horns" (O' Neill 170).

But the rich in this play are equally mechanical—and hardly a class to which Yank would (or could) aspire to belong, anyway—from the "incongruous, artificial . . ., inert and disharmonious" (O' Neill 180). Mildred and her aunt, to the "procession of gaudy marionettes" on Fifth Avenue "with something of the relentless horror of Frankenstein monsters in their detached, mechanical unawareness" (O' Neill 207). And one of the reasons O'Neill made them so was less to indict or satirize the wealthy, as a polemical, anti-capitalistic workers' drama of the 1930s might, than to suggest that the rich, too, are victims of modern industrial civilization (which may be why, when Yank swings at them on New York's Fifth Avenue, nothing happens: they are already lifeless victims). Out of tune with the natural world, hardly in communion with any spiritual one, and consequently out of synch with, or un-attuned to, themselves, they find their ideal representative in the bloodless, wraithlike Mildred, who has "a pale . . . face, [and] looks fretful, nervous, and discontented, bored by her own anemia" (O' Neill 180). It appears, O'Neill writes further, "as if the vitality of her stock had been sapped before she was conceived, so that she is the expression not of its life energy but merely of the artificialities that energy had won for itself in the spending" (180-81).

Yank Smith, moreover, is symbolic of the wealthy of the world in addition to all its workers, even though he rejects, and is rejected by, both the workers' movement and the uppermost leisure class. He is representative, then, of the displacement of modern humanity in general: of people who, in the Marxist sense, become alienated from themselves because their work is not part of their life; because their work takes over their life entirely, as in the case of Yank; or, in the case of the idle, upper-class Mildred, as opposed to an unemployed member of the underclass, because work is something that they do not even want. As a result, these people find themselves alienated from other human beings as well, with whom they no longer share a social essence or of

whose society they no longer feel they belong. In Yank's case, that alienation translates into a kind of permanent, fatal existentialism—a paralyzing clash, if you will, between Dante's medieval-cum Renaissance Christianity and Marinetti's twentieth-century, totalitarian godlessness (or elevation of science and technology to godlike status). And the very structure of The Hairy Ape reveals this clash, which itself, in a sense, prevents Yank from moving either backward or forward, on to the past or back to the future. For, on the one hand, the episodic form of the play may be conducive to the illustration of a progressive if incremental journey toward spiritual wholeness or organist; on the other hand, however, that same episodic form, in the rapidity with which it can transcend or condense time and place, suggests the Machine Age of which Yank is a part, with its ease of transport, atomization of human existence, speed of tempo, and even simultaneity of experience. (Cardullo)

If we look at another way, the eight scenes of the play break down half and half between modernism in the form of futurism and medievalism in the form of the stations-of-the-cross drama. The first part of The Hairy Ape, all on the ship, is "modern." Here, the principles of Marinetti's futurism seem evident in the stokehole as Yank and his cohorts feed the machine at the same time they are, in a way, fed by it. The stokers' language in scene 1, for example, incorporates simultaneous speech during which they "talk over" one another, and actions themselves occur simultaneously when, in scene 2, the men work below in the stokehole even as Mildred and her aunt are visible on top on the ocean liner's promenade deck. After Mildred meets the "filthy beast," of course, the play completely changes. Following one more scene aboard ship, scene 4, the underlying structure of The Hairy Ape switches to that of a medieval station drama, relying now upon sequence rather than simultaneity. Thus, just as the play's own dramatic journey moves away from the modern and into the past, Yank devolves to see himself ultimately as the Hairy Ape (in both his description and in O'Neill's final stage direction 232). The fateful meeting with Mildred, one could say, is the end of modernism-cum-futurism for him: "thought" or (self-) reflection kills Yank's forward movement in the present, and then in scenes 5-8 he learns that, although he may call himself a "Hairy Ape," he can't go back in time, either. (Cardullo)

Yank, then, doesn't belong in either temporal realm after his brief but deadly encounter with Mildred—a fact brought home all the more by Mildred's disappearance from the plot at the end of Scene 3, and with her any hope for the beautification or beatification of this "beast" through romance. Improbable as such a romance may be, Paddy hints at it in Scene 4 when he declares, "[Yank's] fallen in love" (O' Neill 195). When Yank says that he has really "fallen in hate," Paddy retorts, "it would take a wise man to tell one from the other" (O' Neill 195). For examples of ape-like characters who do belong in their respective Renaissance and modern "forms" or realms, who have a self-awareness initially denied to Yank, and who themselves have their encounters with beauties (Miranda and Blanche DuBois), one need only turn to Yank's distant

ancestor Caliban from The Tempest (1611) and his near descendant Stanley Kowalski in A Streetcar Named Desire (1947, just three years after the release of the Hollywood film of The Hairy Ape).

Because, in his utter identification with the machine, he is as close as we can get in a modern character to primitive or prehistoric man's union with nature, on the one hand, and the communion of a Christian saint, martyr, or "mere" true believer with God, on the other hand. He is what Emerson, already in the mid-nineteenth century, was calling the machine man, "Metamorphosed into a thing." And it is precisely because of such utter identification that Yank's eventual alienation from the machine (something not foreseen by the Italian futurists in their attempt to fashion man himself as the most superior of machines)—his fall, as it were—is rendered more dramatic, more effective, than it would be for a character not so closely identified. When Yank loses this identification, he has nothing left to fall back on: certainly not God or nature, nor, obviously, is his mind sophisticated enough to embrace secular humanism. He becomes like a puppet without his deterministic strings—one that can no longer be "yanked," if you will. Moreover, as O'Neill himself points out above, even when Yank tries to commune with his "brother" ape, his evolutionary ancestor, he is rejected. He dies in a cage of steel as night falls on the Central Park Zoo, without a future of either a material or a spiritual kind. (Cardullo)

We may feel superior to this "comic" character, as we do to comic characters in general from our objective viewpoint, but we laugh at him at our own peril—unless, that is, our laughter is accompanied by the smile of recognition. For Robert "Yank" Smith is an alienated Everyman—every Robert Smith in America, then as now—or he is no one. O'Neill's discovery—and the discovery of other American dramatists at this time—was that "small" events in the lives of "small" people like Yank could be presented so that they reflected the wider world outside a ship's boiler room, or a home's living room. A national literature of plays thus set in bourgeois living rooms or proletarian workplaces is a deeply democratic literature, one which assumes that the important subjects are those that manifest themselves in the daily lives of ordinary (not "noble" or "heroic") people like Yank Smith. (Cardullo)

And, common man or not, Yank certainly has his stature increased by O'Neill's use of the equivalent of Greek choruses throughout The Hairy Ape. In the stokehole scenes, the forecastle scene, the Fifth-Avenue scene, the I.W.W. scene, the jail scene, and the zoo scene—indeed, every scene except the second one between Mildred and her aunt, in which Yank does not appear—O'Neill introduced the clamor and chatter of people or animals to set the tone and milieu of his drama; to indicate the masses from whom Yank stands out, to remind us of the essentially social nature of human experience at the same time as we are supplied with a host of witnesses to Yank's private or individual suffering; and to provide us with a kind of frame or lens through which to view Yank as he undergoes his agony.

That frame or lens was heightened in the original New York production during the Fifth-Avenue scene because the actors playing rich people wore Greek-like masks (the first use of masks in a serious play on Broadway, where The Hairy Ape was moved from the Provincetown Playhouse, also in New York)—a device that O'Neill later regretted he had not used in the stokehole scene and other scenes as well. Our socio-choral perspective on Yank might thus be derisive or dismissive, depending on the "chorus" and its mask, but then again it could be a combination of the reverential and the fearful (as it is in the case of the stokers in Scenes 1 and 3), or it could be luminator (as it is in the case of the "chattering, whimpering wail" of the monkeys at the end of the play, after Yank has expired) (O' Neill 232).

Whether we view Yank as a fully tragic character in the classical sense is less important, however, than the fact that O'Neill has bestowed on so lowly a figure a number of characteristics we traditionally associate with tragedy. To wit: a kind of freedom of action that enables Yank to choose his course without much restriction, at the same time as we sense the tragic irony of his choices; his own crude proletarian idiom, which, like verse, sets him apart and has a peculiar evocativeness, even exaltation; a life lived, not in a home (let alone with a wife and children), but outside in something akin to a public arena (on a "public" ship and in other such places), which public itself—like Yank's choral witnesses—confers moral, spiritual, and philosophical significance on his actions; a hubris in his superior physical strength, which is contrasted with Yank's bewilderment (a word used no fewer than four times in the stage directions by O'Neill to describe Yank's perception of his situation: 192, 196, 225, 232) at almost everything that happens to him subsequent to his encounter with Mildred; and, finally, Yank's consciousness or understanding of what has happened to him and why, which is summed up in a concluding recognition speech that forever removes this character from the realm of the pathetic, the uninitiated, the witless, or the merely animalistic at the same time as it confers on him tragic dignity. (Cardullo)

Ironically, Yank's consciousness was "given" to him by his nemesis Mildred, and it is fully expressed, ultimately, not to another human being but only to a gorilla and a chorus of monkeys:

> So yuh're what she seen when she looked at me, de white-faced tart! I was you to her, get me? On'y outa de cage—broke out—free to moider her, see? Sure! Dat's what she tought. She wasn't wise dat I was in a cage, too—worser'n yours—sure—a damn sight—'cause you got some chanct to bust loose—but me—. . . Youse can sit and dope dream in de past, green woods, de jungle and de rest of it. Den yuh belong and dey don't. . . Sure, you're de best off! Yuh can't tink, can yuh? Yuh can't talk neider. But I kin make a bluff at talkin' and tinkin'—a'most git away wit it—a'most!—and dat's where de joker comes in. (O' Neill 229-30)

It is shortly after he speaks these words of recognition that Yank dies in the gorilla's cage of the Central Park Zoo, never having returned to the security of the stokehole on his ship—an alternative that was open to him but which he bravely did not, could not, or would not take. To the prison-house of self, in life, Yank seems to prefer death in a cage at the hands of a creature not quite of his own kind, yet still very much like him. It is not by chance that The Hairy Ape assimilates such seemingly disparate international influences as late nineteenth-century European naturalism (with its view of man as an animal or even an object for study and control), Italian futurism, German expressionism, Greek tragedy, and a Renaissance work like the Divine Comedy. For O'Neill was America's first serious dramatist, and he became a serious artist in part because, by the time he came of age, the foundations of an artistic (in contrast to commercial) theater had been laid in the United States. For one thing, the non-profit "little theater" movement, modeled after the independent theaters of Europe, had engendered considerable enthusiasm in places like New York, Chicago, and Detroit; and, combined with the modified, conceptualized realism of the "new stagecraft" of such designers as Cleon Throckmorton and Robert Edmond Jones (who jointly created the set and lights for The Hairy Ape's initial little-theater production at the Provincetown), this movement made possible the production of serious new plays that might not otherwise have had commercial promise. (Cardullo)

In addition, selected Americans had observed foreign developments in the performing arts and had returned to write about them in Theatre Arts, the first American periodical devoted, as its title indicates, to a consideration of the art of theater; a number of esteemed foreign troupes and productions themselves had visited the States, if not for the first time then for the first time in large numbers. Last, but certainly not least, the rise of the cinema (and, by the early 1920s, radio along with it) as the most popular art of the twentieth century—even as the theater had been the most popular form of the nineteenth century—cleared the way for serious American playwrights to think about something other than commercial success, something the drama could accomplish that films could not or that the theater could realize better than any movie could hope to do.

Conclusion

All of this, in some measure, was the result of World War I—the first fully and horrifically mechanized war—which marked not only the ascent of the United States as a military and economic superpower, but also the opening up of the American nation to outside intellectual-artistic influence on an unprecedented scale. The Great War—as it was and continues to be called by those who recognize that "great" in this case is a pejorative term—also unleashed the first wave of American dramatist critics, who immediately envisioned the negative side, or psychic cost, of the United States' newly recognized, now unrivaled wealth and power. O'Neill was foremost among these dramatist-critics, and The Hairy Ape, like such other early, experimental plays of his as The

Emperor Jones (1920) and The Great God Brown (1926), is evidence both of his newfound dramatic art and of his emergent critical temper.

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Artificial Life Whether it is a Myth or a Possible Reality?

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Artificial Life is devoted to a new discipline which investigates the scientific, engineer philosophical, and social aspects associated with our rapidly increasing technological abilit synthesize life-like behaviors from scratch in computers, machines, molecules and in c alternative madia by extending the horizons of empirical research in biology. In short, the stuc artificial life gives us access to the domain of 'life-as-it- could-be. The basic assumption abou study of this discipline is that 'life is not unique to its biological form, but is a more ge property of the organization of matter'. The program of establishing artificial life, it bec popular with the worm and helpful hand of C. Langton, in 1986. Who first coined the pl artificial life (often called a-life) and envisaged an investigation of life-as-it-could-be and grad it leads to a big issue and a challenging puzzle for today cognitive scientists.

At first take a look on some basic concepts about life in very briefly because without it whole discussions will become partial. I assist the definition of life which contains that, lif characteristic state or a mode of living social life, in other words; the experience of being ali the course of some events and activities without interference from others or something wh functional. Even the at present commonly and widely accepted definition of life it does not cor either any current as a kind of life simulation or soft-wares to be alive. Indeed, lack of any ava non-carbon based life-forms motivates a-life researchers to create artificial living life syste an artificial environment and a set of rules for them so that they can evolve and such an arti living life system is called "Autopoiesis", the term 'autopoiesis'was originally introduc Chilean Biologists Humberto Maturana and Francisco Varela in 1973. Here the term 'au means 'self and 'poiesis' it means 'creation' so, the term autopoiesis it's literally means creation, the processes whereby an organization produces itself. The term autopoiesis was orig conceived as an attempt to characterize the nature of living systems. An autopoiesis organi or system is an autonomous and self-maintaining unity which contains component that c able to produce complex and internal states and processes. Its systems are operationally and structurally state determined with no apparent inputs and outputs. It is the simplest pc

form of molecular life. This molecular life is understood as a self-reproducing organizational form constructing itself in a simple environment and capable of evolution. The environment may be defined either by natural geochemistry or by artificially. It can be able to drive energy from simple chemicals or from light and get nourishment from its environment (a simple form of metabolism) and also can use information carried from primitive genes. This proto-organism even can do self-replicating processes and undergo some evolutionary changes over time and die. Artificial life researchers are succeeded in creating both self-replicating molecules that show limited evolution and self-replicating compartments. A canonical example of an autopoiesis system is the biological cell, the Eukaryotic cell; it is made from various biochemical components such as nucleic acids and proteins, and is organized into bounded structures such as the cell nucleus, various organelles, a cell membrane and cytoskeleton. That structure is based on an external flow of molecules and energy, and produces the components which in turn continue to maintain the organized bounded structure that gives rise to these components. However, combining these features in an autonomous, evolvable, self-replicating autopoiesis system still remains a challenging puzzle for all artificial life researchers. I am afraid (feeling worry) that artificial life's practical implications are no less sweeping than its scientific implications. It can guide us how we have to use new technologies for extending our life, but the main Problem begin when a-life researchers want to fit a-life living systems in to the model of biological living life systems and demand that, every artificial living life systems have their own mental states and processes as like biological living systems here lies the trouble of basic problems.

If we want to fit a-life systems in to the model of biological living life systems then what will be the required phenomenon which will help us to reach that goal? Different opinions about artificial life's potential have been arisen, one from the weak a-life (often called weak-AI) position. denies all the possibilities of generating a living process outside of a chemical solution. Its researchers are tried to simulate life like processes to understand the underlying mechanics of biological phenomena and another from the strong a-life (often called strong AI) position, they that life is a process which can be abstracted away from any particular medium that is, the essential property of human beings automation or consciousness it can be simulated in to a machine even they have their own mental states and processes (for more details about the debt between strong AI and between weak AI see, **'Searte's Chinese room argument'** first appeared in his **'Minds. Brains- and Programs'** Published in **Behavioral and Brain Sciences, 1980).** I if a-life researchers want to make a-life as a possible life.('life a& it, could be') then each very a-life systems must have to fulfill the "X" factor which can be called sense of to be thing'. This "X" factor, may be consciousness (an alert cognitive state in which we are of yourself and with our self-situation), may be life (a characteristic state or mode of), may be automation (the condition of being automatically operated or controlled), may be on (an intuitive understanding of something), in a word, we can call it 'the choice making

power'. This "X" factor is more basic than all factors of life because, it lies in the all stages of life that is; in heredity, in case of interaction with nature, in the natural selection pattern, in the genetic coding, in the adaption etc, etc, everywhere of the development of life which began with one cell organism in the history of life. Now question can be arisen that, what is this sense of will to be something? According to me [a]this sense of will to be something is nothing but the most fundamental sense (a general conscious awareness) than the sense of will to do something because the existence of this sense of will to be something it depends upon this sense of will to be something, [b] it is 'the sense of survival for the fittest' and this is our first and natural mental-logic and basic learning pattern, which we acquire from when we are in mother's womb (a hollow muscular organ in the pelvic cavity of females; contains the developing fetus) with fighting or struggling against other organs for being alive and [c] it serves the blueprint (something intended as a guide for making something else) for our each and every actions those we perform in our daily life. Whatever may be the quality of those actions it may be full of intelligence, may be full of foolishness, may be devoid of good sense or judgment, may be revealing stupidity or it -may be reasonable, even it may be unethical etc, etc.

Life or automation it appears from some 'ideal conditions' or from some 'ideal causes' here by the term 'ideal' I mean 'conforming to an ultimate standard of perfection or excellence' and [2] by the term 'conditions' mean 'those atmospheric conditions that comprise the state of the atmosphere in terms of temperature, wind, clouds, precipitation, etc [3] and by the term 'causes' I mean, 'events that provide the generative force such as distance, space, time, weather etc. These are the first, natural, eternal, universal, all power-full and the independent containers of all powers (X to..... Xn). They are strictly (in a rigorous manner) present from the beginning of this creation. They are the necessary and the sufficient condition for all creations. They are the supreme or final cause of all creations and destructions. They are independent of any external control and power. They are the ideal cause of our at present life and as well as of this whole life world. They have real automation or the self choice making power. Therefore, they have the real sense of will to be something and will to do something and from those ideal conditions these self choice making power or real automation, the real sense of will to be something and will to do something etc, all have been transformed in to the breast of nature through natural evolution and from nature again through evolution those self choice making power or real automation, the real sense of will to be something and will to do something etc, have been transformed in between us (each and every biological living life systems). This kind of natural evolution can be called **"a cosmic rhythm order"**. Hence, we can call this automation that we and even the nature have 'the transformed-automation' or 'the as-if automation' but we from our biasness and deep fascination on programming (setting an order and time for planned events) and robotic (resembling the unthinking functioning of a machine) related disciplines have imposed that 'transformed-automation' or 'as if-automation' on so-called artificial living life systems and demand they have their own mental states and

ısses as like we the human beings. I think there are two major differences present in between sition and transformation: - [A] 'Imposition' it means, 'the act of imposing something or thing which is being bruited' and 'transformation' it means, 'a rule describing the conversion e syntactic structure into another related syntactic structure'. [B] In case of imposition here ′s presence an external power to control or to guide but in case of transformation there is not nt any kind of external force or influence. Everything is done from automatically.

ɔmain of matters can be of two types one can be called The Domain of Bodies', it is the st taxonomic group into which all organisms those have mass and occupies some space at a ılong with life or automation (the condition of being automatically operated or controlled) ouped and biology, psychology etc. are concern with this domain of bodies and another can led The Domain of Perfect Matters', it is the highest taxonomic group into which all such as table etc those have mass and also occupies some space at a time but they don't have this ıation or the power of being automatically operated or controlled and physics, chemistry, matic are concern with these domain of perfect matters. In other words, the domain of s have a concrete appearance & it is the container of consciousness, here consciousness is ıts as like a state property or a attribute but the so-called domain of perfect matters, they only the concrete appearance but they don't have the second characteristic that is; lousness cant not be considered as a state property or a attribute of them. A-life researchers led to do that simple and natural distinction and as a result they mixed-up all those differences ıve made this confusion that, in case of a-life systems viz. computer, calculator, robot etc. merge life or consciousness and once If we take it for granted that a-life systems can have consciousness then the decided criterion between the domain of perfect matters and the n of bodies by biology will be violated and physics will become a dead subject. Mere ıtanding given by algorithm (a precise rule or set of rules, specifying how to solve some ım) that can't rank the title of life or automation. This automation is present even in a tinny re which is just comes out from the egg or from mother womb because without it he or she ıble to do that, they will wait for instructions or algorithm and believing in those gossips is lous and once we take it for granted that this kind of life is possible then life will become ıinistic-full nothing will remain charming about life and it (life) will fall from its natural y. So, I think the justified slogan that a-life researchers should adapt is, artificial life, it is e as it could be rather it is impossible to be. If a-life researchers are really want to fit a-life ıs in to the model of biological living life systems or want to make a-life as a possible life ıey must have to serve this cream of life, that is, automation in every artificial living life ms.

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A Greener Approach to Doebner Condensation

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Ammonium acetate, a green reagent, has been exploited for the first time successfully as a catalyst for the Doebner reaction along with the rate enhancement by microwave irradiation under solvent-free conditions.

Keywords: Ammonium Acetate, Doebner reaction, Microwaves

Doebner condensation[1] describes the reaction of malonic acid with carbonyls in the presence of pyridine and a trace of piperidine. Condensation of aromatic aldehydes with malonic acid in the presence of pyridine and piperidine has been reported earlier[2]. But the disadvantage of the conventional heating method is not only that it requires a time span of 2-4.5 hrs but also a stepwise control of temperature is essential for good yield. β, γ-unsaturated acids have been synthesized from aliphatic aldehydes with α-hydrogens of malonic acid. The reaction has utilized microwaves and catalyzed by silica. (E)- alkenoic acids has been generated in dry media through this reaction.

We have carried out the condensation of malonic acid with various aromatic aldehydes to synthesize several substituted cinnamic acids under microwave irradiation using wet ammonium acetate in the absence of any organic solvent. We have exploited microwave irradiation[3] for the enhancement of rate of condensation between malonic acid and several aromatic aldehydes containing electron donating groups such as hydroxy, methoxy and electron withdrawing group like nitro to achieve various cinnamic acids in the presence of wet ammonium acetate under solvent-free conditions. Some of these cinnamic acids are naturally occurring compounds viz. p-coumaric acid, coumaric acid methyl ether, ferulic acid, 3,4-dimethoxycinnamic acid and they have been successfully exploited as synthetic intermediates in the synthesis of several lignans and cyclobutane derivatives[4-9]. Several substituted cinnamic acids have been exploited in the synthesis of 1-phenylnaphthalene lactone lignans, 3,4-methylenedioxycinnamic acid is the starting material for the syntheses of bicyclooctanone, lignans, dehydrotobaphenol ethyl ether. Solid state photodimerisation of this cinnamic acid leads to heterotropan type of lignan whereas 3,4-

dimethoxycinnamic acid affords neolignan structure. Ferulic acid is important for the synthesis of cis-fused dilactone and bicyclooctanone.

To carry out the condensation, an Erlenmeyer flask placed in an alumina bath (heat sink) was used as the reaction vessel. The reagent is moistened to absorb the heat efficiently as water is highly microwave-active. The reactions proceed efficiently in very high yields (85-96%) at ambient pressure within a few minutes (2-5min.). From ^{1}H NMR spectral analysis, the well corroborated coupling constants (J=16 Hz) of the olefinic protons indicate that the α,β-unsaturated acids are in trans form.

This procedure has several advantages. First of all, use of pyridine, a hazardous reagent with a toxic effect, conventionally used for Doebner Condensation, has been avoided. Ammonium acetate is an inexpensive and easily available reagent. The reagent provides neutral reaction conditions. Moreover, the absence of organic solvent makes the reaction condition environment-friendly compared to the conventional methods, as organic solvents and wastes are detrimental to living beings. The faster, cleaner reactions resulting from minimization of secondary processes under microwave irradiation and solvent-free condition reflect it as a cost effective environmentally-benign technology. To the best of our knowledge this is the first report of the synthesis of Cinnamic acids exploiting ammonium acetate as condensing agent.

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Collection Development for Research in Barrackpore Rastraguru Surendranath College Library: a study for 2007 - 2011

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Introduction

College Libraries

rimary objectives of any academic institution are:

- Conservation and preservation of knowledge;
- Expansion of ideas and dissemination of knowledge with the help of interpretation,
- research and publication; and
- Dissemination of knowledge through teaching and extension services.

braries in academic institutions help to achieve these objectives through its services. The es offered by these libraries also vary accordingly. Colleges form the integral part of higher ion, and libraries in colleges are the primary source for learning process. With the shift of sis from teaching to learning, libraries must play their role effectively.

mark in the development of college libraries was the appointment of Library Committee of iversity Grants Commission and publication of its Report in 1965. Some of the important nendations of the Committee relate to the financial support of college libraries by University Commission (UGC) and State Government, and also necessary guidelines for staff strength ılifications; book selection and collection, measures to promote reading habit, proposal for building etc.

thari Commission in its Report on Education and National Development (1964-66) further ized that:

o university, college or department should be set up without taking into account its library ds in terms of staff, journals, space, etc. Nothing could be more damaging to a growing artment than to neglect its library, the library should be an important centre of attraction on college or university campus."

r, there is sea-change in the education system and information environment over the past

fifty seven years. Now the colleges are not confined to graduate teaching. Some colleges offer postgraduate courses in addition to undergraduate courses. The student population of these colleges is exploding and the library is a place for them to learn about different information sources and acquire knowledge beyond curriculum. This is the place where they can set their future goals and shape their career. Hence college libraries have a vital role to play in the graduate and postgraduate education programmes.

A college library's functioning should support the objectives of the college i.e. study, teaching and occasional research. The college library provides the needed reading material to satisfy the information needs of students and faculty. W.M.Randall and F.L.Goodrich state that to meet the educational objectives of the college, the library performs the following functions:

- Makes available to the students, books and allied reading material relevant to the courses offered in the college;
- Makes available the books and documents required by faculty members in preparation of their instructional courses;
- Provides supplementary books and reading material to help study and teaching at the college;
- Provides comprehensive selection of authoritative books and documents needed by the faculty members to pursue their research programmes;
- Promotes the proper use of the reading material available in the stock; and
- Trains the students in making use of the library properly and derive full advantage out of it, integrating the library with the educational courses.

Sahai observed that "the difference in the functioning of a college and university library however, is that while the former lays emphasis on the acquisition and dissemination of knowledge at the undergraduate and postgraduate levels, the latter also caters, besides the overall needs, to the needs of research work and helps students and scholars to this end."

0.2 Collection Development

The process of planning and building a useful & balanced collection of library materials over a period of years, based on an ongoing assessment of the information needs of the library's clientele, analysis of usage statistics, and demographic projections, normally constrained by budgetary limitations.

Collection development includes

- the formulation of selection criteria
- planning for resource sharing, and
- replacement of lost and damaged items.

Large libraries and library systems may use an approval plan or blanket order plan to develop their collections. In small- and medium-sized libraries, collection development responsibilities are

normally shared by all the librarians, based on their interests and subject specializations, usually under the overall guidance of a written collection development policy. [odlis]

So, library collection development is the process of meeting the information needs of the users in a timely and economical manner using information resources locally held, as well as from other organizations.

Collections are developed by librarians and library staff by buying or otherwise acquiring materials over a period, based on assessment of the information needs of the library's users. [wikipaedia]

Collection development implies selection, acquisition and evaluation of the library collection in order to see that both print and non-print materials that are available in a library are really useful to the clientele. Collection development therefore dispenses away with arbitrary selection and acquisition of documents. Similarly it envisages periodic evaluation of the library stock both to improve its collection as also to weed out the irrelevant, outdated and unnecessary documents from the library.

0.3 Collection Development & Organizational Structure

The purpose of any organization is to accomplish a task or series of tasks and in doing so produce product or deliver a service in response to a predetermined set of goals and objectives. Regardless of the actual structure an organization uses, classic management theory tells us that the structure should be based upon two general principles:

- Unity of Objective –a structure is good if it facilitates the contributions of all the units of the organization to meeting the goals and objectives of the organization; and
- Efficiency –the structure is good if goals and objectives are met with a minimum of unplanned or unwanted consequences. This means that as an organization's products and services change over time, a systematic review of the organization's structure should also occur to ensure the structure used is the most effective and efficient. And we all know for the most part this rarely happens in any organization, including libraries.

4 Objective

bjectives of the study are:

- To show the research trends of Barrackpore Rastraguru Surendra-nath College
- To identify the research resources in the College as well as the Library
- To examine the growth of collection

5 Methodology

ta has been collected from different sources published by the college e.g. AQAR Reports, Annual formance statement to the State Government, Official website of the college, i.e. www.brsnc.org, lit reports of previous years etc. The collected data are analysed on the basis of the stated

objectives and interpreted in tabular and/or graphical way of presentation. Findings are stated as per as practicable and areas where improvement or initiation need has been identified.

1. The College

Barrackpore Rastraguru Surendranath College, founded in 1953, is a UGC registered College [under 2f] & re-accredited by NAAC in 2009. A group of dedicated men, led by Dr. Satish Bose, a noted social worker, took the initiative in establishing this institution on 19 September, 1953 and named it after one of the most illustrious sons of Barrackpore and India. Initially it was affiliated to the University of Calcutta, but from the session 2008-09, the college will be affiliated to the West Bengal State University, Barasat, 24 Pgs(N) as per government Gazette. The mission, vision and policy of the college clearly indicate its objectives towards learning & research.

Mission

To make the College a Centre of Excellence and an institution of national acclaim.

Vision

- To ensure and sustain quality in education.
- To provide value-based and value added education with a view to instilling self-confidence among the students.
- To inject energy and vigour among our youth and help them to learn, grow and evolve so that their dreams come true.
- To make our students socially committed and adaptable to global changes.

Policy

- Advancement of learning accompanied by modern teaching aids.
- Provision of need based higher education to cope with the changing requirements of the society.
- Attainment of excellence through academics.

2. Research Environment in the College

At present there are 6 (six) post graduate departments, i.e.

1. Microbiology
2. Computer Science
3. Geography
4. Food & Nutrition
5. Accounts, Finance & Control and
6. Marketing Management.

Each curriculum contains project work and Dissertation. Inclusion of Research Methodology in different curricula, Hands-on experiment, Internship, Review of research problem etc. promotes research aptitude of the students.

Members of Faculty of the college are pursuing their research work in different laboratories of the college. They are also carrying out collaborative works with different premier institutions e.g. Bose Institution, Indian Association for the Cultivation of Science (IACS) , Calcutta University , ISI Kolkata, Jadavpur University, Kalyani University , Bengal Engineering and Science University etc.

A *Research Monitoring Cell* has been formed from 2005-06 academic session to motivate the young Teachers and Post Graduate students to engage themselves in Research and Project Work. The Cell is motivating and analysing the progress and identifies the requirements for research activities.

. Research Funding of the College

inance is important for the effective functioning of library. Efficient performance of libraries is irectly related to adequate funds. The financial constraints result in ineffective library systems. nce libraries are non-revenue generating and nonprofit making institutions they have to depend financial grants from governments, both central and state. The university libraries receive funds om the following sources:

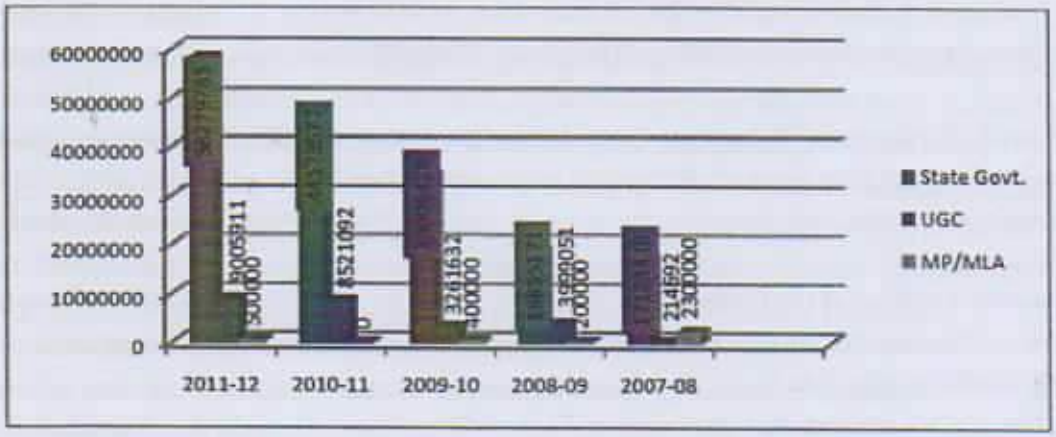
- Grants from UGC;
- Grants from Central and State governments;
- Grants allocated from the university budget;
- Endowments and donations; and
- Internal resources collected through subscription fees, fines, sale of publications, etc.

e UGC has provided substantial grants since its inception for the acquisition of books and rnals under general development schemes and for special programmes. General development eme includes grants allocated for central library as well as departmental libraries. Special grammes include funds provided for Centres for Advanced Studies, departments special istance, departmental support, financial support for research to individual teachers, group of chers and research programmes/projects.

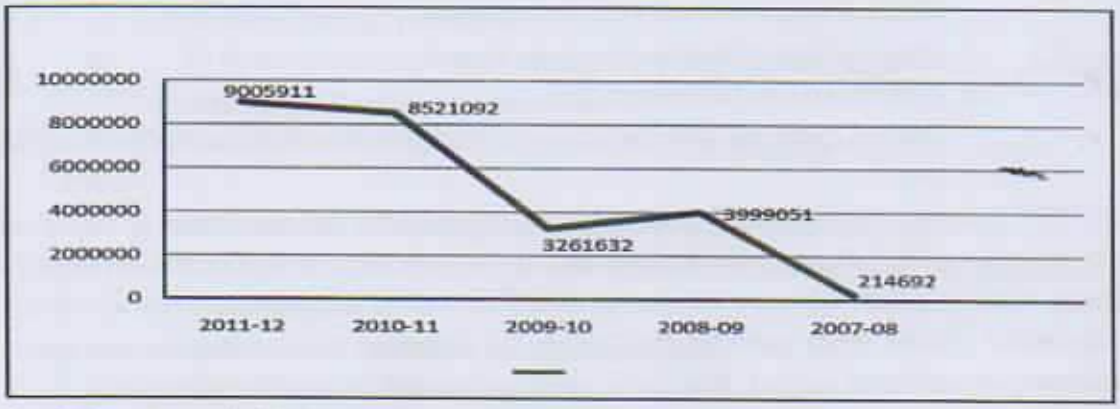
able 1: Allocation of Research Funds for Last Five Years

Agency	2011-12	2010-11	2009-10	2008-09	2007-08
State Govt.*	58279785	44173577	34006428	18855171	17123418
UGC	9005911	8521092	3261632	3999051	214692
MP/MLA	500000	0	400000	200000	2300000
Total	67785696	52694669	37668060	23054222	19638110

[* Includes Salary]



Graph 1: Allocation of Research Funds for Last Five Years



Graph 2: Growth of UGC Funds

4. College Library & its Resources

The college has well maintained Library with open access system at both the campuses which is continuously developing. Library has 41163 books, 49 current journals as on 31.03.2012. The College is also a member of INFLIBNET since May'10.

The library pauses following types of documents, e.g.

Books

Bound Volume Journals
Print Journals
Dissertations & project reports
CDs
News Papers
E – Resources

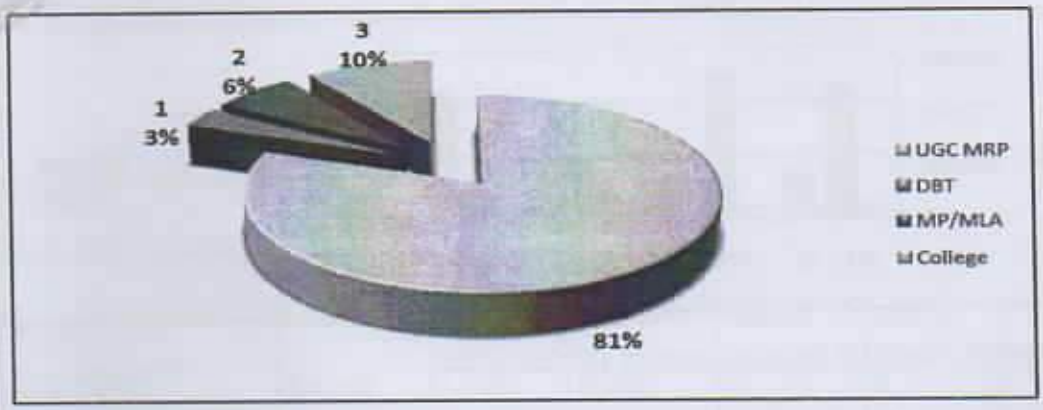
- NPTEL (National Programme on Technology Enhanced Learning) It is developed by IITs & IISc with the funds from MHRD, Government of India. It provides 3 terabyte resources on different disciplines of science and technology in the form of video lectures and course materials.
- NLIST Consortium is launched by INFLIBNET for the college libraries with 2100+ e- Journals and 51,000+ e-books. Presently it is enriched with 3000+ e-journals and 75,000 e-books.

ıe library is also the member of The British Council.

Research Output

esently 25 projects are going with the fund of UGC Minor Research Projects, 1 is nded by Department of Biotechnology, Government of India, 2 other are funded by LA / MP and 3 projects are running from college's own fund.

graphically, in terms of number the situation is:



Graph 3: Agency wise Ongoing Projects

n this year the College has received rupees fifty lacs from Government of India as ST FIST /el -0) for improvement of science & technology infrastructure.

6. Collection Development

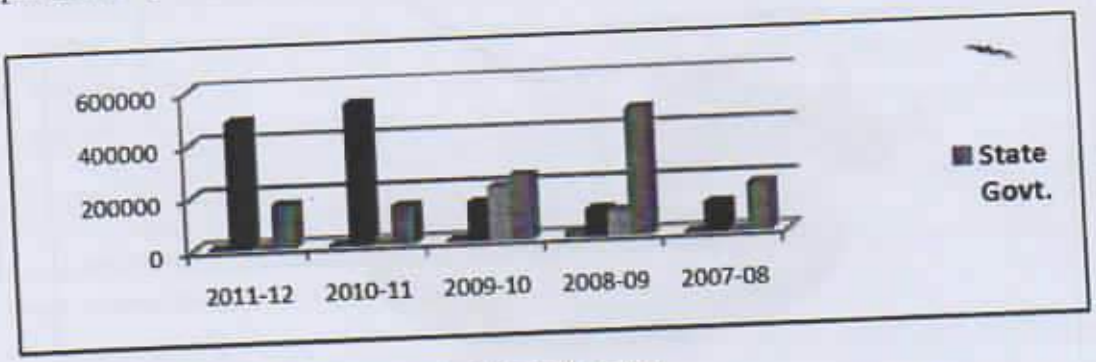
The college receives funds from different agencies, like UGC, State Government, MLA & MP as well as it generate its own fund from various sources. Here an effort has been made to demonstrate the funds received from various sources and its utilization towards collection development to promote research.

Table 2: Funds for Development of UG Collection

Agency	2011-12	2010-11	2009-10	2008-09	2007-08
State Govt.	0	0	4,714	15,026	0
UGC	4,81,154	5,33,082	1,42,234	1,00,978	1,09,401
MP/MLA	0	0	1,97,901	91,151	0
College	1,62,494	1,39,898	2,38,522	4,78,115	1,79,465

College has spent maximum for collection development of its UG section in the year 2008 – 09. This is due to its NAAC re-accreditation in May 2009. In the last two years UGC has released the remaining funds for 11th Five year plan period.

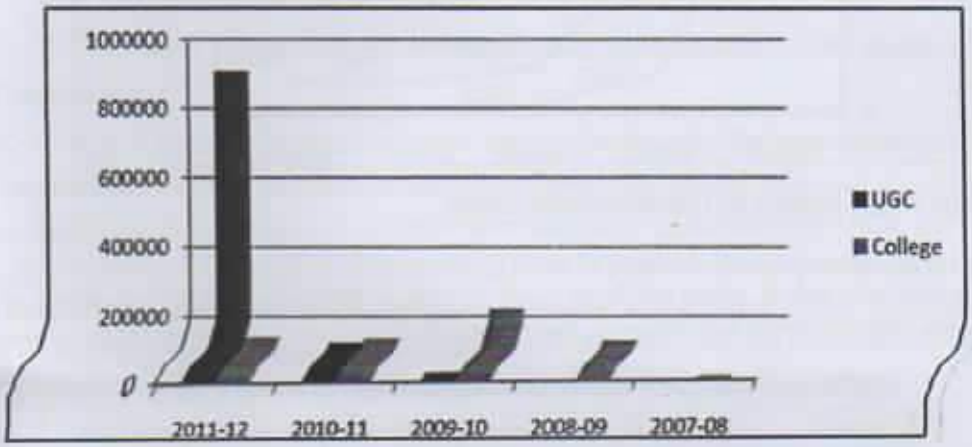
The significant finding from Table 4 is that, except UGC no other external agencies funding the collection development of PG streams. UGC gradually increases its share. In the first two financial years, there are no UGC grants. It is due to the fact that UGC providing support to a PG department only after completion of three years of its run.



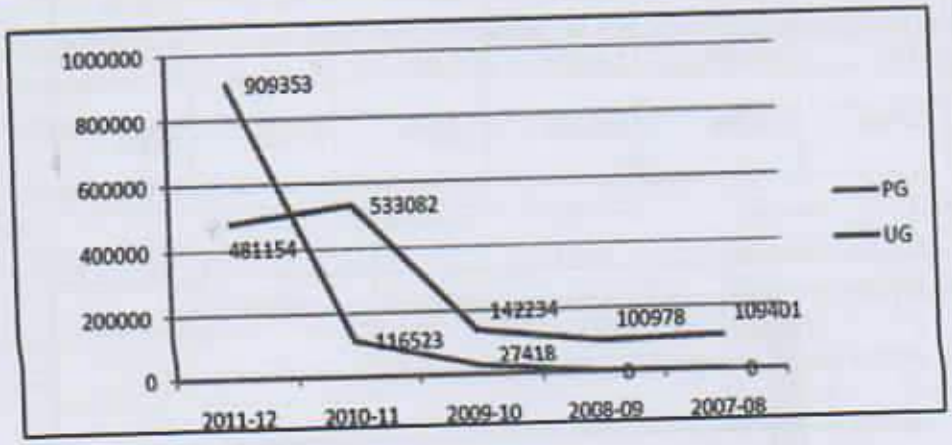
Graph 4: Funds for Development of UG Collection

Table 4: Funds for Development of PG Collection

Agency	2011-12	2010-11	2009-10	2008-09	2007-08
UGC	9,09,353	1,16,523	27,418	0	0
College	1,35,286	1,30,856	2,25,773	1,20,037	13,334



major funding agency, analyses has been made on the funding of UGC in relation to

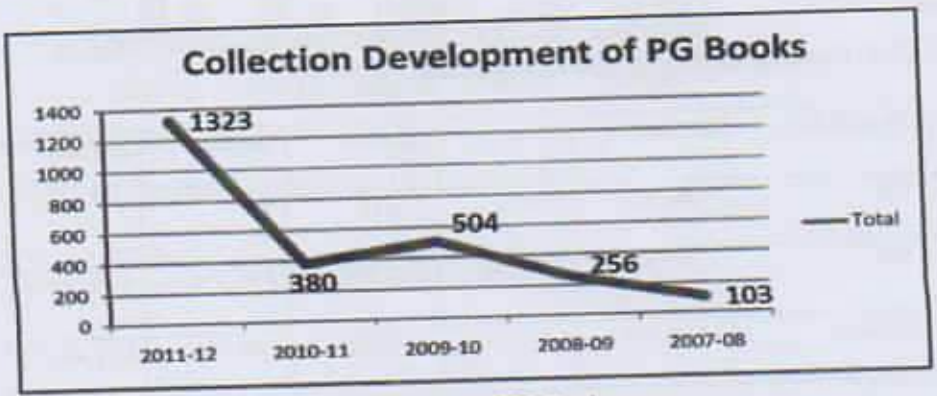


Graph 6: UGC Funding for Collection Development

With the help of Table 6, effort has been made to analyse the collection development of PG section for the last five years and it reveals that except the last year it shows a steady growth.

Table 6: Agency vs. Year – wise Addition of PG Books

Agency	2011-12	2010-11	2009-10	2008-09	2007-08
UGC	1263	180	362	0	0
College	60	200	142	256	103
Total	1323	380	504	256	103



Graph 7: Agency vs. Year – wise Addition of PG Books

7. Future Plan for Research Oriented Collection Development

Though the trend is upwards but the admistration is working for better tomorrow. The following steps have been made for that:

- Appeal for more contents in N-LIST
- News paper clippings for Social Scientists
- Extension of Library hours beyond College hours
- Enrich departmental libraries with more R&D books
- Make arrangement of resource sharing and cooperation between libraries

8. Conclusions

The College is trying to develop a research outlook inspite of different problems like shrinking staff pattern both teaching and non-teaching members, price hike of published literature, regular fault of BSNL leased lines etc. The website of the college clearly shows RESEARCH and LIBRARY as its priority areas. Though UGC is supporting most in resource development and recently DST has released some funds, still percentage wise allocation to the library is low. State Government has yet to support PG courses in terms of fund as well as posts. Still the Collection Development in PG Faculties is steadily growing and we can hope for the better research future.

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Remembering Our Innumerable *Nirvayas*

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"Sister, sister
Cover your head
Hide your face; disappear.
Discard all colour, sound, movement,
Anything that will make you visible
To leching men.
0 you are evil sister.
Why do you tempt them,
With kept hair,
With clothes,
With smiles
When you know
You can only look down,
Lock yourself in
Or at least,
Wear a curtain when you go out
Remember, Do not smile,
Do not engage,
Do not work late,
Do not wear colourful clothes
Or any, save those they have allowed for you.
Do not walk on streets,
Do not get in cars,
Do not befriend,
Do not speak unless spoken to.....

Lalnunsanga Ralte

Nirvaya, Abhaya, Amanat, Anamika, Damini, as the media continued with the exercise of giving names to the Delhi gang rape victim, there arose several unanswered questions. Overnight the victim became "daughter of the nation" India's daughter" braveheart daughter" and politicians turned mothers, sisters, fathers and brothers of the unfortunate girl. But inspite of all these accolades she succumbed to her injuries just adding one more name to thousands and thousands of rape victims of different age, race, caste, class and creed. Her sufferings described as sacrifice with people in several parts of the country outpouring their anger through protests, candlelight marches, facebook and twitter postings inducing the government to give special care in her treatment and speedy trial to bring her justice. Somehow I was not able to be a part of these protests physically and mentally and kept on feeling anger and disgust with our rotten system, our archaic mentality everytime the victim was romanticized by the media. There were reports of so called spontaneous protests and candle light marches and at the same time reports of further rape indicating that the frequency of the incidences of rape remains the same. Even the protests itself developed a patriarchal character with many people reportedly joining it to have a glimpse of beautiful girls. While protests were ongoing at Jantarmantar, Delhi itself witnessed 45 cases of reported rape during the last 15 days of December. While the nation cried for its Delhi daughter, my mind kept on haunting for many other thousands daughters for whom the nation has not cried, the politicians have not become mothers fathers and brothers and by whom the judiciary has never stood by. National Crime Records Bureau(NCRB) says that there has been manifold increase of crimes against women all over India with a substantial decadal increase in reported rape cases. But the judicial scenario in rape cases is too grim. According to NCRB, in 2009 there were 21397 rape cases registered of which 3698 were convicted. In 2010, 3788 cases were convicted while the number of cases of registered were 22172 and in 2011,it was 4072 of 24206.[1] So the percentage of cases convicted are as low as 16% to 17%. At the same time comes a strange fact that in 85% of the cases the offenders are known to victims. It is a known fact that the number of cases registered in police record is just a tip of the iceberg as most of the cases of rape goes unreported and unregistered fearing social stigma and ostracization. In Delhi alone, during the last one year rape incidences have increased by 23.43% and since 2001 the figure has doubled. Rape can be within the confines of family and within friends circles also. Marital rape, date rape by partner,child rape by family members are common occurrences but they rarely get reported. Rape laws have been reformed earlier also and there exists stringent punishment but loopholes in the laws, patriarchal attitude of

the state machineries, patriarchal attitude of the society as a whole leading to ostracization of the victims keeps the rate of registration of complaints as well as the rate of conviction abysmally low. How the state machinery responds in rape cases becomes evident if we consider a few landmark cases.

When a young tribal girl, Mathura, was raped in 1972, the court gave the verdict that Mathura was used to sexual intercourse and since she has not raised an alarm it signifies that she has given consent to the act. The Supreme Court did not make any distinction between consent and forcible submission and acquitted the offenders. Mathura rape case was a landmark case in the history of women's movement as there were widespread protests on the issue leading to significant changes in the rape lawS.But the rate of conviction remained as low as ever. When Manorama was raped and killed in Manipur,she was branded an alleged militant as her offenders were protectors of law themselves enjoying protection under Armed Forces Special Power Act. When a Dalit woman and a *"sathin"* worker from Rajasthan, Bhanwari Devi, raised her voice against child marriage, she was allegedly gang raped in 1992, and a case was filed . The district sessions judge gave the verdict that upper caste men could never have raped a dalit woman.Not only that the judge also said that as her husband did not protest it indicates that she was not being raped and acquitted all the offenders in 1995. Though the Bhanwari Devi rape case evoked nationwide protests and was also instrumental in the formulation of Visakha Guidelines on Sexual Harassment at Workplace, the case still lies pending with the Rajasthan High Court with two of the offenders already dead. Bhanwari Devi became a crucial name in the history of women's right in India but she herself is still waiting for justice even after twenty years. Even today when the nation is busy with protests over the Delhi gang rape victim, another gang rape brick-kiln worker in West Bengal fails to attract any significant media attention and same is the case of another minor girl from rural Bengal gang-raped in Kerala and waiting for justice since a year[2]. There exists a patriarchal character of protests developing also. Perhaps to evoke response you need to be a perfect rape victim. A perfection defined by patriarchal norms. To evoke empathy you have to be urban, educated, preferably higher caste, lawabider, accompanied by family members or partner, and roaming about at a permissible time at night on a socially sanctioned purpose and preferably in a so called decent dress. A woman who does not fit these norms may not evoke response from the state and society.

We still maintain the practice of raising question on the victim's character, activity, dress, movement etc rather than accusing the offender. Society still ostracizes the rape victim and not

the offender. Questions and comments are there on the victim's activity, profession and friends circle. Rehabilitation of a rape victim is still a very critical issue in India. How far a rape victim is later able to live the same life she led earlier is questionable. The term used for the victim is *"izzat lut gayi"*. So the victim loses her honour and not the offender. As long as this patriarchy-defined notion of honour exists, societal attitude will remain the same. Until and unless we come out of this patriarchal mentality, a few protests on a few cases would not lead to anything. Once media attention declines, the entire issue goes into oblivion. Gender sensitizing the police and judiciary is the prime requirement. How can you expect justice when the court even goes to the extent of asking the victim during cross-examination to demonstrate the position in which she was raped[3]. In this context, whether the Verma Committee recommendations or the proposed ordinance would be able to make the society safer and better for women is still doubtful.

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'An Idea Can Change Your Life'

Subhanita Roy
MCBA PG II

Do you think that I am promoting any commercial product in our college magazine? Actually that is not the thing. But yes, by the help of this magazine I want to share a revolutionary concept created by famous scientist Dr. J.C. Venter and his colleagues. When I read their journal paper, I was surprised and hope that you people from any department also get surprised. But before reveling the IDEA' step by step I want to ask you that, can you tell that, what is LIFE that you live? How do you people feel its presence? If you don't know the answer then I assured you that these questions also haunted scientists for decades. After many researches Dr. J.C. Venter and his colleagues give us a very simple solution. According to them the DNA or the genetic material is the software which operates the system and cytoplasm and other organelles, proteins- are the hardware that allows the software to express itself. So both software and hardware are equally important. Now I give you an example to clarify your basic concept. As we all know cells are very specific on their function. Like a liver cell can only functions in liver but not in brain and vice versa is also true. And as I said their specific functions are control by genetic material like DNA, But you ever thought that if were place the genetic materials then what will be the results? Since 15 years Dr. J.C. Venter and his colleagues tried to solve this mystery.

When Craig Venter announced in 2000 that he had mapped the human genome-the genetic material that uniquely identifies each individual-it was he sort of blockbuster announcement that comes once in a generation, and it established Tenter as one of the most influential scientists on the planet. Since then, in addition to fruther research on the genome, Venter has sailed the world, exploring new life forms and applying this knowledge to another pursuit here of dreamt of only in science fiction : the creation of life itself in a laboratory, which he accomplished in 2010, and with it they solve the much a waited mystery. Let us consider that a red cell contain its red colour because of its genome, now if we replace its genome with blue cell's chromosome, synthesis of blue protein will initiate. So when the ceil divides, the daughter eel! becomes blue cell in spite of red cell. So their plan is to create SYNTHETIC LIFE, where they produce synthetic genome and incorporate it in the cytoplasm of a completely different cell and there by change the character of the starter cell.

To accomplish this task Dr. J.C. Venter got together 20 scientists from different part of the world to work on this revoluationary project. They divided into 2 groups. One group was busy for the making of the synthetic genome and another group worked on the successful trnsplantation of that genome, Before gone into deep I mention that they chose *Mycoplasma capricolum* as starter cell and *Mycoplasma mycoides* as donor cell. These cells were chosen because both of them have small genome, lack cell wall, fast growing and aiso have sequence similarity.

The first step was to test run to verify the technique. So before synthesizing the whole bacterial genome artificially, they synthesize a smallest viral genome known to man, ϕ-X174. When they infect this artificial virus in *E.coli,* plaques were produced. This result gave the scientists the boost to take the challenge of making life artificially. Now they were ready to produce the whole *M.mycoides* genome. For maintaining the accuracy they sunthesized different fragment of genome like small oligonucleotide. 10kb, 100kb fragments which contained overhang with 80bp sequence repeat. They increase the number of those fragments by PCR and stretch those fragment either in *E.coli* cells or in yeast cells depending on fragment length. Like small 10kb fragments can be join in E.coli cells. This synthetic genome provides 19 polymorphic differences with the original genome. The synthetic genome contains 4 watermark regions to distinguish between the original and the artificial, they name the synthetic genome of *M. mycoides* as JCVI-syn 1.0 which is almost 1.08 mega base pair.

After successful creation of JCVI-syn 1.0, scientists were ready to transplant it in *M. Capricolum.* Sometime very easy procedure happened to be the toughest part of the job. This artificial DMA was quite long, and as we know that DNA itself is extremely delicate and fragile to handle. But for fruitful result they had to transplant the entire genome into the *M.capricolum cell. M.Capricolum* cells didn't have restriction modification system so they accept the JCVI-syn 1.0. For successful growth, media contain SP4 agar, tetracyclin as selectable marker and X-gal, because synthetic genome contain both tetracyclin resistance gene and lacZ gene.

At last the day came when scientists first saw blue colour colonies of their desire. All these colonies must be tetracycline resistance and produce (3-galactosidase. For further confirmation they isolated the genome and perform restriction digestion and recognize the specific watermark regions and other various experiments were done, when they got the desire results they can proudly said that **"For the first time now we can actually design life in a computer, make the DNA software and create new life forms that have never existed before."-Dr. J.C. Venter.**

You may think that why they create artificial life? What were their advantages? Actually by the help of this kind of process varities of different type of cells of our wish can produced. Scinetists can use them to reduce the pollution which is a big issue or may be produce such organisms which can produce cheap fuels in large amounts. Scientists can produce such organisms which contain genome of their wish. But beside that there are certain limitations to produce this kind of cells. Because some said that it broke the bioethics law, and some said terrorists may take dis-advantages, or may be this kind of cells damage the surrounding environments.

From the beginning of our life to the creation of the synthetic life there are only two revolutionary works happened. One was when man learned the art of agriculture and produce food by themselves. Another one was the dawn of the industrial age when man learned to make machines that reduce their effort. And after this discovery it may safely be called the third revolution where man can generate life of their wish that benefits him.

Vol 1

Satyendranath Bose : A Brilliant Physicist of Our Country

Amitava Bhaduri
Assistant Professor, Department of Physics

Satyendra Nath Bose was born on January 1 ,1894 in Calcutta .Great scientist Seem to come in two categories- some apparently poor in studies in school, and others with brilliant record. Einstein is supposed to have been of the former type, while Bose belonged to the later. He did very well in school, especially in Mathematics. Once, his math's teacher gave him 110 marks, because Bose had not only answered all questions correctly, but some of them in more ways than one.

Prof. Bose studied in the Hindu School in Calcutta and after passing the Matriculation Examination in 1909, he entered Presidency College where he was taught by some of the great teachers like Prof. J,C. Bose and Prof. P.C.Roy and others. In 1915, he passed M.Sc. in mixed mathematics from Calcutta University with 736 marks out of 800 marks. Both in B.Sc. and M.Sc. courses, Prof. M.N.Saha was his class mate.

In the early part of the twentieth century, Calcutta University did not have a science department of its own To study M.Sc. one had to go to Presidency College. Prof. Asutosh Mukherjee, the then Vice-Chancellor, was instrumental in establishing a separate science department in the University which was called University College of Science .He also revamped the syllabus to make it more modern. Calcutta University was the first university in the country to' introduce Einstein's Relativity Principle in its Post Graduate syllabus. Prof. Mukherjee collected money to create Professorship and appointed C.V.Raman as Palit Professor of Physics and P.C.Roy as Palit Professor of Chemistry. Prof. Bose and Prof. Saha were appointed as lecturers in the Physics department in 1917. Prof. Bose was the first Professor among the Indians to begin to teach Einstein's relativity.

In the Physics department of Calcutta University both Prof. Bose and Prof. Saha started taking interest in scientific research along with their teaching .In those days, much of the scientific literature appeared in French and in German, and so one had to learn those languages if one wanted to be up-to-date. Both Prof. Bose and Prof. Saha learned the languages and borrowed books of some outstanding German scientists like Planck, Boltzmann, Wien etc. From Dr. Bruhl's personal library, they translated the contents of these books into English for the post-graduate students of Calcutta University. Still now this has been an exemplary evidence of their dedication and commitment to their students.

Thus, it was that Bose started translating papers on relativity after taking permission from Einstein. The collection was latter published by Calcutta University. Prof. Bose and Prof. Saha managed to publish a paper within a year of being appointed lecturers, topic of paper being the kinetic theory of gases The paper was published in the prestigious scientific journal, the Philosophical Magazine in England The spectacular event that took place in the career of Prof. Bose, for which he will be remembered by all, came in 1924.

Sometime in March 1924 , when Prof. M.N.Saha visited Dacca University , he met with his old friend Bose who was then appointed as a Reader of Physics. In consultation with him, Bose expressed his dissatisfaction over the derivation of Plank's law which he was supposed to teach in he Post Graduate level. Prof. Saha in turn drew his attention to some more recent works by Einstein and W.Pauli This incidence prompted Prof. Bose to think about the problem in his own way and after a strenuous effort he re-derived the Planck's law on black body radiation with the introduction of an entirely new idea in to physics which laid down the foundation stone of the uantum statistics well before the beginning and consolidation of Quantum Mechanics by .Schrodinger, W. Hisenberg, W. Pauli and others . In his derivation Bose took an independent pproach very much different from the derivation of the same law by A. Einstein in 1916 and Max anck] in 1900.

He sent his newly written paper to the famous British journal Philosophical Magazine' for its blication but with mere disappointment his request was denied. Slightly disheartened by this ve, Bose took a courageous move .He sent the manuscript to Einstein, along with a personal ter. In the letter he had written," "I am sending this paper for your views. If you find this paper rth publishing then please publish it in the famous German Journal Zrischrift fur physic. I will grateful to you just to remind you that sometimes there was a request frotn Calcutta University ranslate your research paper written in German into English. After getting your permission, I l translated that work. I have been reading your write-ups. You've been my guide and teacher." se's work on Planck's law and hypothesis of light quanta was generalized by Einstein and is v known as Bose-Einstein statistics. The epoch making paper was published in the German ntific entitled /'Plancksgesetz and Lichtquanten hypothese, Zeits fur Physik, Bd 26,1924.178." e wrote the request letter to Einstein on 4th June, 1924.

se-Einstein Condensation

Bose's theory on indistinguishable particle like photons was later generalized by Einstein for stinguishable particle like atoms whose number is conserved and completely free .Such a em is now referred to as an "ideal Bose gas" and has very interesting property .Stimulated by e's paper, Einstein made this very important discovery now known as Bose-Einstein densation.

In simple language, B-E Condensation means the grouping of a huge collection of atoms to occupy the lowest possible energy state. This phenomenon happened at a very low temperature at nano Kelvin level. Collection of huge number of atoms in a coherent manner behaves similarly that of a LASER beam. So they may be treated as ATOM LASER which exhibits some spectacular and interesting properties. Although the prediction of such a condensation was proved theoretically by Einstein, stimulaleted by Bose's paper in 1924, its experimental confirmation came in the year 1995.The problem was to achieve a cold enough gas without it becoming a liquid or a solid. This was accomplished by Eric Cornell, Carl Wieman and their co-workers in Colorado using a gas of Rubidium atoms. They achieved a temperature of about 10^{-7} K- tenth of a millionth of a degree above absolute zero by adopting techniques like LASER COOLNG and MAGNETIC EVAPOURATION. They succeeded in bringing 2000 Rubidium atoms to form a BOSE-EINSTEIN Condensate of 10 micrometer long lasting for 10 seconds .For this famous experiment they were awarded Nobel Prize in Physics in 1997. Bose- Einstein condensates are extremely interesting from a number of points of view for both fundamental and applied research. Even now BE Condensate is occupying an important position in the front line research in fundamental as weN as in experimental Physics. Recently a i news came in the magazine Science Reporter that Physicists are trying to achieve Fermionic Condensation with electrons. If in near future this Fermionic Condensation sustains at room temperature, then, its impact will rewrite the history of human civilization in its own way.

Prof. Bose's contribution to the theoretical Physics is so extensive that it is quite impossible for anyone to give a glimpse of his works in a few pages .What I have tried is to give a brief outline of Bose's important work in 1924 and its significance in understanding one of the areas of the frontline research areas such as Bose-Einstein Condensate. It is really surprising to us that how Bose could be denied his legitimate right of getting Nobel Prize. At last, I would like to conclude this short essay by quoting one of the relevant remarks by Prof. P. K. Kabir about Bose's not getting Nobel Prize "Bose's paper not only had an immediate and far reaching impact on several basic problems in Physics but it also provides the fundamental explanation of the phenomena whose elucidation and elaboration have been the subject of at least three Nobel Prizes. It is a great pity that this token of honour was not accorded to S.N. Bose, whose work is undoubtedly the most important contribution to science made by any Indian so far."

Prof. Bose himself once said, "My greatest achievement is that Einstein himself had translated my paper into German language."

Below is the scanned copy of the famous letter written by Prof. S.N. Bose to the legendary Physicist and his master Albert Einstein in 1924 :

PHYSICS DEPARTMENT,
Dacca University.

Dated, the 4th June 1924.

Respected Sir,

I have ventured to send you the accompanying artide for your perusal and opinion. I am anxious to know what you think of it. You will see that I have tried to deduce the coefficient $8\pi\nu^2/c^3$ in Planck's Law independent of classical electrodynamics, only assuming that the elementary regions in the phase-space has the content h^3. I do not know sufficient German to translate the paper. If you think the paper worth publication I shall be grateful if you arrange for its publication in *Zeitschrift fur Physik*. Though a complete stranger to you, I do not feel any hesitation in making such a request. Because we are all your pupils though profiting only by your teachings through your writings. I do not know whether you still remember that somebody from Calcutta asked your permission to translate your papers on Relativity in English. You acceded to the request. The book has since been published. I was the one who translated your paper on Generalised Relativity.

Yours Faithfully
Sd/- S. N. Bose

Remembering Alan Turing on His Birth Centenary

Kheyali Sarkar

Computer Science, M.Sc. First year

[illegible]

Alan Turing, born a century ago this year, is best known for his war-time code-breaking and inventing the Turing machine' - the concept at the heart of every computer today. But his legacy extends much further: he founded the field of Artificial Intelligence, proposed a theory of biological pattern formation and speculated about the limits of computation in Physics. Hi.s contributions through a tragically short lifetime, shaped many of the hottest fields in science today.

Conceived at Chhatrapur, Orissa, in British India but born in Maida Vale, London (on 23 June 1912), Alan Mathesón Turing had a quintessen-tially English education - Despite struggling with some subjects such as Classics, his latent genius

for Mathematics and Mechanics showed themselves from a very early age.

At Sherborne, Turing formed an important friendship with fellow pupil Christopher Morcom, which provided inspiration in his future endeavors. When the friendship was cut short by Morcom's untimely death in February 1930 from complications of bovine tuberculosis contracted after drinking infected cow's milk, Turing's religious faith was shattered and he became an atheist. He adopted the conviction that all phenomena, including the workings of the human brain, must be materialistic, but he still believed in the survival of the spirit after death.

Some of his contributions are described now.

- Turing's post-graduate work at King's College, Cambridge produced a paper called 'On Computable Numbers'. It proposed using a machine to try all the potential solutions to a long-standing mathematical conundrum. It used the idea of the algorithm, a concept that is the basis of all computation. He proved that some formal and simple hypothetical devices (known as Turing machines) would be capable of performing any conceivable mathematical computation if it could be represented as an algorithm. Turing machines are a central object of study in the theory of computation, these days.
- During the Second World War, Turing worked at the Government Code and Cipher School at Bletchley Park. He brought his intellect to bear on the ways to crack coded messages produced by the Enigma machine - an enciphering device widely used by German armed forces, especially its navy. Turing's Bletchley work refined a machine invented by Polish cryptologists, known as a Bombe that sped up the cracking of message enciphered by

Enigma. Turing's Treatise on Enigma' helped to break German encrypted messages. German Army, Air Force and Navy transmitted many thousands of coded messages each day during World War II. These ranged from top-level signals, such as detailed situation reports prepared by the generals at the battle fronts, and orders signed by Hitler himself, down to the important minutiae of war like weather reports and inventories of the contents of supply ships. By 1945 more than 170 Bombes were in action helping to keep an eye on German naval communication and preserving Allied convoys.

He wrote two papers discussing mathematical approaches which were entitled *Report on the applications of probability to cryptography and Paper on statistics of repetitions,* which were of such value to GCCS and its successor GCHQ (Government Communications Headquarters), that they were not released to the UK National Archives until April 2012, shortly before the centenary of his birth. A GCHQ mathematician said that time that the fact that the contents had been restricted for some 70 years demonstrated their importance.

In 1945, Turing started working at the National Physical Laboratory in Teddington on a machine he called the Automatic Computing Engine. The complexity of its construction meant it was never built in the form Turing wanted. However a cut-down version, called the Pilot Ace, was built.

Disillusioned with the slow pace of work at the NPL, Turing left to join former Bletchley colleague Max Newman at the Computer Laboratory in Manchester. He wrote software that ran on the world's first stored program computer that had been built at the university - the Manchester Mark I.

Turing meanwhile worked on the problem of artificial intelligence, publishing in 1950 his highly influential "Computing Machinery and Intelligence", which debuted in a philosophical journal, *Mind.* It was in this paper that he proposed that if a questioner, communicating with a trio of subjects (two human and one computer) via typed responses, could not distinguish which of the subjects was a computer, then the computer could be called "intelligent". In the paper, Turing suggested that rather than building a program to simulate the adult mind, it would be better rather to produce a simpler one to simulate a child's mind and then to subject it to a course of education.This 'Turing Test" as it is now known, and Turing's optimism for the future of artificial intelligence, has remained a source. A reversed form of the Turing test is widely used on the internet. The CAPTCHA test is intended to determine whether the user is a human or a computer. the years since 1950, the test has proven to be both highly influential and widely criticised. some proponents of AI demanded the onus be put on skeptics to prove the idea of an intelligent machine impossible. (The term artificial intelligence had not even been coined their. John McCarthy would come up with the term in 1956, two years after Alan Turing's untimely death.)

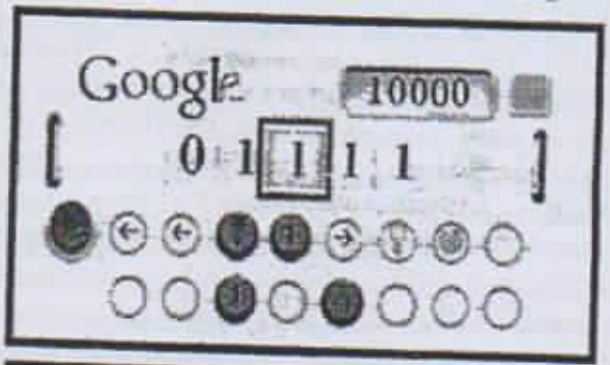
Controversies and tragedy arrived in his life. The scientist had undergone hormone treatment and was prosecuted by the British government for his homosexuality, at a time when homosexual acts were still illegal in the United Kingdom. (On September 10, 2009, following an Internet campaign, British Prime Minister Gordon Brown made an official public apology on behalf of the

British government for the way in which Turing was treated after the war). On 8 June 1954, Turing was found dead. When his body was discovered, an apple lay half-eaten beside his bed. A post-mortem examination established that the cause of death was cyanide poisoning, though the apple was not tested for cyanide. His death is linked to his treatment by the authorities after his homosexuality was discovered. The discovery placed restrictions on his work that he found intolerable.

It is an achievement in life to have been credited with changing the course of history once in a lifetime, but to have done it more than once in a short lifetime is truly exceptional. A biography published by the Royal Society shortly after Turing's death (during that time his wartime work was still subject to the Official Secrets Act) stated: "Three remarkable papers written just before the war, on three diverse mathematical subjects, show the quality of the work that might have been produced if he had settled down to work on some big problems at that critical time." Turing's work not only had significant impact on the defeat of Nazism through his Enigma code-breaking, but his mathematical work is the basis of modern computing.

The modern world of iPads, Facebook , mobile phones are all based on his ideas. His work is still the basis for much of the more fundamental research in artificial intelligence. Sixty years on from Turing famously opening his paper on Computing Machinery and Intelligence, asking if machines can think. This was at a time when the first general purpose computers had only just been built. Turing was well ahead of his time and he is an example of UK-based thinking that has made this country great in the past and in the present. His life led to many advances that have improved the lot of humanity, from modern media to healthcare. Perhaps if he had lived in a more tolerant age he would have continued to produce yet more benefits for mankind.

The current Apple logo was designed with a bite so that it would not be recognized as another fruit. This logo often erroneously referred to as a tribute to Alan Turing, with the bite mark a reference to his method of suicide. Both the designer of the logo and the company deny that there is any homage to Turing in the design of the logo.



Google honored Alan Turing on his 100th birth anniversary with a doodle, an interactive virtual version of the Turing Machine, greeting visitors to its home page (www.google.com).

Inside Google Search

Bidipta Majumder
Computer Science M.Sc. First year

Now-a-days from cradle to grave the most frequently used word is "GOOGLE". Now the word is used even as a verb. Whenever we want to search something, we "google" it. But have we ever tried to know that how this Google search engine works so fast and so accurate?

Google is named after the 'googol' which means 'one with 100 "0"s'. Such a name reveals the main aim of the Google inventors to gather and work out as much information as possible and provide all users with the most comfortable and adequate search. Larry Page, the co-founder and CEO of **Google Inc.,** once described the "perfect search engine" as something that "understands exactly what you mean and gives you back exactly what you want."

Basically, a search engine is a software program that searches for sites based on the words that you designate as search terms. Search engines look through their own databases of information in order to find what it is that you are looking for. Google runs on a distributed network of thousands of low-cost computers and can therefore carry out fast parallel processing. Parallel processing is a method of computation in which many calculations can be performed simultaneously, significantly speeding up data processing. Google has three distinct parts :

- **Googlebot,** a web crawler that finds and fetches web pages. **A Web crawler** is a computer program that browses the World Wide Web in a methodical, automated manner or in an orderly fashion.

- **The indexer** indexes web pages, through the use of keywords and operators and stores the resulting index of words in a huge database.
- **The query processor,** which compares your search query to the index and recommends the documents that it considers most relevant.

Googlebot: - Googlebot is Googte's web crawling robot, which finds and retrieves pages on the web and hands them off to the Google indexer. It's easy to imagine Googlebot as a little spider scurrying across the strands of cyberspace, but in reality Googlebot doesn't traverse the web at all. It functions much like your web browser, by sending a request to a web server for a web page, downloading the entire page, and then handing it off to Google's indexer.

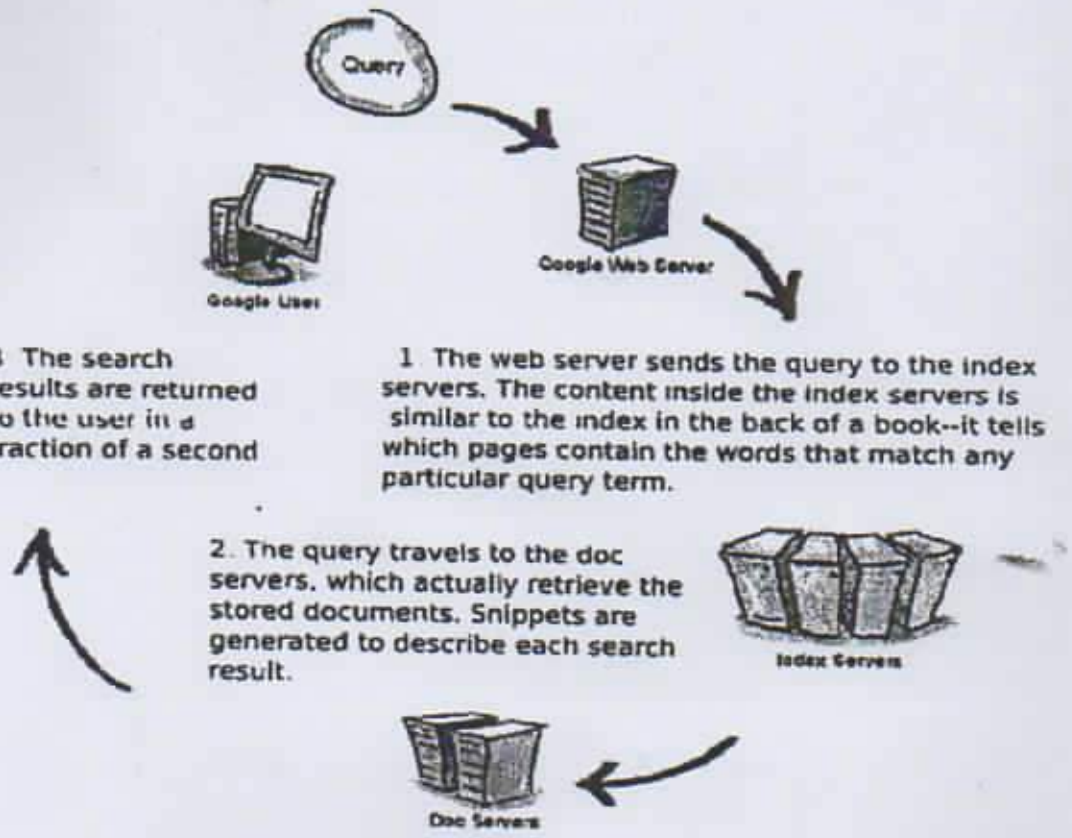
Google's indexer: - Googlebot gives the indexer the full text of the pages it finds. These pages are stored in Google's index database. This index is sorted alphabetically by search term, with each index entry storing a list of documents in which the term appears and the location within the text where it occurs.

To improve search performance, Google ignores (doesn't index) common words called stop words (such as *the, is, on, or, of, how, why,* as well as certain single digits and single letters). Stop words are so common that they do little to narrow a search, and therefore they can safely be discarded. The indexer also ignores some punctuation and multiple spaces, as well as converting all letters to lowercase, to improve Google's performance.

Google's Query Processor:- What sets Google apart is how it ranks search results, which in turn determines the order in which Google displays results on its search engine results page (SERP). Google uses a trademarked algorithm called **PageRank,** which assigns each Web page a relevancy score. A page with a higher PageRank is deemed more important and is more likely to be listed above a page with a lower PageRank. Google considers over a hundred factors in computing a PageRank including the user's interests by keeping track with what kind of web pages are frequently visited by that user. A few of the factors are as follows :

- **The frequency and location of keywords within the Web page:** If the keyword only appears once within the body of a page, it will receive a low score for that keyword.
- **How long the Web page has existed:** People create new Web pages every day, and not all of them stick around for long. Google places more value on pages with an established history.
- **The number of other Web pages that link to the page in question:** Google looks at how many Web pages link to a particular site to determine its relevance.

Out of these three factors, the third is the most important. It's easier to understand it with an example. Let's look at a search for the terms "Planet Earth." As more Web pages link to Discovery's Planet Earth page, the Discovery page's rank increases. When Discovery's page ranks higher than other pages, it shows up at the top of the Google search results page. Let's see how Google processes a query.



Although this is not the end, Google uses very complex algorithms to make our search successful and they don't even reveal their algorithms and that is why Google Search Engine is probably the best search engine.

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