CHAPTER-IV
INTERROGATION OF SCIENCE IN *THE CIRCLE OF REASON*
AND *THE CALCUTTA CHROMOSOME.*
Introduction

Needless to say that science has a profound impact on daily life. No aspect of human has remained unaffected. The word ‘Science’ comes from the Latin ‘Scientia’, knowledge. Science is as an attempt to provide systematic, justifiable explanations of natural phenomena. Science is a continual search for better answers to man’s questions about the universe around him. New Standard Encyclopedia defines it as: “the systematic and unbiased study of the world, including everything that can be seen or detected in nature, man and society and the knowledge that grows out of such study” (183). The scientist’s method of enquiry is known as scientific method which distinguishes science from other fields of learning. Experience of implications of science has made man to consider it as a boon as well as a bane.

Science has not remained as an unbiased study of the world. Powerful countries have used it to serve their interests. For instance, anthropology has been employed by the west to project the superiority of its race. Based on its study the West constructed the binaries. This hierarchizing of societies is politically motivated and has subordinating motive. Therefore the postmodernist and postcolonial writers question if not all at least some of the claims of science. They do not believe that the scientists describe and analyze the physical reality which surrounds us objectively and truthfully; their scientific inquiry is a disinterested pursuit of truths about reality and quite independent of any local cultural constraints or moral or ideological motivations which may have inspired their discovery. So, the postmodernists state that: “scientists promote one story among many, their pretensions are unjustified. They do not so much discover the nature of reality as construct it and so their work is open to all the hidden biases” (Butler 38). The
postcolonial theorists and writers do not interrogate science but they interrogate the motivations for and consequences of scientific discoveries. They say such discoveries are to be scrutinized morally and politically. Ghosh being a postcolonial writer do so in his novels; *The Circle of Reason* and *The Calcutta Chromosome*. The detailed exploration of it is as follows.

*The Circle of Reason* (1986) is the first and Prix Medici Estranger award winning novel and *The Calcutta Chromosome* (1995) is the fourth and The Arthur C. Clarke award winning novel by Amitav Ghosh. These two novels are taken up together for analysis in this chapter because thematically as well as in terms of technique both the novels have several postcolonial traits in common. Both the novels have the themes of resistance, deconstruction of binaries, restoring the subjugated culture, knowledges, and people and interrogation of science. Both the novels employ narrative devices like non-linear plots, multiple narration, irony, subversion, fantasy, magic realism, intertextuality, and stories within a story. Of all these themes the interrogation of science is significant and predominant one, so this chapter is devoted to explore this theme.

In *The Circle of Reason* Balaram is fascinated by British scientist Pasteur. He adopts reason in all walks of life and thinks that carbolic acid is the panacea for all human problems. He also practises Phrenology and proves to be wrong in his assessments. The end result is failure and destruction. Alu, foster child of Balaram, takes up weaving which is based on the principles of science. It has Indian origin and has formed basis for many inventions like modern computer. Unlike the Western science weaving has connected the continents and promoted trade across the world. By juxtaposing this with western science, Ghosh, provides space for the subjugated knowledge and interrogates the latter.
In *The Calcutta Chromosome* Murugan is fascinated by pre-malarial history and Ronald Ross’s life. He suspects Ross’s discovery. According to his theory some persons have planted ideas in Ross’s mind and guided him to the final discovery. He constructs alternate malarial history. Through this he uncovers the counter-science which doesn’t claim to know and its principles are secrecy and silence. The counter science group involves in research for the well-being of all and to achieve immortality. By juxtaposing counter-science with conventional science Ghosh interrogates the latter. Tabish Khair has rightly pointed out that “Ghosh turns around the myth of European discovery and science” (Babu Fiction 304). The detailed examination of this is as follows.

**Interrogation of Science in *The Circle of Reason***

*The Circle of Reason* (1986) has placed Amitav Ghosh immediately as a master craftsman in the art of fiction. Hailed as a breakaway from the traditional forms of fiction writing in English, it has been translated into many European languages. It is an intriguing debut which introduces and explores themes and techniques that have been developed in his later novels. As this novel consists of several stories, there are varied possibilities of interpreting this novel. It incorporates the elements of picaresque novel, novel of ideas, thriller or detective novel, and Hindu epic. The novel is considered as: “an allegory of destruction of traditional village life by the modernizing flux of Western culture and subsequent displacement of non-European peoples” (Robert Dixon 13). It also deconstructs opposition between tradition and modernity and discrete orient and occidental cultures. There are many possible interpretations of the novel, but here the study is confined to the examination of interrogation of science.
Before exploring the interrogation of science, it is felt necessary to provide an outline of the novel. *The Circle of Reason* is divided into three sections namely Satwa: Reason, Rajas: Passion, and Tamas: Death. The novel begins with the arrival of Nachiketa who remains present in all the three sections of the novel. He comes to stay with his uncle Balaram and aunt Torudebi in Lalpukar. The remarkable thing about this boy is that “He has an extra-ordinary head- huge several times too large for an eight year old, and curiously uneven, bulging all over with knots and bumps (*The Circle of Reason* 3). People talk about his head differently, but Bolaida says “No, it is not like rock at all. It’s an Alu, a potato; a huge, fleshy dug, lumpy potato (*CR* 3). So From that day he is named Alu and he remains as Alu throughout his life instead of Nachiketa Bose, it was his original name. Alu stops going to school when he attains the age of fourteen. Balaram, the supposed scientist surprises everyone by encouraging the boy to take weaving. Alu takes lessons from Shombu Debnath, a master weaver. Then the narrative dwells upon the life of Balaram and his passion for Science and Reason. The books *The Life of Pasteur* and *The Practical Phrenology* influence Balaram a lot. He spends the first half of his life practicing phrenology which is the study of the conformation of the skull as indicative of mental faculties and traits of character. He spends the second half of his life in implementing the doctrine of Pasteur namely to clean the society with carbolic acid. He fails in both. His assessments go wrong causing disrepute to him and his experiment with carbolic acid proves to be suicidal, as he and his family are killed by his own stock of carbolic acid in an encounter with the police which was plotted by the local politician Bhudeb Roy.

Only Alu escapes from that fire but as he is suspected to be helping the extremists he is being chased by the police officer Jyoti Das, ASP. So,
Alu keeps on moving from place to place like the hero of a picaresque novel. First Alu flees to Calcutta then travels down to Kerala and to Mahe. Just two days before Das’s arrival in Mahe Alu sets sail to al-Ghazira under the leadership of Zindi, a former prostitute. She has a house in al-Ghazira in an area called the Ras or the Severed Head. There she takes all sorts of refugees some with questionable histories or occupations. Among Zindi’s crop, besides Alu, are Professor Samuel who is obsessed with the theory of queues, Kulfi with buck teeth and recently widowed, Karthamma who gives birth to a boy on board who is named Boss, and Rakesh, a traveling salesman. When they arrive at al-Ghazira they meet the rest of the characters in Zindi’s world, including Abu Fahl, Forid Mian, Jeevanbhai Patel, Hajj Fahmy, Zaghloul, and Mast Ram.

After six months, the Star, an immense building, collapses, and traps Alu under huge heaps of concrete. “It (the fall) shook the whole of al-Ghazira, like an emptying wave shakes a boat” (CR 193) and the whole city was wrapped in darkness despite the full mid afternoon brilliance of the desert sun. Most think Alu is dead. When he is freed after a few days he emerges as a new man and speaks about “cleanliness and dirt” (235), a war against money and about Pasteur. Alu’s mystical renunciation of profit sends Zindi into paroxysms of concern. So, she plans to purchase Jeevanbhai Patel’s Durbon Tailoring shop and start business. But, before her plan materializes Jeevanbhai commits suicide. Though it is not made explicit, Jeevanbhai has been acting as a spy and has betrayed Alu to Jyoti Das. In the procession to fight against money several of Alu’s followers die but, Zindi, Kulfi, baby Boss and Alu move further west to Algeria.

At EI Oud in Algeria Alu and Kulfi pretend as a couple. They call themselves as Mr. and Mrs. Bose, Boss is their son and Zindi acts as their
ayah. In this new setting we are introduced to a small emigrant Indian community: Mr. and Mrs. Verma, Dr. and Mrs Mishra and Miss Krishnaswamy, a nurse. Dr. Verma is a microbiologist and daughter of Hem Narain Mathur. Dr. Mishra is a surgeon. It turns out, however, that Jyoti Das is a guest of the Verma’s and he inevitably meets Alu and his company. On the occasion of second year celebration Mrs. Verma plans to stage *Chitrangada*, and asks Kulfī to play the role of Chitrangada and Jyoti Das is to play the role of Arjuna. Unfortunately, during the rehearsal Kulfī dies of heart attack. An argument ensues between Mrs. Verma and Dr. Mishra over the possibilities of performing a proper Hindu funeral for her. After all this wandering and death in foreign lands Zindi decides to go home. She feels she is getting older and won’t last much longer. She also wonders what would happen to her if she dies in a foreign land, without a house or friends to help her. She tells Alu “Boss and I are going back home, Boss is going to build me a house some day” (420). In spite of continuous traveling, frustration and death, the novel ends with a note of hope, “Hope is the beginning” (423).

The West introduced many meta-narratives, seemingly well-intentioned, such as science, medicine, law, philosophy, literature, and history in the colonies with the civilizing and developing objectives. *The Circle of Reason* deals with one such meta-narrative- science, its impact and then the interrogation of it. Science is to be factual, systematic, reliable, helpful in achieving the welfare of all and the over all growth of the universe. So also ‘reason’ is supposed to be a clear and logical thought, one’s ability to think sensibly, reliably and also to persuade rationality. The claims of science prove false and unsustainable in this novel. Ghosh “doesn’t fully accept the conventional science/tradition division or set it on
East/West axis. Rather he problematizes the Science is West and Tradition is East dichotomy, breaking down myths by his interrogation of the status of and worth of different branches of science in India” (Chamber 37). The Western science has affected and distorted the thinking of the colonized people. Balaram, the protagonist of the novel is obsessed with science and reason. Instead of leading him on the right path, science has pushed him to miserable state. This signifies the failure of science and Ghosh interrogates this in the postcolonial fashion.

The impact of western science and its interrogation are illustrated in many episodes of the novel. First, the episodes relating Balaram are taken up for probe. Balaram is an epitome of western science. The study reveals that he stands for diasporic and educated Indians who have craze for whatever comes from the west. Balaram has fascination for science from his childhood. Benjamin Franklin and Edison were his first heroes. He has celebrated Curies second Nobel with fireworks. He comes to Calcutta for his college education because for him it is a city where Ronald Ross discovered the origin of malaria, Robert Koch isolated the bacillus which causes typhoid and Jagadish Bose demonstrated plants too have life. On the day Balaram came to Calcutta, C.V.Raman was awarded Nobel Prize. He is curious to have the full view of C.V.Raman. Balaram is born in 1914, but he does not know the exact day. In order to celebrate the birthday and for other requirements he has to choose a date, so he selects the day on which Jagadish Bose demonstrated that even vegetables can suffer agonies of fear and pain. All these episodes typify that Balaram has not just been influenced by science but he is obsessed too much with science.

Balaram’s friend Gopal has given him a book namely *Life of Pasteur*. Due to his childhood passion for science and scientists and the powerful
influence of *Life of Pasteur*, Balaram starts arguing strongly for reason. Ulka Joshi’s observation supports this. She says “Balaram stands for reason and propagates reason” (26). In the Presidency College he becomes the member of the Rationalists’s Association. The objectives of the Association are to orient people to apply rationalism to every thing around them, to rescue people from barbarity and to show how people are daily deceived by the self styled purveyors of religion. So, Gopal, the president of the Association argues for replacing Brahma or Atma with Atom because Brahma is without attributes and form. He proposes that hereafter we would begin the meetings with salutations to Comic Atom. All are convinced and give consent to the proposal. Gopal is applauded for his ingeniously down to earth suggestions and rational explanations. But Balaram objects it and proposes to name it Cosmic Boson and to salute it. Further he questions “what does it have to do with science or reason or the masses of Hindustan? What good will it do anyone if the masses start saying Hail, Cosmic Boson instead of He Bhagoban? Will it cure them of disease? Will it fill their stomach? Will it get the British out of here?” (*CR* 48) Indeed his proposal is not as logical as that of Gopal, therefore except Dantu nobody agrees. In the next Rationalists meeting Balaram strongly urges Rationalists “to turn their minds to the business of finding a rational substitute for the superstitious incantations which Brahmins chanted at the wedding” (*CR* 48). Gopal perceives that Balaram is not thinking rationally but he has become too much obsessed with science and reason. Hence, he tells Balaram his mind has become dumping ground for the West. In response to that Balaram replies, “science does not belong to countries. Reason does not belong to any nation. They belong to history- to the world” (54). Here Ghosh deconstructs the normal understanding that science stands for the West. He speaks on several
occasions as if he is the champion of reason. But the irony is that his arguments and suggestions lack logic and rationality. This mirrors the effect of Western science on the minds of and state of the Other. Balaram’s obsession with science and its impact is described by John Thime as: “Alu’s uncle and foster father, Balaram, is a passionate advocate of supra national vision of scientific reason, inspired by the work of Louis Pasteur which leads him to undertake a campaign against germs and Brahmncial superstition in the local village” (255-256).

Balaram’s irrational and eccentric behaviour is underlined on other occasion also. He is working as a teacher in a school run by Bhudeb Roy, a local politician in Lalpukar. Bhudeb Roy organizes Sarswati Puja on a grand scale with the intention of inviting all the officers and politicians. But, Balaram, as he opposes Bhudeb’s intention of making money out of school, does not actively take part in the Sarswati Puja. The idol of Sarswati is installed on the high platform, but the idol looked a little pained. But, nobody dares to say anything and nobody has time to give thought to it. As the school inspector is also attending the function, as a teacher Balaram has to attend the Sarswati Puja. When he comes there he sees the Sarswati idol and climbs upon the platform with dirty and defiling sandals and “ripped the dyed cotton hair off the head and laid the clay skull bare. He pointed to the peeled head with the light still bravely flickering inside and turned around. This is not Sarswati. This is not learning. This is Vanity” (31). This eccentric behavior of Balaram sows the seeds of poison tree in Bhudeb Roy and consequently Bhudeb’s men poison Balaram’s fish pond and attack Alu and Maya.

Balaram’s obsession with science and reason is illustrated in his endeavour to establish a school in Lalpukur in the name of Pasteur, after
Bhudeb Roy’s school has been burnt down. Balaram establishes this school to impart training in looming. He uses his house itself as classrooms, and makes the courtyard a work-shop for practical classes in looming. He divides the school into two departments namely, the Department of Pure Reason and the Department of Practical Reason. In the Department of Pure Reason, lessons are given in elementary reading, writing, arithmetic, history of science and technology. In the Department of Practical reason, the pupils are taught weaving and tailoring. So far as the design of the curriculum is concerned, the idea of the School is all right. But the selection of teachers and students is depicted ironically and thereby it is interrogated by Ghosh.

Shombhu Debnath has been appointed not only to teach the lessons in Advanced Weaving but also to function as the head of the Department of Practical Reason. The paradox is that Shombhu Debnath who has given up weaving several years ago, admits that he is incapable of weaving now. Besides, he has had no formal education and he is full time alcoholic. He is an adulterer as he has been having not only an illicit relationship with Bhudeb Roy’s wife but also is the father of her last child. Shombhu Debnath admits his inability to teach as: “you are wrong, Balaram Babu, he said hoarsely, you couldn’t be more wrong. I’m no teacher. I certainly couldn’t be able to teach in school” (CR 106). But Balaram forces him to accept the appointment by stating his assessment of him as: “Teaching is your destined vocation- it’s written all over your skull. You can not squander your gifts. You could teach them your craft and together we could teach them more than a craft. We could show them the beginning of a history” (106). Shombhu nullifies Balram’s expectation by not turning up to the school to impart education. Thus his selection of Shombhu, based on Phrenological assessments, as a teacher is a dig at Balaram’s Pasteur School of Reason.
Toru-debi has been appointed not only to teach tailoring but also to be the head of that section. Though she is not at all qualified, she readily accepts the assignment. She has been a housewife and obsessed with a passion for stitching with her sewing machine ever since appearance in the novel. She has no caliber to impart lessons in tailoring for she has never got formal education in that subject. The irony is that she fails in her endeavor to complete six blouses of Parbotidebi in time. Moreover, when the sewing machines need minor repairs, she doesn’t know how to repair them. Such an ignorant person is appointed the head of the Department of Tailoring, which is nothing but mockery at Balaram’s endeavor.

Rakhal, who is appointed sales manager, has a notorious record. He has been involved in the manufacturing and sales of country bomb. He is a crazy boy about films and Kung Fu. It is a disgrace to the notion of education to appoint such a person on the staff. Balaram is the head master of the school and teaching in the Department of Pure Reason. As in the campaign against underwear, he has a hidden motif in the establishment of this school. He wants to prepare the students in administrating carbolic acid to disinfect the village.

The dream school of Balaram has attracted students of all age and both gender, and the school runs well and profit is made considerably. At this stage the narrative takes a different turn. Balaram prepares for the extension of program to clean the village with carbolic acid. He has got the idea of carbolic acid from the British mainstream scientist Pasteur. This is his life time mission which is betrayed by his own students and leads to self destruction. Indira Bhatt’s observation is worth quoting here:

It is this passion (passion for Pasteur)….He starts a school of reason but fails in his attempt to educate the village youths to think
rationally. They are interested more in learning tailoring and weaving, the practical training of learning the skills for survival. He also fails in educating Alu since he refuses to attend the village school, though he loves to read books from Balaram’s library. Balaram’s knowledge of Science and his faith in Reason have no base in real life situations. His is the abstract knowledge and knowledge without worldly wisdom is likely to bring disaster (21).

In the mean while, Bhudeb Roy lodges with the police a complaint against Balaram that he has been associated with extremist activities. Balaram’s house is surrounded by the police and the encounter ensues. In the encounter, the carbolic acid stored in his shed catches fire and the whole house of Balaram, along with Balaram, his wife, Maya and Rahkal, is set ablaze. Since Alu has been out in the forest, he escapes the destruction. Thus Balaram’s Pasteur School of Reason comes to an end. Carbolic Acid which Balaram considers to be an ultimate solution for eradicating germs becomes the source of his own destruction. His failure symbolizes the failure of Western science’s civilizing and developing mission. The consequences of Balaram’s obsession with reason and Western science are voiced by his friend Gopal and Shombhu Debnath. Once Gopal has told Balaram: “I knew you would bring disaster on yourself and the society” (CR 89). When Balaram has got ready to start the march of disinfecting the village with carbolic acid Shombhu Debnath urges Balaram as: “Balaram Babu, you’ll destroy everyone without even stopping to think. You’re the best Sadhu I have ever known, Balaram babu, but no mortal man can cope with the fierceness of your gods” (143).

During the college days Balaram argues vehemently in favour of Pasteur and using carbolic acid at the meetings of Rationalists, though the
issues are not related to either Pasteur or destruction of germs. One such instance is his idea of a ‘campaign against underwear’. As soon as he becomes the president of the Rationalists’ Association in the Eden Hindu Hostel, he proposes to undertake the task of cleaning underwears with carbolic acid. Balaram’s idea is looked down upon by several members of the Association. Even his all time loyalist, Dantu, reminds that his idea is wrong and many more feel it is humiliating and silly to discuss the matters related to underwear and consider Balaram’s campaign against underwears as fancy ideas. Ghosh leaves the narrative incomplete without any information about the outcome of the campaign against cleaning underwears. His addiction to Pasteur and use of carbolic acid is repeated again during his stay in Lalpukur. Due to inflow of refugees in abundance, new settlements come into existence in Lalpukur. When Balaram pays visit to these areas, he finds that the locality has become unhygienic. Instantly the idea of Pasteur’s carbolic acid comes to his mind. So he starts rigorous campaigns against the diseases, people respond well and raises fund to buy carbolic acid. With the help of volunteers, he commences to disinfect every exposed inch of new settlement. Initially Balaram’s ideas and campaigns to disinfect with carbolic acid attract people but eventually his acts cause destruction. Robert Dixon’s observation underscores this. He remarks: “Balaram, the village school master, is obsessed with Western ideas, epitomized by his passion for phrenology and the writings of Pasteur. Balaram establishes the Pasteur School of Reason; alternatively bores and terrorizes people with his scientific notions and eventually destroys the village by sterilizing it with carbolic acid” (6).

Though Balaram is killed, his spirit of pasteurization continues to prevail in his heir, Alu. He tries to continue the ‘cleaning movement with
carbolic acid’ in al-Ghazira. But ultimately he fails in his endeavor. It is reminiscent of Balaram’s attempt and results in the same effect. As Bhatt observes:

The same Carbolic acid creates trouble in al-Ghazira when the displaced persons living with and around Zindi decide to clean every house and shop. Zindi is the only person who does not believe in this cleanliness movement. When they take out a sort of procession and try to clean the shops and stores in this foreign place, the police shoot them and most of them die. Only Alu, Zindi, Kulfì and the child Boss are saved (21).

Balaram’s mission of using carbolic acid has not been stopped. It is continued in the episode of Dr. Uma in El Oud. Zindi, Alu, Kulfì along with Boss reach El Oud in Algeria, where they happen to meet Dr. Uma, an Indian doctor. On taking Boss to Uma for treatment for his fever, they are sheltered in Uma’s house. Kulfì is persuaded by Dr. Uma to perform the role of Chitrangada in the proposed annual social gathering. Unfortunately Kulfì dies while doing the rehearsal. While performing the funeral rites of Kulfì a dispute arises. The conservative Dr. Mishra insists upon the Ganges water to be dropped in the mouth of Kulfì and to clean the corpse and the place. Dr. Uma uses carbolic acid instead of the Ganges water to carry out the funeral. This evokes appropriation of and hybridization of the Western concept. Definitely it is not an espousal of western science because Alu and Dr. Uma realize the futility of western science and decide to burn the Life of Pasteur along with the corpse of Kulfì on pyre:

I don’t want your book, he said in a rush, holding it out to her. The Life of Pasteur...Oh, she said, pushing it back, that’s a problem. I don’t want it, either. What do we do with it now? I don’t know, Alu said. She took
the book from him and turned it over in her hands. Then she gave it back to him. May be we could give it a funeral, too? She said. She left him staring at it silence. After a long while he raised it high in both his hands and placed it reverently on Pyre (CR 415).

From the funeral of Life of Pasteur, it is very clear that Alu and Dr. Uma are disillusioned with the Western science. It also marks the subversion of Western Science and Reason. Balaram and Hem Narain have reverence for Life Pasteur and preserved it. But Alu and Dr. Uma, heirs of Balaram and Hem Narain respectively, respect it but place it finally on the funeral pyre. Alu and Dr. Uma, who represent the second generation of beneficiaries of science, by rejecting Life of Pasteur they interrogate Western science and Reason. So also, here Ghosh seems to put a question whether the West advocated science and reason tethered to its cultural origin or it has possessed of a universal validity? Balaram takes the later position. Balaram’s stance of universal validity of Western science is interrogated through Gopal’s cultural relativist stance; he argues that scientific reason is a product of history and science. Here Ghosh dismantles the universality of discourse of Western science.

Balaram has another obsession that is obsession with ‘phrenology’. Like his obsession with reason this has also failed to realize the objectives. From the childhood he has fascination for science, but he becomes alienated from the mainstream science and turns to practices such as phrenology, which now a days are considered to be unscientific and erroneous. Balaram is repelled by Curie’s canonical science when she inadvertently humiliates him in public. On the way to his hostel he has got a book called Practical Phrenology and gone through it quickly. The impact of this book on him is also as powerful as that of Life of Pasteur. So, in anger he embraces
phrenology, attracted by the practical ‘self-help’ qualities of this science. Franz Gall Joseph, who was a Viennese doctor, is the connoisseur of this science. According to his hypothesis, phrenology is a study of the conformation of the skull as indicative of mental faculties and traits of character.

The underlying idea of phrenology is that personality can be detected through the relative size of the mental organs in the brain and it is easy for an untrained mind to grasp. The fact that it doesn’t require special knowledge to set oneself up as phrenologist appeals to Balaram who feels estranged from the detached, impersonal discourse of high science. Balaram’s inclination from main stream sciences to Phrenology evokes that “the concept of what constitutes science is an evolving process and practices which are considered in one period to be pseudo-science, may later be accorded full scientific status and vice versa” (Chambers 42). In The Circle of Reason Balaram seems to be an expert on the subject simply by owning a copy of Practical Phrenology and having a set of head-measuring calipers. It is to be noted that Balaram, who practices phrenology, has been neither educated in science and medicine nor trained in that field, nor does he posses the empirical knowledge of phrenology. As GJV Prasad points out, Balaram’s notion of phrenology is an expression of his “search for a unified theory to explain the universe. It is this quest that motivates all his misadventures” (64). He practises phrenology only on the basis of hypothetical knowledge and believes that he can asses the people correctly through it. There are many instances in the novel which typify his obsession with this science.

Balaram assesses the character of Gopal as phlegmatic on the basis of phrenology and physiognomy. He goes to the extent of saying that Gopal is
the only person who is alive with a Phlegmatic organ. But Balaram is proved wrong because anybody who looks at his eyes, shining behind his gold-rimmed glasses, would say Gopal is not Phlegmatic. Balaram’s assessment of people’s aptitude, nature and character go wrong because, to put it in his close friend’s words, “the trouble with people like Balaram was that theories came first and the truth afterwards” (CR 13). His assessment of Dantu, a friend Balaram and Gopal, is proved nonsensical. Dantu vanishes time and again. Once Gopal and Balaram come to know he has disappeared from a tea company where he had a good job. When they are pondering over the reason for his disappearance, Balaram, on the basis of Phrenology proclaims: “Dantu had become a sadhu; that he had abandoned worldly life and was wandering around the country with a begging-bowl. Why? Because of his sharply domed head, of course, and his thin, hollow face and those two long, peeping front teeth from which he took his name. It’s his bregma. I can see now that it was Veneration that had pushed his skull up so sharply. Besides, he always had the look of a saint” (13-14). In fact, Dantu has not become a sadhu. He has joined politics and emerged as a popular politician with the passage of time. Balaram’s calculation has gone wrong and Gopal regards it as rubbish and tells him:

Nonsense; politics interested Dantu much more than religion—it’s just that your theory doesn’t allow for a Political organ. And, sure enough, a year or so later he came upon an article in a newspaper about a Shri Hem Narain Mathur (which was only Dantu under his real name) who had been arrested somewhere in north Bihar for organizing the landless labourers of the area to agitate for fair wages. He snipped the article out and showed it to Balaram later, but he didn’t say, as he had
planned to: Veneration is a long way from leading strikes. What about your theory now?(14)

It is to be noted that Balaram has got the acquaintance of Dantu only for a brief span of time during their college days. And he has never studied the head of Dantu closely at all. On the basis of his external features, Balaram makes assessment which has no accountability at all. It is not a mark of reason as he claims but that of constructedness. The trouble with him is that theories come first and truth afterwards.

Regarding Alu also, Balaram’s assessment goes wrong. Alu’s head is too huge, and there are knots and bumps on it. On the basis of these features and Alu’s persistent silence Balaram predicts that Alu is incapable of emotions. On the contrary he proves to be an emotional being and capable of expressing his emotions. He exhibits his emotions on various occasions. He loves Maya, fulfills the desire of Toru-debi and comforts Balaram by securing the book Life of Pasteur.

Balaram’s assessment of the character of Bhudeb Roy’s last child also amounts to absurdity. Having heard about Balaram’s knowledge of phrenology Bhudeb Roy seeks him to examine his sixth son. When he approaches Balaram, he feels elated and deems it is the triumph of his theory. He examines the child and withholds the result. Bhudeb grows anxious and impatient. Then with regret Balaram tells him: “your son has distinct protuberances above the asterion and over the temporal muscles above its ears. Furthermore, his mandible and zygomatic arches are already developed to so extraordinary a degree that I can only tell you that he reproduces almost exactly the structure of the Typical Homicidal”(CR 24). Further he tells him that as “you believe in prayer, pray that you may not be his first victim” (24).
Balaram’s assessment of Bhudeb Roy’s son that he will commit felony and become homicidal and that Bhudeb himself would be the first victim of his homicidal character turns out be false because the child dies of double pneumonia.

The author has skillfully interrogated the practice of Phrenology through the practitioner’s own wife, Toru-debi. Though Balaram practises phrenology outside, he is not entertained to do so by his wife. She “had never permitted Balaram to examine her skull and never would” (12). The irony is that “Western science is often interpreted as a discipline founded upon logic, empiricism and rationalism; even if these goals are not always met” (Chambers 41). It evokes that Balaram’s claim of authority and authenticity in the practice of phrenology is not based on logic and reason. Through this episode Ghosh interrogates the universality, authenticity, and claims of science. He dismantles the dichotomies in the name of science.

Thus, throughout the section Balaram, epitome of Western ideologies, fails in his endeavors. GJV Prasad’s remark summarizes Balaram’s obsessions and intention behind the creation of such character, “Balaram’s behavior at the time of Sarswati Puja, his passionate handling of the cleanliness movement with carbolic acid and his love for the study of heads are ironically described” (59).

Ghosh continues the interrogation of science by providing space for the subjugated knowledges and culture-carriers like history, myths, legends, stories and beliefs and rituals. We come across history which is constructed and biased towards the non-West. Hence, the treasure and legacies of the colonized countries are unrecorded. Ghosh seems to suggest that science is not everything in life, there are other aspects also. By juxtaposing these with science he interrogates the prominence of science in *The Circle of Reason*.
In order to illustrate this, the episode of weaving is taken up for examination. In the novel we see the West propagated ideas like reason and science have divided the people and brought disaster to characters, where as the non-Western ideas like weaving have brought the countries together and have saved people from danger. Balaram says:

it (loom) has created no separate worlds but one, for it has never permitted the division of the world. The loom recognizes no continents and no countries. It has tied the world together with its bloody ironies from the beginning of human race (CR 55).

Moreover, the history of weaving has no single national root. It follows complex international routes. The cloth trade prevailed across the world, “Indian cloth was found in the graves of the Pharaohs. Indian soil is strewn with cloth from China. The whole of the ancient world hummed with cloth trade” (56). In fact the ancient Indian weaving has led to many modern inventions also. For instance Charles Babbage, considered father of modern computers, built his first calculating machine using the principle of storing information on punch cards which were used in weaving. He took this idea not from system of writing or from mathematics but from the draw-loom. As Robert Dixon remarks, “it is not a traditional craft opposed in a binary sense to Western science, but another part of a diaspora that unravels the distinction between Orient and Occident” (14). The West claims that they are rational and civilized and it is their mission to civilize the rest. But, when the archives are unearthed it becomes clear that in fact the West has borrowed a lot from the rest and become civilized: “the English were handed down their word (cotton) like so much else that raised them to civilization, by the Arabs from their Kutn” (56). Thus, by juxtaposing abstract knowledge of the West and practical knowledge of non-West, by bringing to light the
subjugated knowledge, cultures, places, people, by depicting impact of ideas borrowed from the West Ghosh time and again interrogates western idea of science, its welfare objectives and its universality.

It does not mean that Ghosh accepts everything that belongs to the non-West. Therefore throughout the novel, we can observe he makes fun of the so called scientific attitude, rationalism and Hindu philosophy and rituals. The appropriation of what is called ‘science’ is itself a high mark of Eurocentric discourse. So, its universality can not be accepted.

Science might have helped the advancement of countries. But it has helped more the advanced countries and rich people. The poor people aren’t benefited very much from it. This concern is reflected in this novel. The poor people lead a miserable life without job security and permanent shelter. Where as the rich contractors have owned houses abroad and bureaucrats lead luxurious life. Through this depiction Ghosh interrogates the benefits of science. The first section of the novel Satwa: Reason, is set in Lalpukur which is a refugees settlement. The inhabitants of the Lalpukur are “vomited out of their native soil years ago in carnage and dumped hundreds of miles away” (CR 59). In fact millions of people are dumped in a single place. The pressure and rush in the refugee centre is described by Ghosh as: “The borders dissolved under the weight of millions of people in panic stricken flight from an army of animals” (60). When the refugee centre overflows with people Balaram pays visit to the refugee centre and “he saw people eating surrounded by their children’s shit; the tin roofs were black with flies; in the lanes rats wouldn’t yield to human feet; there were no drains and no clean water and the air was stagnant with germs, pregnant with every known disease” (61).The miserable condition evokes what science has done to improve the life of these people.
Ghosh, a master craftsman, executes his above discussed themes, ideas and concerns by employing various narrative strategies. The important narrative devices employed in *The Circle of Reason* are explored below.

**Narrative Strategies Employed in *The Circle of Reason***

The structure of the novel is divided into three parts namely; Satwa: Reason, Rajas: Passion and Tamas: Death, the novel symbolically deals with three phases of human life. Satwa: symbolizes the search for wisdom, Rajas symbolizes the life of passion and Tamas stands for darkness and destruction. The number of pages devoted for each part that is 189 pages for Satwa: Reason, 160 pages for Rajas: Passion and 74 pages for Tamas: Death evokes the importance given to each aspect of our life. As the major concern of the novel is to throw light on the impact of reason more pages are devoted to that. The three parts may also signify the process of our action that is first we ponder (reason) over a matter, then we engage in the act with passion and finally the act results in. It symbolizes that modern man spends more time on thinking than on acting and death. Thus, the structure of the novel contributes significantly to its theme.

As for plot of the novel is concerned the study reveals that there is no conventional development of plot. But mainly there are two plots; the plot which consists of Balaram and the plot of Zindi. Both are connected by presence of Alu and by the presence of *Life of Pasteur*, sewing machine, carbolic acid and Alu’s weaving. *The Circle of Reason*, like other postcolonial novels, is a non-linear novel. For instance, Balaram is introduced in the beginning of the novel as a school teacher at Lalpukur, but his early life, interests and background are provided in the later pages not chronologically but in a scattered manner. Most of the characters of the novel are introduced more or less in the same pattern. Even the unity of the
Some have considered this novel a disordered one, but the study reveals that the various circles and three parts of the novel are interconnected with the presence of *Life of Pasteur*, Alu, sewing machine, carbolic acid and Alu’s weaving. As GJV Prasad observes “it is not merely circular but a finely patterned novel and when seen as a whole displays the intricate ‘buti’ of a master weaver in the making” (Bose 59). The narration of the events is not done in a linear method but memories take the readers backward and forward in time. Prasad opines “the journey from ‘Satwa’ through ‘Rajas’ to ‘Tamas’ the three parts of the novel, is not a straightforward narrative but one full of resonances, harkening back and forth like an unfolding raga circling and repeating notes and sequences of notes, each contextually different” (Bose 59). As the title suggests the narrative moves in a circular pattern. A close study of it reveals that a number of narratives are woven into one another in a tightly knit pattern as that of a loom in an entertaining manner. The novel begins with portrayal of Alu’s arrival to Lalpukur: “the boy had no sooner arrived, people said afterwards, than Balaram had run into the house to look for the Claws” (*CR* 1). Then it moves from of the story of one person to another in the disorderly manner. The narrative tells the story of many families and individuals and finally comes to Alu, who after a great misadventure in al-Ghazira, is waiting for the ship to return to Lalpukur: “they (Alu, Zindi and Boss) settled down to wait for Virat Singh and the ship that was to carry them home” (423). Hem Naren Mathur who seems to have disappeared after the first section but again he appears in the third section. Thus, the circle completes with the end of the novel.
As for the narration is concerned the third person omniscient narration is followed. But in order to achieve credibility and authenticity the author gets the episodes narrated by the characters who are either close to characters or who are witness to the events. For instance Gopal narrates about Balaram’s college life, his interests and engagements. About Zindi it is said, “a man learnt more about the Ras and al-Ghazira and even the world in one evening at Zindi’s than from a month’s television” (CR 228). Zindi, such a reliable person who has observed from close corner, narrates the episodes of Abusa the Frown, Mast Ram and about Jeevanbhai Patel’s early life and his business. Hajj Fahmy, the oldest inhabitant of Ras, narrates about the contractors of al-Ghazira and he also narrates the story of Nury. Moreover, time and again the narrator uses ‘people said’. For example the novel begins, “The boy had no sooner arrived, people said afterwards, than Balaram had run into the house to look for the Claws” (1). This way of narration also aids to achieve credibility.

There is no conventional characterization. Instead of dealing with one particular character, like R.K Narayan’s *The Guide*, a story of Raju or Mulkraj Anand’s *Untouchable*, a story of Bakha, *The Circle of Reason* is a story of entire humanity. Though the characters are not subtle and complex, they are life like. Like Chaucer’s *The Canterbury Tales*, the novel describes all the characters with visual details and successfully creates a picturesque effect on the readers’ mind. The characters in the novel don’t fall into the conventional categories of round and flat characters or types and individual characters either. They are descriptive characters. It becomes difficult to decide who the protagonist is, because in the first half Balaram is the protagonist and in the second half Alu is the protagonist. Ghosh’s power of imagination and his keen sense of observation are beautifully revealed in his
art of characterization. As Tabish Khair observes: “Ghosh’s community includes people from various classes, regions, and religions” (Babu Fiction 311). His observation is right because we are introduced to a host of subjugated characters. In Lalpukur, besides Bhudeb Roy’s and Balaram’s family, we are introduced to Shombu Debanth who belongs to a weaver family and wandering caste, Maya his daughter does the house work in addition to weaving. Rakhal Shombu’s son besides weaving engaged in manufacturing crude explosives. There is another character, Bolaida an ex-service man now he has kept a cycle repair shop. We have a scientist, doctors, a professor, a salesman, weavers, a merchant, police officers, a politician and house wives. As a postcolonial writer Ghosh provides more space for the marginalized characters. In this context he interrogates what science has done to improve the lives of these people. Amitav Ghosh himself admits that he shares the concerns of Subaltern Studies group members. So, his concern with history, life, and predicament of people especially of the marginalized is explored below.

The protagonist of the novel Alu, an orphan, is present in all the three sections of the narrative. Though Alu proves to be a gifted child by picking up many languages in a very short span of time, he is unable to continue his education, as his uncle, Balaram, sends him to learn weaving under an untrained teacher, Shombu Debnath. Due to adverse impact and obsession with science his uncle is killed in a police encounter. As Alu is accused of involving in terrorist activities by a local politician Bhudeb Roy, he keeps on moving from place to place, like a hero of a picaresque novel, in order to escape from police chase. Consequently, Alu travels from Lapukur, to Calcutta, Mahe, al-Ghazira, El Oud and finally back to India. Throughout his travel he suffers and faces lot of difficulties.
In al-Ghazira also we are introduced to a series of voiceless characters Zindi, Karthamm, Kulfi, Professor Samuel, Rakesh, Jeevanbhai Patel and Alu from India and Mastram, Forid Moin, Abu Fahl and Abusa Fahl from villages of Egypt together live in a house maintained by Zindi in al-Ghazira. All these persons are, in one way or the other, subjugated and sufferers and they have come to al-Ghazira in search of work. In fact each character has its own sad and heart touching story. Zindi is abandoned by her husband for her barrenness. When she returns her brothers and their wives don’t allow her to enter the house. Hence she goes to al-Ghazira in search of work and works there as a sex worker. A woman, once not looked after by her husband and relatives, is taking care of many destitutes from different places.

Karthamma is a land laborer and she doesn’t know who conceived her. She is about give birth to a child but she doesn’t want to give birth to the child and tries to kill it in the womb itself. Because if she gives birth to the child while the boat is on sail which country would give birth certificate of that child. Without that certificate the child will not get any government facilities. She works in a rich Ghazira family. In a police encounter she dies in al-Ghazira leaving behind her child, Boss.

Kulfi has been turned to whoring by her MA passed husband when he has lost his fancy job. Therefore she has also come to al-Ghazira in search of work. Due to pre-conceived belief about India she has lost the job of a maid servant in a Ghazira family. She dies of heart attack while rehearsing the role of Chintrangada in El Oud.

Mast Ram, the ugliest man, works under a contractor. Due to some mistake his head has been cracked. In such a pitiable and critical condition Zindi provides him shelter. As a normal human being, he desires for Kulfi, when she does not return favor, frustrated Mast Ram commits suicide.
Professor Samuel, Rakesh, Abu Fahl and Alu are working in construction and painting work. In a procession except Alu, others are killed in police encounter. Besides, these characters, we have story of Nury, an egg seller who becomes a great businessman, narrated by Hajj Fahmy. There are episodes of Abhusa Fahl, and Zaghoul, Chunni. While Zindi, Kulfi and Alu are on the way from al-Ghazira to El Oud on the ship one more unknown character is introduced. Nobody knows his name because he can not speak. “His tongue had been torn out from the roots; he would wag the stump for anyone who cared to look” (CR 371). That man, in an attempt to catch his umbrella which slips from his hands, falls in the ocean. In spite of the efforts by the co-passengers to save him, within a fraction of minute “its (body) severed head floated grotesquely to the surface with a khaki-clad leg still clamped between its (shark’s) jaws” (371). Thus, the novel is full of varied unrecorded characters and their miserable plight.

The intertextuality is a major narrative device employed by the postcolonialists with an intention of writing back. The intertextuality is employed to support and execute the notions of hybridity and heterogeneity. Moreover, the postcolonialists don’t believe in binaries, borders and hierarchies. Hence, the device of intertextuality helps to subvert them. Amitav Ghosh is no exception in this regard. This novel not only obliterates the boundaries of the nations, but also obliterates the boundaries of genres. In this novel Ghosh has so dexterously incorporated the other texts that it seems so natural. The other texts that are incorporated in this novel are *Life of Pasteur, Practical Phrenology, Chitrangada* and writer’s own Ph.D. Thesis. The presence of *Life of Pasteur* is felt throughout the novel. It is the book which impacted Balaram and Alu a lot. This book has passed from Gopal to Balaram, from Balaram to Dantu and from Dantu to his
daughter Dr. Uma Verma. It has passed not only from person to person but also from generation to generation and from country to country as it has passed from India to EI-Oud. In fact the consequences of Life of Pasteur on the colonized minds are the major concern of this novel. Practical Phrenology has also influenced Balaram much and he fails in his attempts to predict correctly by measuring the heads of people. Another book that finds place in this novel is Chitrangada a music drama by Tagore. The Indian doctors in EI-Oud decided to enact it in the annual social gathering. Another work that is incorporated in this novel is Ghosh’s doctoral thesis. Dixon’s notes on the doctoral thesis of Ghosh, is as follows. “His Ph.D. thesis at Oxford was a history of weaving and cloth trade between Britain and India in the nineteenth century” (Dixon 06). The following episode makes it very clear that Ghosh’s Ph.D. thesis is incorporated in the novel. Balaram is associated with weaving in multiple ways. He shifts Alu from schooling to learn weaving. He opens a school of weaving and the trade of cloth in the name of Pasteur, as Pasteur School of Reason. He appoints Shombu as the head of the Department of Practical Reason where he is actually expected to give practical lessons in weaving. Alu continues to weave even after the destruction of the school and his family. In the Ras, he is occupied with weaving in an endless manner. Even after losing all his associates, Alu dreams of resuming the sewing with those two machines after his return home. Ghosh underlines that weaving brought the continents and countries together and trade routes of cloth trades spread across the world. Moreover, it led to many modern inventions. Thus weaving becomes an indispensable theme, which has obviously been borrowed from his doctoral thesis. In respect of technique too, weaving plays a vital role. Indeed weaving is the metaphor of this novel with a new sensibility. Thus The Circle of Reason
belongs to a complex genre because various genres such as drama, travelogue, ornithology, science and detective fiction are assembled together to present a single novel of collage art. This is the clear mark of the interrogation of the notion of nation with fixed boundaries and the notion of pure genres.

The other major trait of postcolonial fiction is incredulity toward meta-narratives and the subversion of them. It implies interrogation, rejection of finality, universality, deconstruction and suspicion. As the title suggests, *The Circle of Reason*, is preoccupied with the theme of reason. Here science, reason, and religion are supposed be grand narratives or meta-narratives in the sense that these grand narratives claim to provide universal explanations and to be universally valid. Lyotard contention is that these are implicitly authorization. Science is to be factual, systematic, its assumptions reliable, it helps achieving the welfare of all and it leads to the overall growth of the universe. So also, ‘reason’ is supposed to be a clear and logical thought, one’s ability to think sensibly and reliably and to reason also mean to persuade rationally. Religion, whether East or West, is believed to achieve the welfare of all without any discrimination of caste, class, gender region and religion. Several major characters in the novel are obsessed with science, reason and religion instead of leading them on the right path; these grand narratives push the characters to miserable state. Thus, the claims of these grand narratives prove false and unsustainable in this novel. Hence, the author ridicules these obsessions in the postcolonial fashion. Metafiction also means a narrative about novel. As GJV Prasad opines: “In a sense like other contemporary metafictional texts, *The Circle of Reason* is about narration itself” (59).
The device of magic realism is predominant among the postmodernists and Amitav Ghosh is not an exception in this regard. The novel is replete with episodes of magic realism. In the episode of Alu, who is a ‘wonder-head’, the device of magic realism is employed. Alu’s head is in the shape of potato. The description of his skull and face is characterized not only by visual property but also by the magical property; with such a head the survival is possible only in magic. It is obvious that thumbs are the most essential organs for weaving and weaving is impossible without them. The fact that Alu weaves the largest quantity of cloth without his thumbs creates the impression of magic. Alu’s achievements in weaving without his thumbs are matters of magic realism. Alu’s escape from death in the massive collapse of the Star typifies magic realism. Everyone presumes that Alu has perished in the crush except the gossips of Bhaskaran and the woman in the oil shop. Alu remains alive at the center of the huge rubble of stones, bricks, concrete, and cement. The incredible event of the survival of Alu is presented through the device of magic realism.

Shambu Debnath has an illicit relationship with Bhudeb Roy’s wife and it has continued for a long time. They have concealed their affair from Bhudeb Roy cleverly and they meet in the night. Shombu’s presence in Bhudeb Roy’s coconut grove in the night has been mistaken that he has been indulging in the theft of toddy and Roy’s wife has been pretending that she suffers from hysteria at nights. To represent the illicit love making of Shombu and Parbotidebi, the author has adopted the mode of magic realism. In the episodes of Abusa and Mast Ram also, there are instances of magic realism. Abusa is endowed with fine fingers at the touch of which things become fruitful. To illustrate this “Abusa had one great gift, all living things grew under his fingers as though to please him alone. In his village ever
since he started working on his father’s land, their cotton grew longer and heavier than anybody else’s. When the whole village’s fields lay devastated by worms their crops threw off insects at will as though they found strength in Abusa’s very presence” (CR 206). Abusa therefore gets a good job in the house of the Sheikh in al-Ghazira. On the other hand Mast Ram is endowed with the hand the touch of which causes destruction. He is depicted as a harbinger of destruction: “a live flowering bush had withered and died moments after Mast Ram touched it; how Abusa’s famous pumpkins, each one the size of a fattened sheep, were opened and found to be as hallow as footballs after Mast Ram had watered them (CR 206). The attributes of Abusa and Mast Ram are rationally incomprehensible. How Abusa’s touch endowed something with the life force and the touch of Mast Ram caused destruction to everything are beyond the purview of normal human ability. They occur like mythic and weird happenings. This mode of conveying reality through fantasy amounts to magic realism.

Amitav Ghosh is a very good story teller. He is interested in telling stories that India is abundant with. The novel has mainly two stories, the story of Balaram and the story of Zindi both are connected through Alu. Besides these stories, in the Indian Puranic manner, other stories are interwoven. For instance Zindi, a wonderful story teller, tells the story of Abusa the Frown at the touch of his hands the plants grow healthy and fast. She also tells the story of Mast Ram at touch of his hands even the budding plants become pale and withered. Hajj Fahmy narrates the story of Nury-the Danmury. He is an ordinary egg seller, with his shrewdness he becomes a famous businessman in that province. There is another story Chitrangada, a dance drama by Tagore. Originally it was told by Hem Naren to his daughter, Dr. Uma Verma. Now in the novel Dr. Uma tells it to Dr. Mishra to
seek his opinion in order to enact it during the annual gathering of Indians in El Oud. The theme of this story is that we should not give much importance to physical appearance and the inner beauty is more important than the exterior beauty. This narrative device serves the purpose of decolonizing from the Western tradition of novel writing and reinstating the traditions of colonized countries.

**Interrogation of Science in *The Calcutta Chromosome***

**Introduction**

*The Calcutta Chromosome*, like most of Ghosh’s works is an experimental work. He amalgamates here literature, science, religion, transcendental philosophy, history and psychology. The generic hybridity of the novel has rendered it amenable to various readings. Ghosh, in the postcolonial fashion, subverts the hegemonic dominance of Western logocentricism, blurs the boundaries between various nations and genres, dismantles the binaries, and underlines the possibility of alternative historiography and alternative truth. Claire Chambers views it as a parody of conventional science-fiction (61). On the face of it *The Calcutta Chromosome* is about malaria, but as Tabish Khair points out: “Ghosh turns around the myth of European discovery and science” (147). By rewriting the history of Ronald Ross’s discovery that malaria is caused by anopheles mosquitoes, Ghosh interrogates the history of malaria research and reinstates the marginalized knowledge and people. Before exploring how the discourse of science is interrogated, a brief outline of the novel is given below.

The novel is divided into two sections: ‘August 20, Mosquito Day’ and ‘The Day After’. The novel has three major strands of story line. In the first strand of story line we have Antar, an Egyptian computer clerk. Antar works day and night all alone on his super computer named Ava. He tries to
relocate the adventures of an India born American scientist L Murugan. Antar tries to find out the reason behind the incomprehensible disappearance of Murugan in Calcutta in 1995. The plot is quite complicated and its time lines are deliberately mixed up. Murugan has asked the authorities of the Life Watch organization to be transferred to Calcutta because of his fascination with the life of Ronald Ross. The second strand of story line is historically true and it revolves around the British scientist Ronald Ross, who discovered the manner in which Malaria is conveyed by the mosquito. Murugan claims to be the only expert on Ronald Ross in the world. The great love of his life is uncovering the medical history of malaria. Murugan doubts the set beliefs. He is convinced that there was a conspiracy behind malaria research. So, he leaves for Calcutta in search of all missing links. Murugan uncovers that Ronald Ross did not discover the mysteries of malaria parasite; it was a group, underground practitioners of a different, mystical ‘science’, natives of India, who guided Ross to the conclusions for which he is famous. The third strand of story line describes the super human power of Mangala and Laakhan. At this level Ross’s result is reduced to subordinate activity which is controlled by more potent power of Mangala and Laakhan. Through his research into old and lost documents, Antar figures out that Murugan had systematically unearthed an underground scientific/mystical movement that could grant eternal life. The disciples of the cult believed that the chromosomes can be transferred into another being and gradually become disposition of that person or take over that person. The novel is an enigmatic one because the mystery at the heart of the story is never completely resolved by the author, leaving much to the reader’s understanding and interpretation.
The interrogation of science is achieved by rewriting the malarial history, ironical depiction of Ross and by foregrounding the counter-science. Ghosh subverts the traditional medical history by rewriting the malarial history and interrogating Ross’s discovery. He presents the alternative through Murugan who is a specialist in pre-malarial history and Ronald Ross’ life history. Murugan has grown up in New York. Initially he works in a college, during this time he gets interested in the subject; “the early history of malaria research” (*The Calcutta Chromosome* 34). He obtains a job of principal archivist in the Life Watch in order to pursue his study. To achieve this goal, he undertakes a hazardous quest from the United States to Calcutta. In spite of several attempts made by his colleagues to dissuade him, Murugan is strongly determined to go to India as he wants to “do something special in his life” (CC 50). On his arrival to Calcutta, he is seen in front of the Presidency General Hospital, on August 20, 1995, looking for the memorial of the British scientist, Ronald Ross. He tells Antar “you won’t find another person alive who knows more than I do about the subject I specialize in ….as far the subject of Ronnie goes, I’m the only show in town” (50). Murugan, a colleague of Antar, has once suffered from malaria and syphilis. According to his biography, filtered and presented through Ava, “the great love of his life is the medical history of malaria” (34) and thus he has tracked Ross’s work on the life-cycle of the malaria parasite meticulously. Murugan writes an article, titled “Certain Systematic Discrepancies in Ronald Ross’s account of Plasmodium B” which receives negative reports from all the journals (35). Murugan revises the paper titled “An Alternative Interpretation of Late 19th Century Malaria Research: is there a Secret History?” It receives even “more hostile reception than the earlier version, and it only served to brand Murugan as a crank and an
eccentric” (35). His hypothesis of “Other Mind: a theory that some person or persons had systematically interfered with Ronald Ross’s experiments to push malaria research in certain directions while leading it away from other” (36) estranges him from several of his friends and associates. Murugan wants to tell this truth to Urmila and takes her to Presidency General Hospital. She asks him how he knows that. He replies “You are speaking to the world’s greatest living expert on Ronnie Ross” (198). Through Murugan, Ghosh both incorporates and challenges the official history of Ross’s discovery. Therefore Murugan becomes a filter through which Ghosh rewrites the colonial medical history. Bishnupriya Ghosh is right in saying Murugan progresses “from a Life Watch employee, to detective, to postcolonial archivist” (213). As a postcolonial archivist, the skeptical Murugan throws a new light on the process of the medical history. The new dimension given to the colonial scientific discourse accords Murugan and thereby Ghosh a deconstructive stance.

An inscription in the premises of P. G. Hospital in Calcutta reads, “In the small laboratory seventy yards to the southeast of this gate Surgeon Major Ronald Ross I.M.S. in 1898 discovered the manner in which malaria is conveyed by mosquitoes” (23). Ronald Ross was awarded the Nobel Prize in 1902 for his work on the life cycle of the malaria parasite. Ross had designated August 20th as the ‘World Mosquito Day’ to commemorate his finding.

Murugan does not agree with this constructed malarial history. Being an archivist in the Life Watch he has collected ‘bits and pieces’ of letters by the colonial officers, missionaries and doctors and has interwoven them together to re-write the malarial history. Based on these he has his own version of malarial research. According to him there was an ‘Other Mind’ or
counter-science group, led by Mangala, which assisted and led Ronald Ross to success right from the beginning. In fact Ronald Ross did not have inclination for science or medicine from the beginning. Like colonial officers he was spending time playing tennis, polo and liked a night out on the town every now and then. He was not sure what he wanted to do with his life for a long time. He tried to write novels and poems but could not achieve success. Ross’s involvement in the medical world was his father’s choice, who had advised him to enlist in the Indian Medical Service. Murugan relates Ross’s turn to science in a mocking way: “one morning he gets out of bed and finds he’s been bitten by the science bug” (52). Thus, “medicine is the last thing on his mind but he gets into the Indian Medical Service anyway” (52). Here the question is how such a person was able to undertake a Nobel Prize winning discovery.

The scientific community began to wake up to malaria research in the mid-nineteenth century. Murugan tells Antar some of the scientists achieved breakthroughs even before Ross could have begun to guess. For instance Julius Wagner-Jauregg discovered that artificially induced malaria could cure syphilis. Another British scientist Patrick Manson discovered that mosquito is the vector of elephantiasis and the vector for filaria. On the same analogy he guessed malaria is linked with mosquito. But due to lack of time he could not pursue that research. He wished the credit should go to the Empire, so during Ross’s visit to England he instilled his theory into his mind. But Manson believed that the malaria bug was transmitted from mosquito to man via drinking water. So also a guy called Meckel found microscopic granules of black pigments in the organs of malaria patients. His finding was not given much consideration. After a gap of nearly forty years a French army surgeon, Alphonse Laveran discovered that one of
those crescent-shaped granules was moving. He faxed to the Academy of Medicine in Paris stating that he had found the cause of malaria and it’s a critter, a protozoan-an animal parasite. But unfortunately the biggest names in medicine got busy refuting “Laveranity”. In 1886 Camillo Golgi showed that Laveran’s parasite grows inside the red blood cell, eating its host and shitting black pigment; that the pigments collects in the centre while the bug begins to divide; he demonstrates that the recurrence of malarial fevers is linked to this pattern asexual reproduction. Ross was also anti-Laveran. He thought Laveran’s bug did not exist and even published an article on that. By using the malarial pre-history Murugan abuses and discredits Ross. Moreover, Murugan tells Antar that the connection between malaria and mosquito was not altogether a new idea, “most of the cultures that had to deal with malaria knew there was some connection” (69). Thus, by appropriating the pre-malarial history Ghosh de-centers the centre and instates the peripheries at the centre.

Murugan has his own version of malaria history that is: “‘Other Mind’: a theory that some person or persons had systematically interfered with Ronald Ross’s experiments to push malaria research in certain directions while leading it away from others” (36). This ‘Other Mind’ is a counter-science group consisting of Mangala and her associates. Urbashi Barat opines that The Calcutta Chromosome “rejects rationality and foregrounds the counter-science through silence and secrecy” (220). After seeing the malaria bug in Manson’s lab, Ross returns to India to look for the vector. Ross works at Begumpet in Secunderabad as a surgeon in military. He offers money for samples of malarial blood. Though there’s much malaria in that place nobody comes forward to give his/her blood sample even if he doubles the amount. But suddenly, On May 17 1895, Ross’s luck
changes a patient called Abdul Kadir— a perfect case of malaria— goes to Ronnie to give his blood. Murugan says: “Over the next couple of months Abdul Kadir’s blood guides him (Ross) through all the critical phases of his research” (71). Ronnie never stopped to think how come this guy walked through his door. He thinks that this ‘wonder case’ is sent by fortune. Within a few days Kadir’s parasites went into remission. Having come to know that Ronnie is getting side tracked, Manson has written to him to remind his theory that “the beast in the mosquito…gets to man in mosquito dust” (72). He wants Ronnie to make a cocktail from dead mosquitoes and feed it to someone. Accordingly he keeps the cocktail ready. No fool volunteers to drink that cocktail. Now also, On May 25 1895, a guy called Lutchman walks into Ronnie’s life and he drinks the cocktail. Ronnie thinks Lutchman is the guinea pig he has been looking for. He explains the experiment to Lutchman and hands him the dead-mosquito concoction. Murugan states that the appearances of individuals like Kadir and Lutchman on the scene at critical moments to steer the research in a particular direction is accidental. Murugan ironically tells Antar: “He (Ross) thinks he’s is doing experiments on the malaria parasite. And all the time it’s him who is the experiment on the malaria parasite” (78).

Murugan is launched into the heart of his theory by the notion that there is, beyond science, a “counter-science”. The basic principle of this counter-science is secrecy which is used as a technique or procedure and it refuses direct communication. It disputes the claim to know and it believes: “…to know something is to change it, therefore in knowing something, you’ve already changed what you think you know so you don’t really know it at all: you only know its history. May be they thought that knowledge couldn’t begin without acknowledging the impossibility to knowledge……
it follows that one way of changing something—of effecting a mutation, let’s say—is to attempt to know it” (103-104). Murugan suspects that Ross’s experimentation is someone else’s attempt to bring about a particular mutation in a particular mosquito, with an incredible final outcome: “the ultimate transcendence of nature….immortality” (106). More specifically, Murugan thinks he has stumbled on a generational experiment in a “technology for interpersonal transference” (106). After theorizing, Murugan continues with his account of the various late-Victorian researchers who had a hand in the malarial research unknown to the researchers themselves. One is D.D. Cunningham, who maintains a well-equipped lab in Calcutta and is assisted by a boy and a rather scary woman, both of whom he had recruited from the Sealdah railway station, and both of whom were from the remote rural village of Renupur. The woman’s name is Mangala.

Another researcher, Elijah Farley comes to the lab to follow a lead on parasites. At that time Ross has also started working on malaria: “a disease of which he had no practical knowledge whatever” (137). But he has boasted of his familiarity with Laveranity and even has gone to extent of demonstrating it in the Nizam’s College Hyderabad. When asked for explanation his answer is “the parasite had gone into temporary withdrawal” (138). While researching in Cunningham’s lab Farley feels the deftness and efficiency of Cunningham’s assistants is remarkable. He is surprised to see on the surface of the water tumbler that the young man discusses with the woman before bringing the slides. Another shocking happening is that the woman goes to the stack of drawers, brings and gives to Lutchman the selected slides for examination. The speed with which she selects the slides has made clear not only the familiarity with them but she knows exactly what those slides have contained. Farley wonders how such an uneducated
woman who does not know the principles of knowledge can exercise authority. It seems she could show Farley Laveran’s parasite but she has chosen to deny it for some unfathomable reason. She has judged him unworthy. Farley enquires Cunningham about these people. He says he has got that woman at Sealdah railway station. Willing workers are available at that place and she has brought boy Lutchman from her own part of the country. In fact these people are ahead of Western conventional scientists in their “intuitive understanding of the fundamentals of the malaria problem” (243).

Based on Farley’s letter Murugan tells Urmila, a reporter, that: “Mangala was using the malaria bug as a treatment in another disease, Syphilitic Paresis” (246). This is revealed in the following episode. Next day when Farley returns to the lab sees a group of people. One of them is in the final stage of Syphilitic dementia. Following the group, Farley finds the people sitting in a circle around a fire chanting to the accompaniment of cymbals as though in preparation for a ritual. Mangala is seated at the far end of the anteroom, on a low divan. “By the side of her were several small bamboo cages, each containing a pigeon…. on the floor clustered around the woman’s feet were some half dozen people in various attitude of supplication, some touching her feet others lying prostrate …he recognized they were syphilitics, in the final stages of terrible disease”(149). These people, as secrecy and silence are their religion, don’t want to reveal the secret but Farley is adamant to test and find malaria parasites. Lutchman tells something to Mangala then she takes a bird from the cage, beheads and smears slides across the severed neck and hands them to her assistant. Farley looks into the microscope for his surprise, “he noticed the familiar granules of malarial pigment. Suddenly he saw movement; amoeboid forms
began to squirm and move, undulating slowly across the glassy surface. Then all at once there was a flurry of movement and they began to disintegrate: it was then that he saw Laveran’s rods appear, hundreds of them, tiny cylindrical things, with the pointed, penetrating heads piercing the bloody miasma” (152). Farley had found this when he came to India in 1894. On the other hand the official record shows Ronald Ross came to Calcutta replacing Cunningham on January 30 1898. It is very obvious, long before Ross started malarial research these people knew. But they can’t tell “what they know because it’s against their religion” (105). Thus by using historical facts Ghosh interrogates the malarial research which is claimed by the West.

Murugan tells Antar that Ronnie did malarial research for “fame, prospects, promotions, a Nobel” (105). But these people have not involved in research for such material gain. They are after the biggest prize of all that is the ultimate transcendence of nature. These people are “fringe people, marginal types; they’re so far from the mainstream you can’t see them from the shore…they know all about Ronnie, but neither Ronnie nor anyone else knows anything about them” (105). They want someone to do experiment on their behalf and are looking for a research scientist. At the right time they get Ronnie, it is his luck, and “they are leading him (Ronnie) where exactly they want him to go” (74) and ultimately they succeed. Their victory is the victory of truth and the marginalized. Murugan often calls Ross a dickhead. He can’t notice Lutchman, his assistant, is making some important connections and guiding him. When Ronnie is in Nilagiri Hills Lutchman succeeds in planting a crucially important idea in his mind; that “the malaria vector might be one particular species of mosquito” (76). It never occurred to Ross that they might have something to do with family differences among mosquitoes. He’s never even heard the word anopheles. Ross himself tells
“the Hospital Attendant (I regret I have forgotten his name) pointed out a small mosquito seated on the wall with its tail sticking outwards” (77). He kills it with puff of tobacco smoke and cuts it open. At last he’s on the right track; Lutchman has got him chasing after the real malarial vector. Ross still doesn’t know they’re called anopheles. He names them “dappled-wing mosquitoes” (77). The next day also Lutchman sends him more of the same kind. He thinks the Angel of Fate has sent them, still he can’t see what is going on under his nose. Being guided by Lutchman, ultimately on August 20 1897 Ronnie makes his breakthrough: “he sees the placement of Plasmodium Zygotes in the stomach sac of Anopheles stephensi”, and he exclaims “the problem is solved” (77). For this groundbreaking suggestion even Ronnie is surprised and asks him, “Yo Lutch, where did you get that hot tip about mosquito species?”(78) The credit of malarial research has to go to Mangala and her associates but Ronald Ross got the Nobel Prize. In an interview with Paul Kincaid Ghosh tells the interviewer: “Ross’s real achievement lay in translating folk knowledge into the language of science…Ross made a major breakthrough in science based upon a very partial acquaintance with folk knowledge. It follows surely that someone who was better acquainted with that knowledge would do even better” (quoted in Hawley 157). It deconstructs not only the malarial history but evokes how the colonizers exploited the colonized culture and knowledge. John Theme views that The Calcutta Chromosome: “discredits the Western scientists and instates an Indian female subaltern in his place” (Khair 136). He also views: “throughout the text the reader is made aware that the discoverer has been discovered” (139). Through this episode, Ghosh not only discredits Ross’s claims to discovery, but he also indicates the stupidity of the English scientist who is easily (mis)led by indigenous people. It also
suggests the conquest of the East over the West—a typical postcolonial framework.

The interrogation of science, rationality and singular reality is continued in the novel by adopting other strategies. That is, mainly, by bringing in counter-science and its traits like transmigration of soul, secrecy, silence, mystery and superstitions. There are several episodes which foreground these characteristics in the novel. A few episodes are taken up for discussion. Mangala is a sweeper woman working as lab assistant in Cunningham’s lab in Calcutta. He has brought her from Sealdah railway station. Murugan propounds she is the master-mind behind his “Other Mind” theory. As her religion preaches she maintains secrecy and remains silent. But she places her assistants like Laakhan and Kadir to get the expected results. She uses malaria parasites to cure syphilitic paresis. The authenticity and ease with which she is handling the slides made Farley to call her a genius. It is she who makes it possible for Farley to discover Laveranity. She has accomplished success in appropriating the technology of the migration of souls. So, people believe that she is the incarnation of Goddess Mahakali. When Farley comes to the lab he sees people clustered around her in various attitudes of supplication, some touching her feet and others lying prostrate. This happens when Farley visited India in 1894.

Similar incidents happen after a century. Sonali, an actress and lover of Romen Haldar who is a contractor, is expecting him to visit her house. When he doesn’t turn up, she becomes anxious. Haldar’s assistants tell her he has already left for her house. So, late in the night she goes to see him in the newly bought building in the Robinson Street. For her surprise Sonali finds a sacrificial ceremony is being organized by a woman. She said to the crowd, “the time is here, pray that all goes well for our Laakhan, once again”
(167). She feels she has seen her somewhere. She remembers she is Mrs Arantounian. Now she is the incarnation of Mangala’s soul. On another occasion Urmila and Murugan go to Kalighat where the images of God and Goddesses are made. They see images of varied sizes, colours and shapes. The little girl, to whom Urmila speaks and in whose hands she sees a figurine which Murugan conjures up to be of Mangala, tells that “today is the last day of the puja of Mangala-bibi….tonight Mangala-bibi is going to enter a new body”(235). The new body that Mangala chooses to enter is no other than Urmila.

Mangala’s transposing power continues even in the twenty first century. One evening Antar happens to see Lucky cleaning Tara’s house; upon her entry into the apartment, Lucky is seen to have flung himself down on the floor in front of Tara and touched his forehead to her feet. This has taken place in America. The fact that Tara is an incarnation of Mangala is corroborated at the end of the novel when Antar sees on his screen Tara and her friend, Maria from Penn Station, running up the stairs of a large auditorium; “suddenly Antar recognized Tara except that she was in a sari. She was talking to Maria who was wearing a sari too” (308). This scene is the reiteration of an earlier episode when Murugan is caught in the rain in Calcutta. He takes shelter in the Ravindra Sadan auditorium in which Phulboni is being awarded by the Vice-President and to which Urmila and Sonali Das enter as journalists.

Mangala’s assistant in her counter-science activities is a man who is variously called Lutchman, Laakhan, Lucky, Lokhkhon, and Lakshman. The different forms of his name present the elusiveness and thereby the obscurity of his identity, a manifestation of the secrecy of the group to which he belongs. If Mangala is the head Laakhan is the means through him she exerts
her control in the lab. The Ghostly presence of this man adds up to its colour of mystery. Initially, it is J.W.D.Grigson who suspects Lutchman’s identity. In his diary, Grigson, a linguist, notes that Lutchman is not the servant’s real name; it can be Laakhan, Lokkhkhon or Lakshman. Through the transmigration power he is present in time past, present and future. He is a ‘dhooley-bearer’. Cunningham picks up Lutchman from the railway station at Sealdah, the very place where he has found Mangala. His presence is felt throughout the novel. He is present in Phulboni’s stories. Along with Mangala he helps Farley to discover malaria parasites way back in 1894. The same Lutchman guides Ronnie at each stage of the malarial research. In the time present Haldar is the incarnation of Laakhan. The boy who serves fish to Urmila, the boy who stays in Sonali Das’s house and serves her, the boy who follows Murugan mysteriously at many places in Calcutta and annoys him is none other than Laakhan. His incarnation continues in future time also. In America the boy Lucky is supposed to be Laakhan’s incarnation. Thus in Murugan’s words, “Lutchman was all over the map, changing names, switching identities” (86). The common traits that link all these identities are gap in front teeth and four fingers without the thumb. Thus in a way, Laakhan embodies the immortality that the counter-scientists have been working on since more than a century ago. Madhumalati Adhikari aptly points out: “If ‘matter’ and ‘science’ were the stronghold of the occidental world, ‘anti-matter’ and ‘counter-science, are controlled by the oriental” (180). Thus, Ghosh manages to extend the doctrine of incarnation to the twenty first century and universalize it. The fact that Ross has been utilized by the counter-scientists displays the dominance of the native over the colonial. Claire Chambers rightly argues that “Ghosh’s novel seems to
suggest that all forms of scientific knowledge are in fact provisional, they are stories still being told, still mutating like the malaria parasite” (69).

Ghosh not only discredits Ross from malaria research but discredits England also. Malaria is probably the all time biggest killer among diseases. “There is no place on earth that is off malaria map” (CC 54). So, many countries earmarked huge amount of money on malaria research to find reason and medicine to cure it. Murugan points out that when it comes to malaria, “the British were non-starters; the frontline work was being done in France and French colonies, Germany, Italy, Russia and America” (56).

**Narrative Strategies**

Regarding the thematic excellence and narrative strategies of *The Calcutta Chromosome*, Pradeep Trikha comments that the novel is likely to become “a literary touchstone for its content and technique” (257). Ghosh not only experiments with themes but experiments with narrative devices also. Ghosh doesn’t follow the unity of time and place. He dismantles the linear development of the plot. He fuses the past, the present and the future. There is a constant shift of narrative from present to past and visa-versa. Farley’s visit to India and Ross’s discovery of vector of malaria which happened almost a century ago form part of the narrative. Murugan’s quest for the discovery of authenticity of malarial history takes place in the present. Antar becomes another incarnation of Laakhan which signifies the near future in the novel’s time scheme. Events occurring in Egypt, India, and the USA at different historical moments are spliced together. It helps to escape from the idea of a centre and periphery in the novel. The transposition of Mangala and Laakhan through ages and across spatial borders is Ghosh’s narrative strategy to dispense with the shadow lines that condition men’s life.
As for characterization is concerned, it is very difficult decide who is the protagonist, what are the good and evil characters, what are the major and minor characters as it is possible in the traditional novels. The development of characters is not seen because it is novel of ideas. Urbashi Barat aptly contends: “The common Western notions of protagonist, character development, and of good and evil have disappeared here, so that *The Calcutta Chromosome* suggests the superficiality and inadequacy of these ideas as it projects the validity of traditional Indian literary norms” (226). The traditional order of role play by the characters is reversed here. Mangala, sweeper woman and Laakhan, dhooley bearer are from the lowest rung of the society. They guide the scientists and do discoveries such things are done by the people either belonging high class or from the West. The characters like Laakhan, Mangala and Antar are not physically present in the novel’s plot development but there presence is felt throughout the novel. This strategy of characterization has served the purpose discrediting the colonial scientist and instating the subaltern or voiceless. Otherwise their voice will go unheard.

Ghosh employs the multiple narrations to increase the authenticity of narration. All most all the characters like Murugan, Phulboni, Sonali, and Urmila become narrators in one way or another. The silent figures like Mangala, Laakhan and Antar haunt all over the novel, so they are no longer at the margin because of their silence. Ghosh accords each character an equal share in the process of development of the plot. In Barat’s words, “the constant shifts in points of view and time sequence erase the boundaries between hunters and hunted and make them equally part of the same mystery, the same conspiracy, the same quest” (221). Almost all the characters in *The Calcutta Chromosome* are both questing and quested
figures. The authenticity of aspects discussed in the novel is increased by employing epistolary method, e-mails and conversation. Murugan being an archivist collects very materials and interweaves them together to rewrite the malarial history. Murugan tells Urmilla, “All I have is bits and pieces, no beginning, no middle and definitely no end” (CC 252).

Ghosh’s *The Calcutta Chromosome* is constructed as a novel of suspense and has a careful and intricate plot. This plot is a conscious achievement being constituted by the style employed by Ghosh. It dismisses arbitrary and essentialist dichotomies between the West and India.

It is very difficult to categorize *The Calcutta Chromosome*. Ghosh makes allusions to Indian, Egyptian, American and British texts on subjects as varied as Malarialogy and Gnosticism. This evokes the use of intertextuality. The intertextuality is evident in Ghosh’s negotiations with Ross’s diaries and Memoirs. Dhawan points out that, “Ghosh amalgamates here literature, science, philosophy, history, psychology and sociology” (26). Phulboni’s story in the novel reflects the influence of Tagore’s *Hungry Stone*, a short story. This strategy reminds Foucault’s statement that the frontiers of a book are never clear-cut. In doing so he challenges the artificial frontiers drawn up to separate academic disciplines and texts. The employment of intertextuality serves the purpose of hybridizing the genres, of suggesting the impossibility of categorization, of dismantling binaries and of existence of discrete cultures.

Another pervading narrative strategy present in almost all of his novels is use of story within a story. Urmila tells Murugan a story written by Phulboni of a drowning woman. A woman while washing clothes drowns in the deep water. All think she has died. But a miracle happens. The drowning woman gets hold of a polished grey stone, in the centre of it there is an-all
Seeing Eye. The woman screams, “She saved, me saved me” (229). The small life-giving stone was “none other than a miraculous manifestation of ….what? They don’t know; believing only in the reality of the miracle….” (229). This story is narrated to tell how people considered Mangala as an incarnation of Goddess. So also, Sonali tells the story of Phulboni’s early life. These stories don’t seem to be digressions from the main narrative rather supplement the narrative. By incorporating this story telling method Ghosh escapes from the direct grip of colonial narrative discourses and foregrounds the Indian narrative style.

Another striking narrative device employed is Magic realism. The Calcutta Chromosome is replete with episodes of magic realism which have added to the mystery of the novel and to theme of multiplicity of reality. Only one is examined here as illustration. In the story of Phulboni, he reaches and alights at Renupur railway station on an official work. In spite of dissuasion by the guard, Phulboni decides to stay in the signal room. After a while a man arrives, he thinks he may be the station master. He also warns him not to stay in the signal room, but Phulboni doesn’t give in. He goes home to bring food to Phulboni and brings. In the night many strange events occur. Phulboni finds the lantern in the signal room is very clean, though nobody cleans it, and lights it. While sleeping he closes the door tightly with belt. After some time he finds that the lantern is kept in other place and the room is opened. Thinking that the stationmaster might have come, he keeps it again in the same place and closes the door. Phulboni hears some and gets up. Sees that the lantern is moving and somebody is calling. Therefore he follows the light, as he follows, it moves fast. He falls down on the track and the light disappears. Within a few minutes a train arrives, seeing that he suddenly jumps aside and escapes from death. Then along the track Phulboni
returns to the signal room. For his surprise he finds the lantern again in the same place. Annoyed Phulboni shoots lantern with his gun and sleeps. After a while he is awakened by the stationmaster and follows him till he reaches the siding. As the light disappears and Phulboni feels sleepy, he sleeps there. After a few minutes he hears the sound of the train coming on the siding track. Again he jumps aside at the right moment and escapes from death. First time was a mystery but this time it is real. After moving a few meters the train stops. The engineer and the guard are surprised to know and ask Phulboni why the signal is switched to siding. Phuboni tells them the station master has done so. For his great surprise, the guard tells him for the last two decades no station master is posted at Renupur.

Irony is another narrative mode that serves interrogation. Ghosh’s sarcastic tone is evident in the way Murugan speaks of Ross, his life and his experiences. Throughout the novel Murugan adopts an underestimating feature by calling Ronald Ross as “Ronnie”, comparing him to other scientists, Murugan undercuts Ross: “Ross wasn’t a Pasture or a Koch: he just didn’t have as much variety to his game. His stuff on malaria was about the only cutting edge work he ever did”. (50) If he calls him a genius, immediately he describes him as a “dickhead…a real huntin’, fishin’, shootin’, colonial type, like in the movies; plays tennis and polo and goes pig-sticking”.(50). The strongest irony is that when medical was not Ross’s but his father’s choice and didn’t have passion for the subject how could he pursue it and do the Nobel Prize winning discovery. Ross doesn’t try to know Lutchman and other members of counter-science group, where as that group knows very well about Ross. Ross works for fame, promotion and prize, where as the counter-science group involves in discovery without any vested interests for the well-being of others and higher goal. This is again a
dig at colonial attitude towards colonized. Besides, the fact that Murugan posits another version of Ross’s discovery is itself an ironic attempt on the part of the novelist who pushes the marginal towards the centre-stage and vis-à-vis.

Thus, both the novels interrogate the west motif of using science to other the colonized and to construct them, of imposing scientific ideas as universal, biased attitude of the scientists towards colonized people and their knowledge, motivations for and implications of scientific discoveries. Both the novels unearth and bring to light the treasure of scientific knowledge of colonized countries. They parody the indebtedness of the West to Orient nations for importing several scientific ideas from them.
Works Cited


