CHAPTER IV
THE CALCUTTA CHROMOSOME
The Calcutta Chromosome, an intricately detailed novel, revolves around the historical figure of Surgeon-Major Ronald Ross and his discovery of the source of malaria, which took place in Calcutta. The novel opens with Antar, an Egyptian working in the information technology industry. Antar, who works in International Water Council, New York, comes across a partially damaged identity card, and tries to retrieve the information with the help of his powerful computer Ava. This computer, equipped with a powerful search engine, traces the identity card to Murugan, a former colleague of Antar who mysteriously disappeared in Calcutta in 1995. Murugan had been researching on the Nobel Prize-winning scientist, Roland Ross (1857-1932), whose great discovery that malaria is transmitted through the mosquito bite transformed the very treatment of the disease. Murugan seems to be of the opinion that Ross’s discovery had been manipulated by an Indian “Counter-Science” group. This group is responsible for pushing the research in certain directions.

The novel is divided into two parts: (i) August 20: Mosquito Day and (ii) The Day After. Murugan is a science freak and is obsessed with the idea of finding all facts about Malaria story. So he arrives in Calcutta on World Mosquito Day, 20 August 1995. His search is for the enigmatic Calcutta Chromosome, which is a freak chromosome. This is because this chromosome cannot be isolated and detected by standard techniques. It is also not present in every cell. Its pairing is not systematic. This chromosome is not passed from generation to other generation. It is thought that though a fantasy this chromosome develops out of a process of recombination, which is unique in every individual. It is found only in the brain, which contains non-regenerating tissue. It can be transmitted through malaria. Murugan calls this stray DNA carrier “The Calcutta Chromosome.”
But as Murugan arrives at Calcutta, the very next day he mysteriously disappears. This episode is central to the narrative in the novel. All other strands are connected to this main event. Some of these are the medical history of malaria, Ross’s progress in his research, experiences of Antar, Murugan’s former colleague at New York, and some scattered incidents at Calcutta.

Antar gets obsessed with the idea of uncovering the secret of Murugan’s disappearance. This obsession leads him to a journey of encounters with characters from the past and the present. These characters are mostly located in India, Egypt, America, and Britain. Antar realizes that Murugan might have been correct in thinking that a “counter-scientific” art had secretly engineered Ross’s discoveries. It is discovered that some subaltern figures are leading this cult: a scavenger woman called Mangala, who is helped by Ross’s servant Lutchman, also known as Lakshman and Laakha. This group is of the opinion that, according to Murugan, “to know something is to change it, because as soon as something is known, it is already changed. Since, by then you only know its history” (60). Mangala and her followers wanted to effect a mutation in their progress towards finding the secret of immortality, which is their ultimate goal. To realize their objective, the team allowed Ross to make his discovery because “if you wanted to create a specific kind of change, or mutation, one of the ways in which you could get there is by allowing certain things to be known” (121). Thus, the inference is that the counter scientific group was way ahead of conventional medicine in its research, knowing full well that the malaria vector is the female Anopheles mosquito. Murugan is of the opinion that the members of this cult manipulated Ross’s discovery in order to help their much more advanced breakthrough, the secret of immortality through reincarnation into a new body. Ghosh tries to convey the idea that science, technology, and medicine were not conveyed to
India by the west in a one-way process of transfer, but were the results of cross-cultural exchanges, translations, and mutations.

The major part of the story takes place in Calcutta in 1995. The novel follows Murugan closely. Ross made his final breakthrough in the laboratory of P.G. Hospital of Calcutta. The novel also is about colonization and its impact on society. *The Calcutta Chromosome* mentions the past, which can be said as its unique feature. There is a good deal of argument about events of history as they are recorded. Ghosh questions this biased history. We can say that Indian born American scientist L. Murugan is the voice of rationality. The novelist is skeptical about the so called great image given to certain periods of history. Murugan senses certain irrationalities in Ross’s account of “plasmodium B.” Murugan is unable to free himself from the idea of something being foul in the medical history of malaria. So he writes an article “An Alternative Interpretation of Late 19th century Malaria Research. Is there a Secret History?” Long back, when Murugan was in New York, he had written a summary of his research in an article entitled “Certain Systematic Discrepancies in Ronald Ross’s Account of Plasmodium B.” To his shock, Murugan received a very hostile response from the scientific community. All scientific journals rejected the paper. He also lost membership of science society. So Murugan began publishing his theory that some persons had systematically interfered with Ross’s experiment and pushed Malaria research into the right direction. The credit for discovering the parasite should go to others and not to Ross. Murugan, therefore, concluded that a big conspiracy was played in 1895. Murugan thinks that Ross was on a wrong track. Even Ross’s mentor Patrick Manson, the noted Scottish bacteriologist who had written a book on filaria, was on a wrong track. Both Ross and Mason thought that the malaria parasite was transmitted from mosquitoes to humans orally, probably through drinking water. But
within a very short span of time, Ross declared that there is a connection between Plasmodium zygotes and Anopheles stephensi. Murugan was not convinced that Ross could be successful in such a short time. He was of the view that, given the nature of research, it should have taken longer time. So Murugan began to pursue his research of what actually happened and how it happened.

The novel has three levels of narrative. On one level we have Antar. He works day and night before his super-intelligent computer Ava. He tries to find out the reason behind the disappearance of Murugan. The second level of narrative revolves around the true story of Ross’s discovery of the parasite. The third level describes the super-human powers of Mangala and Laakhan.

The International Water Council is a global organization that examines and explores world’s water supplies. One day, the computer Ava produces an ID card with a small mettle attached to it. The card is badly damaged, a kind of symbolization of bruised ego of Murugan. When necessary commands are given, Ava retrieves the information and creates the card. The origin is traced to Calcutta. There is also a holographic projection of the man (Murugan) to whom it belonged. Antar comes to know about Murugan who had worked for a non-profit organization that served as a global public health consultancy and epidemiological data bank. Interestingly, Antar had also worked there and remembers Murugan as a man with thin and discoloured hairs, with black eyes and a moon-like face. His nose is flat like that of a boxer – and he has an aggressively jutting chin. Thus the features of Murugan are akin to a combative and unstoppable man. His passion in life is to find out the medical history of malaria. As it is the established norm, the world worships success. Thomas Gray says in his *Elegy*:
Let not Ambition mock their useful toil,
Their homely joys and destiny obscure;
Nor Grandeur hear with a disdainful smile
The short and simple annals of the poor . . . .
Perhaps in this neglected spot is laid
Some heart once pregnant with celestial fire;
Hands that the rod of empire might have swayed,
Or waked to ecstasy the living lyre.

Ghosh wants the world to recognize these kinds of people. Murugan is targeted as he dared to disagree. He is a kind of maverick who doubts the accepted norms.

Murugan is sure that there is a conspiracy behind the malaria research. He departs to Calcutta to unravel the mystery that has been haunting him for over a century. It is shown simultaneously how Ross is on the verge of the final breakthrough and how Ross is literally dragged to this point by forces beyond his knowledge.

Antar’s curiosity and Murugan’s skepticism are the fuelling aspects for this novel. Murugan travels into the past and into the future to weave the narrative as an organic unity. But the team of conspirators – film stars, businessmen, etc. – tries to drag Murugan into their hold. The conspiracy is basically against the deserving, whose contribution has been original and genuine. The team has a new goal before them, that is, a journey to the unknown. Their quest is for immortality. The point to remember here is that only because if something is unknown, or cannot be fathomed by science, the very existence of that postulation of hypothesis cannot be denied. In other words, truth may be unknown, but it is very much there. Genuine researchers want to keep their research a secret. They try to conceal their inventions. Their strength is their silence.
Murugan takes refuge inside Presidency General Hospital, when it starts raining. He overhears the voice of the famous writer Phulboni, coming across the loud speaker, and then he encounters two fascinating women: Sonali Das and Urmila Roy. They are both journalists working for *The Calcutta*. They come to cover a literary celebration of Pulboni’s eighty-fifth birthday. They recall how they met before and how Mrs. Aratounian suggested to Urmila to interview Sonali Das. However, the interview cannot be conducted, because of the downpour. Hence Sonali invites Urmila to come to her apartment and also informs her that she will get a chance to meet Romen Halder, the man with whom Sona lives.

When Urmila later accompanies Sonali to Halder’s flat, he is found missing. The boy (cook) is also missing. They decide to wait for him – for his absence is quite unnatural – and here Sonali informs Urmila that Phulboni is her estranged father. As he becomes old, he becomes more and more reclusive. This behaviour seems to be connected to some secret about “the Silence.” He confides the secret only once to his wife and then avoids her. Now, Sonali shares this secret with Urmila. It begins with a trip Phulboni makes to Renupur in 1933, when he is a representative of a British firm that makes soaps. He spends a night alone in the deserted railway station of that remote village. He later regrets his decision to get off the train in such inhospitable surroundings. As he wanders to pass time, he chances upon a bizarre little shrine with the imprint of a left hand with four fingers and no thumb. As he goes out of the train, he encounters a phantom train that appears from nowhere and disappears as mysteriously. He also hears a shout “Laakhan!” from darkness. In the morning the stationmaster explains that a young lad named Laakhan had for years lived in the station’s signal room, and he had a deformed hand. He had finally found a home at
Sealdah Station, where he had been befriended by a woman. The meaning of the story, at this point, remains vague.

Sonali calls Halder’s secretary and learns that Halder had been suddenly called away, but the reason is unknown. Time passes and Urmila finally decides to go home. At 1 O’Clock in the morning, Sonali goes out in search of Romen first at Ronald Ross mansion that Romen is renovating. She enters the mansion, smells incense, and crawls through the dark hallways to a very large living room. Se quietly makes her way up to the orchestra balcony, and witnesses a strange ritual going on down below. It appears to involve a young boy and people from all social categories. They sit in concentric circles surrounding an old woman. She seems to be conducting a sacrifice of some sort, involving a pigeon and, in the centre, a human body. The old woman chants, “The time is here, pray that all goes well for our Laakhan, once again” (93). Sonali recognizes the dead body as that of Halder and faints.

The next morning, a young boy offers to sell fish to Urmila. Urmila is ordered to stay at home and prepare fish for Halder’s visit. It so happens that the fish are wrapped in a page of *The Colonial Services Gazette* from January 1898. She reads about the transfer of D.D. Cunningham of the British Army Medical Services back to England. He is to be replaced by Ronald Ross. Urmila senses that she is being offered a piece of puzzle and wants to share this information with Sonali. But she does not find Sonali at home and so goes to Ross mansion to search for her. On the way she meets Murugan and solicits his help.

Murugan already knows about D.D. Cunningham, and realizes after looking at the Gazette information that something must have deeply frightened Cunningham for abandoning his research in India and opting for transfer back to England. Murugan has got arcane hobby as most people have, and so he provides Urmila with the full
history. He points out the connection with Egypt, a fourteen-year old boy whose blood harbours a special parasite, and a Hungarian woman who went there to investigate something for a society of spiritualists. He tells Urmila about a Mme Saminen and Valentinian cosmology, in which the ultimate deities are the Abyss and the Silence and the cult’s belief that the lost shrine of Silence was somewhere in Egypt. He also suggests someone is trying to communicate with him through Urmila, and he startles her with his paranoid conclusions, suggesting that tantalizing tidbits have been left in the way of carefully chosen individuals throughout the age, a cascading of details that awaits a catalyst before the full meaning manifests itself: “But for that to happen two things have to coincide precisely: the end credits have to come up at exactly the same instant that the story is revealed to whoever they’re keeping it for” (121). As insane as this account sounds to her, it does remind Urmila of something she had recently read in Phulboni’s writings:

I have never known … whether life lies in words or in images, in speech or sight. Does a story come to be in the words that I conjure out of my mind or does it live already, somewhere, enshrined in mud and clay – in an image, that is, in the crafted mimicry of life? (127)

She does not know how this may or may not be connected to Murugan’s bizarre account of some mystical sect, but she senses that there is enough plausibility in what he is saying. She shudders at the evil possibilities. Murugan begins to explain to Urmila his hypothesis that Ross was working on without his having been aware of his doing so: something he calls Calcutta Chromosome, unique because:

It simply isn’t present in regenerative tissue. It only exists in non-regenerating tissue: in other words, the brain... For what we have here is a biological expression of human traits that is
neither inherited from the immediate gene pool nor transmitted into it. (139)

Urmila asks Murugan why he is so obsessed with this investigation. It seems to have advanced beyond a mere hobby. He admits that he has syphilis. He had taken interest in it because some doctors intentionally infected syphilitic victims with the malarial parasite as a cure for this kind of disease – and he had undergone the procedure. He seems to have been cured of the disease. Urmila rushes to the mansion with Murugan and finds Sonali, now completely out of her wits. She tells them that Romen is involved in the ritual and the old woman in charge is none other than Mrs. Aratounian. Incidentally she is also Murugan’s landlady. Urmila and Murgan rush to Murugan’s apartment and find Mrs. Aratounian and her possessions are gone. The contents of his apartment have also been transported. This brings a change in Murugan. He has a sudden epiphany and kneels before Urmila, announcing that she is the chosen one, the one that Mangala has chosen as her next vessel.

Thus fantasy goes on that secrecy is used as a technique of procedure in counter science. For this group of bright researchers like Murugan, silence is the only religion. Ghosh also suggests that an Austrian clinician Julius Von Wagner Jauregg was actually ahead of Ronald Ross on malaria research. He was working on the clue that artificially induced malaria could cure or at least mitigate syphilitic paresis. But even before him, Mangala, a sweater woman had achieved remarkable success in the field. She herself suffered from syphilis. She was picked up by Cunningham and trained as a laboratory assistant. Murugan believes that Mangala had great intelligence. She had the knack. She was going in the right direction because of her instinct. She was using a variation of Wagner process. She seems to have noticed that malaria works on paresis through a different route, the brain. Like syphilis, malaria
can cause damage to the brain, can even cause hallucination. This is the reason why primitive people thought of malaria as spirit possession. India has a very deep and long tradition of this occult.

Interestingly Ghosh deconstructs and dismantles western sense of superiority by Indian irrationality. These beliefs are said to have no scientific basis, yet their strong presence in India can easily be felt. Mangala developed a particular kind of malaria that could be induced in pigeons. Mangala had also developed the technique of transferring malaria from a pigeon to a patient of syphilis. Secretly she started treating patients in Cunningham’s laboratory. Her treatment produced strange side effects. The patients often developed weird personality disorders. These symptoms in the patients were actually “randomly assorted personality traits” which the patient imbibed from the malaria donor, the pigeon. Actually this process hinted at the freak chromosome, which had earlier been described as the unique Calcutta Chromosome. The special contribution that the Calcutta Chromosome makes is that it suggests transference of personality traits. In this way it suggests immortality. As Murugan excitedly tells his researcher Antar, “Just think, a fresh start: when your body fails you, you leave it, you migrate – you or at least a matching symptomology of yourself. You begin all over again, another body, another beginning … a technology that lets you improve on yourself in your next incarnation?” (62).

Murugan has spent many years on his extensive research. His clues indicate that Ross’s discovery was only a small part of the overall project of Mangala to attain immortality through the Calcutta Chromosome. By 1897 Mangala had run into a dead end. She tried again and again to stabilize and catch the chromosome in the process of transmission. But she failed. She needed more information on the malaria bug. That is why she needed Ross’s help: “She actually believed that the link between the bug and
the human mind was so close that once its life-cycle had been figured out, it would spontaneously mutate in directions that would take her work to the next step” (140). But to know something is to create it. Breaking the law of silence she planted crucial clues in Ross’s head and took the research in the right direction. Ross was just a tool. Murugan also believes that Mangala and Laakhan did succeed in the transplantation of the Calcutta Chromosome. In fact Laakhan himself is a living example of interpersonal transference of the Calcutta Chromosome.

Against the background of the historical facts of Ronald Ross’s discovery about malaria fever, the novelist presents the supernatural power of Mangla. She is portrayed as a goddess-like figure who has found a so-called cure for syphilis but has also acquired knowledge of transcending life beyond life. Farley, a western scientist, understands this clearly and wants to warn them not to waste their hopes on “whatever quackery it was that this woman offered; to expose the falsehoods that she and her minions had concocted to deceive those simple people” (85). But his curiosity makes him stay where he is, unobserved by Mangala, and sit through Mangala’s performance or rituals. Finally he returns to his own experiment and demands to see the slides, the transformations that Laverari described. Only after that he is given the slides smeared with the dying pigeon’s blood: “...it was then that he saw Laverari’s rods appear, hundreds of them, tiny cylindrical things, with their pointed penetrating heads piercing the blood miasma” (86).

The character Lutchman/Laakhan/ Lucky of the nineteenth, the twentieth, and the twenty-first centuries respectively appear and disappear. Are we to suppose, according to the novelist’s theory voiced through the character of Murugan, that they are improvements on their earlier lives? There are no such indications in the novel. In fact these characters are not even presented as three dimensional characters. There is
also a hint that the boy who appears at Urmila’s doorstep with fish wrapped in papers from which Murugan connects up the story is the same one Laakhan. Since in all these incarnations of the boy, the novelist describes one common thing – the boy has a deformed thumb. Even Haldar has this deformity. There is neither a physical improvement nor an intellectual improvement in all these personalities of the boy. Through these parallel events, the mystery of the plot gets thicker and denser. A mystery novel would have clues that lead to the solution. Here the novelist has wonderfully and vividly created the mysterious happenings and has attempted to relate them, only to arrive at nothingness.

Back in the twenty-first century, Antar is reminiscing over the strange memories that Ava, the computer, has brought back. He remembers that he has an appointment with Tara later, but he is feeling quite feverish – a relapse of the malaria that he, too, has had for many years. He recalls her telling him that a young gap-toothed boy at the Penn railway station kiosk, named Lucky, had steered her in his direction. He asks Ava to connect him to the director of the Water Council’s office in Calcutta, and learns from him that L. Murugan’s ID card had been retrieved from a mental asylum. Murugan had apparently turned himself in at a railway station at Sealdah. Sensing that the strands of the mystery are quickly coming together, Antar demands that Ava reveal to him just what it was that happened to Murugan. The computer asks him if he is really sure he wants the knowledge. He responds in the affirmative, puts on the Sim Vis headgear, and Ava projects a holographic head representative of Murugan. At the end, Ava shows Murugan, Urmila, and Sonali rushing to the station Sealdah, where they are told Phulboni and Mrs. Aratounian have gone. This is the place from which Murugan has been recorded as missing, since August 1995, and is not heard of till his ID card appears on Ava screen. What happens
to the rest of them is left to the imagination of the reader. But Sealdah is the station from where Mangala and Laakhan were hired; it is the place that plays vanishing tricks causing most of the characters to disappear. One moment they are all rushing to the station in 1995, with Urmila saying that she would save them and take them across, the next moment we find Antar hearing voices, finding resemblance between Tara and Urmila and Mangala and Sonali, talking to him, as if they were all with him in his room, “a voice whispering in his ear, 'keep watching; we're here; we are all with you’.... we’ll help you across” (170).

The whole atmosphere of the book suggests that there is much theft and deceit in the field of science. There is one Elijah Monroe who comes to Cunningham’s Laboratory to detect the ongoing experiments. Laakhan stages a train accident and finishes Elijah Monroe. Similarly another friend of Ross, J.W.D. Grigson, also faces a near fatal accident in Secunderabad when he senses that something crucial is going on. Laakhan also meets Phulboni thirty-six years after the Grigson episode. It clearly means that it is not exactly Laakhan who meets Phulboni but his spirit or his spirit in some other body. Phulboni is writing a set of stories on Laakhan. The real name of Phulboni is Saiyad Murad Hussain. He is an eminent writer. He has taken the tribal name Phulboni. This character is designed to convey the author’s viewpoint from time to time. The two names are there to emphasize the confusion and duality of the self. Everyone is like that. The mythological references of names at times make the characters archetypes. Mangala, the sweeper woman, also appears in different forms. When Murugan comes to Calcutta in 1995 to find about the malaria story, he discovers an esoteric cult of image worshippers. Murugan comes to know that the image is that of Mangala. She is called “Mangalabibi.” People worship to commemorate her reincarnation. Phulboni does a comprehensive story on this image
and its advent into the world. Through this Goddess metaphor, Ghosh insists on the
necessity of coming back to life.

As mentioned earlier, one of the many characters who seem to keep popping
up, possibly over several generations but under different guises is Lutchman, from
whom Antar buys his newspaper at the Penn railway station in Manhattan. This is
where it all gets a bit bizarre and a little foggy – and also where Ghosh is getting to
the compelling thematic material of the novel. In Murugan’s view, Lutchman is the
one who suggests to Ross that it is only a particular kind of mosquito, the anopheles,
which is actually important to the transmission of malaria. “As I see it,” says
Murugan, “Lutchman was all over the map, changing names, switching identities”
(50). There was, for example, a “Laakhan” who had helped one of the nineteenth-
century researchers, and who had disappeared into the night when his identity was
looked into too closely.

Amitav Ghosh, in a parallel study of history, reveals that at the time of Ronald
Ross’s stay in India there was a secret religious society which tried to conceal its own
identity. Laakhan/Lutchmn is a member of this secret society. While the novel never
clearly identifies the beliefs and goals of this secret society, it is obvious that its
members are the devotees of the cult of silence.

This novel marks something of a shift away from the exploration of personal
memories and moves towards a metaphysical exploration of identity itself, suggesting
at the same time that history as defined by the educated elite in the world is far less
tamed than one might think. Thus, one’s sense of the self and of one’s place in time
becomes unhinged as this detective story unfolds. The themes include history, the
politics of scientific research, psychological afflictions, technology and memory,
among others. Like so many of Ghosh’s works, this one is a merging of various
generic expectations – science fiction, criminal detection, history, even spiritual meditation.

R.K. Dhawan notes that “Ghosh makes a unique experiment in The Calcutta Chromosome by combining various themes and techniques. He amalgamates here literature, science, philosophy, history, psychology and sociology.” Although this book seems to be a departure from Ghosh’s other novels, he tells interviewer Paul Kincaid that what he wanted to do was to “integrate the past and the present,” and in this regard, it surely fits the pattern of his other writing. He told the interviewer that he had conceived of the idea of a secret society dedicated to achieving immortality from the Egyptian Gnostics, and anyone who has read In An Antique Land will surely hear echoes from that earlier book’s Nashawy in the Egyptian village in this novel, and, perhaps, in the mysterious Renupur as well.

Personal interests and family memories that led Ghosh to his other novels play a part in the genesis of this one as well. He notes that he frequently passed the Ronald Ross Memorial in Calcutta several times a week, and in fact had endured a bout with malaria. His experience with the disease set him pondering India’s long encounter with it, and of medicine’s benighted transformation of it: in response to drugs it has mutated into “the single most deadly disease in the world.” It was a stroke of genius to choose it as the centrepiece for a novel, and to do so in such a suggestive manner.

In his very insightful essay on this novel, Tabish Khair underscores that the main concern of The Calcutta Chromosome is the question of subaltern agency vis-à-vis alienation. But how one might set about doing this in a convincing way does not offer an obvious pathway:

This confronts us, first of all, with the problem of accounting for and registering the agency of the Coolie and the non-Babu...
in a language (English) that is seldom, if ever, employed by the Coolie and the non-Babu (and never from choice in an ordinary situation). The Babu, so to say, has a monopoly on the ‘medium’ through which the knowledge of the Coolie and his/her agency (or the lack of it) is ‘exchanged’ and created. How, then, can this agency be expressed? How can the Coolie be constructed in another language, and one that shares a different socio-economic and discursive sitting, without depriving him/her of voice and agency?  

Khair also analyses how Ghosh, in this novel, deals with the stereotype of the “irrationality” of colonized peoples, and he does so by focusing on the scene that causes Sonali to faint:

Tellingly, the climax of the novel is a scene that, in colonial discourses of Indian irrationality, would be described as a scene of ‘human sacrifice’. The human sacrifice is probably the most extreme metaphor of non-European (Whether Indian or ‘Red India’) otherness. In colonial and even certain neo-imperial discourses, it stands as the example par excellence of the other as mindless, herd-like, barbarous and irrational. In *The Calcutta Chromosome*, significantly, the ‘human sacrifice’ is taken over and reinscribed within the subaltern’s agency and the subaltern’s (suggested) discourses. From that perspective, it becomes a form of discovery, of furthering life and of planned, purposive activity. It becomes in a way the exact opposite of what ‘barbaric’ and ‘irrational’ stand for – a planned means of personal improvement and collective wellbeing.  

The purpose of the conspiracy, after all, has nothing to do with world dominance, the production of a new weapon, the accumulation of a massive fortune. Indeed, it seeks the same thing that most spiritual movements throughout time have sought: without
using the terminology, the novel seems to be a meditation on the scientific prospects for the transmigration of the soul.

Coming back to Mangala and Laakhan, we cannot ignore the fact that both of them are from the very lowest rung of Hindu caste system. Here is a desired reversal of roles. Mangala of the sweeper caste is worshipped in blood and flesh as well as years after as an image. Farley, a western scientist, watches this scene where Mangala is deified despite her social class:

The woman Mangala was seated at the far end of the room, on a low divan, but alone and in an attitude of command, as though enthroned. By her side were several small bamboo cages, each containing a pigeon. Yet it was not the birds themselves, but rather the state they were in that amazed him. For they were slumped on the floors of their cages, shivering, evidently near death.

Nor was that all. On the floor by the divan, clustered around the woman’s feet, were some half dozen people in various attitudes of supplication, some touching her feet, others lying prostrate. Two or three others were huddled against the wall, wrapped in blankets. Although Farley had glanced into their scarred, unseeing faces for no more than an instant, he recognized at once that they, like the man he had seen in the bamboo thicket, were syphilitics, in the final stages of the terrible disease. (85)

Ghosh thus demolishes the false concept that class superiority and right to knowledge go together. Here is a wishful undoing of Indian caste system and an assertion of the right to knowledge irrespective of class, caste, creed, culture, or colour. Twice in the course of the novel, Laakhan is shown as a torch bearer; metaphorically a bearer of knowledge. Ghosh further universalizes the theory by
making people of all religious backgrounds accepting the entire drama. Hindus (Murugan, Sonali, Urmila), Muslims (Saiyad Murad Hussain alias Phulboni, Antar), and Christians (Mrs. Aratounian and Countess Pongracz) – all accept the transmigration of souls.

By bringing the underprivileged to the focus of attention, Ghosh is hinting at the current justified trend in the field of scientific research where the rights of the “subjects” are fervently advocated, especially in the field of social medicine, health, hygiene, and control of epidemics. Human or animal subjects who are experimented upon are perhaps more important than the researcher. We may recall it was Laakhan who offered to drink Ronnie’s (Ross’s) medicine first. Ghosh tries to bring recognition to those who do the spade work for all the grand discoveries. Another recent trend suggests that health and bio research can be conducted more economically and efficiently if local people are given principal place in it. They know their soil better than those sitting in sanitized laboratories and working on fanciful hypotheses. Though Ghosh writes about a vanished era and is interested in past, he is a modern writer because modernity is not about the surface details of a story. It hardly matters into which period the actual fable is cast. What matters is the manner, depth, and quality of the author’s response. This is exactly what makes Ghosh relevant to us.

In one sense *The Calcutta Chromosome* is equally open-ended. Towards the end Antar receives information about Murugan’s disappearance. He too has taken a train to Renupur and so it seems as though he may have suffered the fate of Farley and the stationmaster who attempted to kill Laakhan, the former dying and the latter becoming a lunatic. However, towards the end Ava, Antar’s computer, locates Murugan in the Department of Alternative States in Fort William, Calcutta; he has become a psychiatric patient. At this point Antar himself is feverish as a result of a
recurrence of his malaria. So both the main interpreters of the evidence are, from one point of view, extremely unreliable. But, then, all of Ghosh’s work suggests that the imaginative, fictive reconstruction of subaltern experience is the only way in which it can be rendered. Hence we notice his blurring of the boundaries between anthropology and fiction. If one admits that fictive invention can operate in this way, then the reliability of the centres of consciousness who are experiencing the action ceases to be such a serious issue. The Calcutta Chromosome and the possibility of affecting the “interpersonal transference” of knowledge occupy a central role in this investigation, since such transference would erode the barriers between elite and subaltern classes, between the purveyors and the recipients of knowledge. Everything about Ghosh’s novel seems to be working towards this end. Structurally it moves between multiple stories and characters; and the near-repetition of variant forms of the same situation, such as the Renupur station episode, also works to dismantle the notion of discrete essentialist versions.

In addition to all this, there is a final twist in the narrative, which takes the investigation of epistemological relationships into yet more subtle territory. Throughout the text readers are made aware that the borderline between discoverers and those who are discovered is an extremely porous one. Ross appears to be a discoverer who makes a revolutionary advance in the science of microscopy, but it seems he has been discovered and controlled by Mangala and her followers. Murugan investigates the secret history of malaria research and is in turn investigated by Antar. The last two chapters of the novel complicate and extend this pattern even further. On 21 August 1995 Murugan follows the final stages of his trail with a magazine journalist, Urmila Roy, another quester who has been prominent throughout the novel. His thesis involves the belief that the counter-science cult is absorbed with
interpersonal transference as part of a long-term strategy based on the notion that “to know something is to change it” (60). Towards the end the novel appears to be moving towards some kind of apocalyptic revelation and one wonders whether Murugan is about to become a victim or an initiate of the cult. Such ambivalence is, of course, central to The Calcutta Chromosome’s procedure and its unsettling of the shadow-lines between elite and subaltern subjects. Nevertheless there is a fresh surprise in the penultimate chapter when Murugan tells Urmila that “you are the one chosen” (169), one of Mangala’s contemporary incarnations, and asks her to promise “that you’ll take me across if I don’t make it on my own” (168). Urmila’s investigations have played a significant part in Murugan’s detective-work, but hitherto she has not seemed to occupy a central role in the process of discovery. Now Murugan sees her as having such a role and explains, “You see, for them the only way to escape the tyranny of knowledge is to turn it on itself. But for that to work they have to create a single perfect moment of discovery when the person who discovers is also that which is discovered” (168).

The final chapter provides an even more startling instance of a discoverer who is discovered. The text returns to Antar, who, in his New York apartment with his super-computer, appears to be the ultimate discoverer of meaning within the novel. As the figure who frames the rest of the narrative, he alone seems to stand outside the multiplicity of other narratives, immune from the possibility of complicity in the conspiracy. But he too is a feverish investigator and the final chapter undermines the possibility of exempting him from the process of “interpersonal transference” that has engulfed all the other main characters. He now begins to think that Ava’s stumbling upon Murugan’s ID card – the opening moment of the novel – has not, after all, been an accident; and the web of correspondences expands even further, as two of his New
York friends, who have seemed to be no more than incidental extras in the frame-narrative, are absorbed into the visual images of Murugan’s last day in Calcutta which Ava is projecting for him. Another discoverer finds himself discovered.

The Calcutta Chromosome’s challenge to the rhetoric surrounding specific medical “advances,” such as Ross’s discovery, is extended to the discourses of science in general. In characteristic fashion, Ghosh introduces his argument about science, fiction, religion, and pseudoscience in India with an interrogation of the artificial boundaries that divide them. Although on first appearance Mangala’s spiritualist brand of science could not seem further removed from the historical event of Ross’s discovery of the malaria vector, Ghosh’s narrative supports the connection. Murugan recounts the true story of a scientist called Julius Wagner-Jauregg, who, like Ross, is considered to be a mainstream scientist. In 1927 he won the Nobel Prize for his discovery that the malaria virus could be used to combat the symptoms of syphilis. Out of nearly three thousand sufferers treated with induced malaria, a fifth were cured of their syphilitic madness. The use of malaria to treat syphilis is significant because its efficacy is a mystery even to its practitioners; as Murugan argues, “…no one really knows how the Wagner Jauregg treatment worked” (138). He argues that Wagner-Jauregg’s treatment

… was a scientific scandal and medicine was almost grateful to turn its back on it once antibiotics came along. Old Julius didn’t worry too much about how it worked either. He was no biologist, remember: he was a clinician and a psychologist. He thought the process worked by raising the patient’s body temperature. It didn’t seem to bother him that no other fever had the same effect. (138)
This passage indicates that science, medical science in particular, consists of many hypotheses or findings that are not fully proven or understood. Furthermore, Murugan describes the treatment as a “scientific scandal,” which was jettisoned as soon as antibiotics came into widespread use. This is confirmed when Murugan indicates the strange consequences of Wagner-Jauregg’s discovery. Until the appearance of antibiotics, the Wagner-Jauregg process was pretty much a standard treatment: every major VD hospital had its little incubating room where it grew a flock of anopheles. This suggests that what one generation considers scientifically viable may be deemed deviant by the next.

Through the narrative’s complex weave, Ghosh interrogates the discourses of science and technology. Recent theorists and historians of science, however, have helped to expose the fact that science is culturally located, with its own biases and interests. As Michael Adas has convincingly demonstrated, “Colonial scientific practitioners elevated their brand of science, presenting it as proof of their superior reasoning powers, and the cause of the West’s material domination of the world.” In The Calcutta Chromosome, Ghosh problematizes the universalist claims of western science and questions the widespread tendency of historians to view scientists as geniuses who work alone, fermenting epistemological revolution for the benefit of mankind.

In The Calcutta Chromosome, Ghosh also instigates a change in form in his writing, experimenting for the first time with the genre of science fiction in order to question the boundaries which have been erected to separate notions of scientific “truth” and fiction. Ghosh plays with the notion of “science fiction” in three ways. Firstly, in accordance with the conventions of the genre, he creates a society set in the near future that has technological capabilities beyond anything we have yet. Secondly,
he fictionalizes the lives of actual scientists, so that the mainstream science of Ross is depicted as shading into the distinctly deviant scientific innovations of the imaginary priestess Mangala and her followers. Finally, with a playful twist of the notion of “science fiction,” *The Calcutta Chromosome* seems to suggest that many of the grand claims made for science are fictions.

Perhaps the most important feature of science fiction, according to Patrick Parrinder, is that it contains an admixture of fantasy and realism. Parrinder argues that most science fiction layers its narrative with theories derived from current scientific thought, but that it also admits into its discourse at least one impossible “premise” which allows the plot to move into the realm of speculative scientific fantasy:

> Though backed up by a display of scientific patter, the premise, whether of time-travel, invisibility or (to take more recent examples) teleportation or telepathy, is comparable to the traditional marvels of magic and fairy-tale. Once the premise is granted, however, its consequences are explored in a spirit of rigorous realism.⁸

Ghosh intermingles fact with fiction in *The Calcutta Chromosome* in order to recount an alternative life-story of Ronald Ross. He draws heavily on Ross’s Memoirs in order to create a historical frame for what is often a fantastic narrative, referring to real people with whom Ross came into contact, and to actual events. Ross’s Memoirs was published in 1923, more than twenty years after his discovery, and is a product of his determination to be accorded sole credit for the breakthrough. The Memoirs is a hybrid text, which provides highly selective excerpts from primary sources – mostly letters that passed between Ross and his mentor Patrick Manson during the years 1895-1899, and also some selections from Ross’s diary – interspersed with Ross’s later reflections on these. Most commentators agree that, despite their immense value for researchers, the Memoirs must be handled with suspicion as a heavily doctored
and biased account of Ross’s malaria trials. In the novel, Murugan confirms this when he argues that Ross “wants everyone to know the story like he’s going to tell it; he’s not about to leave any of it up for grabs, not a single minute if he can help it” (152). Ross tried to steer the course of his own posthumous reputation as a lone genius by keeping a tight control over those documents that would be preserved for posterity. This is indicated in the following statement of his biographers, Edwn R. Nye and Mary E. Gibson:

One thing that stands out in assessing Ross’s view of his own self worth was the fact that he kept everything. He kept letters sent to him, apart from family ones, and whenever he could get back his own letters from people. He kept cuttings, telegrams, copies of articles and so on. The Ross Archives, distributed between London and Glasgow, comprise about 30,000 catalogues items, all of which he carefully saved for posterity.³

To conclude, Ghosh deconstructs the western aura. He tries to show that the western sense of confidence and patronage is misplaced. In The Calcutta Chromosome Ghosh tries to shatter the false notion that the colonial rule was responsible for the destiny of the colonized. The narrative, which covers over a hundred years, contains both fact and fiction mixed in a judicious way. The cinematic devices of flash forward and flashback are used to move forward and backward in time. The reader is taken on a journey into time, and at the same time to different countries like America, Egypt, England, and India.
References


   


