

The Colonial Virus in Literature: Medical and Colonial Adventures in Amitav Ghosh's novel

*The Calcutta Chromosome. A Novel of Fevers, Delirium and
Discovery (1996)*

Engelbert Jorissen

***The Calcutta Chromosome* and Amitav Ghosh's novels**

Beginning to read Amitav Ghosh's *The Calcutta Chromosome*¹ some reader may wonder whether he is reading a novel by the same author of *The Circle of Reason*², *The Shadow Lines*³, *In an Antique Land*⁴ and even *The Glass Palace*⁵ which was written after *The Calcutta Chromosome*. Above all the language seems different. Instead of the reflective tone, as e.g. in *The Shadow Lines*, in combination with a certain melancholy, as e.g. in *In an Antique Land*, or the epical atmosphere in *The Glass Palace*, the language in *The Calcutta Chromosome*, over large passages is characterized by an uneasiness and a hectic undertone, conveyed especially in the casual and sloppy language performance by one of the protagonists, Murugan. The reader gets the impression that his language sometimes has infected the narrator. In the novel a story becomes retold, which had been written by another figure of the novel itself, and while this story inside the story brings together many details scattered over the novel and, thus, delivers an interesting angle to reconsider the novel which one has read up to this point, it does this, too, because this story differs decisively in the style of its language.

In its difference, however, this novel soon urges the reader to see features shared by this novel and Gosh's œuvre written up to now. Like *The Circle of Reason* this novel, too, is about the adventure of knowledge. On the level of motifs one may observe the fact that here, as in *In an Antique Land* India and Egypt play an important role, with Murugan, who is from Calcutta, and Antar, who is from Egypt, who meet in New York⁶. Putting *The Calcutta Chromosome* into a context with other novels by A. Ghosh Hind Wassef observes: "... it is this sub-culture of science that is dominant and subverts mainstream science in a similar way that mystical cults subvert orthodox religions in *In An Antique Land*"⁷. H. Wassef, whom I cite in detail, summarizes, too: "The Shadow Lines was a case history illustrating a personal tragedy that was caused by the multitude of separations his home land witnessed. *In An Antique Land* was an attempt to historicize these divisions by looking at their absence in a time long gone. *The Calcutta Chromosome* takes this issue to an abstract and imaginary level where people from different times and places become interconnected as a result of technology and disease: the two plagues as well as saving graces of our time. Although this world view makes for a deconstruction of any form of collective identity, at least one which is based on a conscious emphasis on difference with regards to the outsider, it also makes for a more real existence and awareness of our place on this earth" ⁸.

While I agree with Wassef's interpretation, and I assume that the observations are concerned, if not explicitly, with problems of colonialism, I want to focus more on that aspect, which puts *The Calcutta Chromosome* into a direct context above all with Gosh's *The*

Shadow Lines and *The Glass Palace*. The sub-title invites to think of colonialism: *A Novel of Fevers, Delirium and Discovery*, of which each concept has to be read at least on the two levels of the story, of the 'discovery' of how malaria, a disease connected with 'fever' and 'delirium', is transmitted, and of the [hi]story of the so called European 'discoveries' which stand at the beginning of premodern and modern colonialism and were guided by feverish, delirious dreams of greed to become rich.

The contents of the novel and its structure

The most important events for the immediate story of the novel happen on August 20 and 21, 1995, however these and other, ranging back to the 19th century are told from an angle "just a few years" (p.19) later. It is nowhere said when this exactly is, one reason may be the margin the narrator thus gains to speculate how far computer science may develop. There are some aspects in the novel which remind of scenes from science fiction, and at the same time the novel becomes an amazing mixture of fictions and facts of history and science. At certain stages of the novel it becomes almost disquieting how many details of it can be traced as historical facts and authentic events. One major source for the narrator are the *Memoirs*⁹ written by Ronald Ross himself, however, while there are many literal citations from these the author/ narrator change(s) many informations and names slightly. At the beginning of the book a poem by Ronald Ross is cited unchanged but it is underwritten "Sir Ronald Ross (Nobel Prize for Medicine, 1906)", while the historic R. Ross received the Nobel Prize in 1902. The novel is divided in two parts,

that is *August 20: Mosquito Day* and *The Day After*; “Mosquito Day” was created by Ronald Ross in order to commemorate his decisive findings in research of the *Anopheles malaria* mosquito. In his *Memoirs* he writes:

The 20 August 1895—the anniversary of which I always call Mosquito Day—was, I think, a cloudy, dull, hot day. I went to the hospital at 7 a.m. ...

Here follows a description of his dissection of mosquitoes on this day; on the next day, Ross, writes, he understood that he had come to a solution:

The cells [i.e. of the *Anopheles*] were therefore parasites, and as they contained the characteristic malarial pigment, were almost certainly the malaria parasites growing in the mosquito's tissue.”¹⁰

To summarize the novel's content reveals itself soon as a not so easy process. As will be demonstrated, the novel is written and rewritten and put together in a puzzle like manner. This is, by the way, not of narratological unimportance, as well made a constant motif of the novel, as e.g. when one of the figures remarks: “It's just that I think I may be able to fill in a part of the picture’, Urmila said” to Murugan (p.211).

The novel narrates on its most elementary level the attempt made by L. Murugan to reconstruct the circumstances how “in 1898” was “discovered the manner in which malaria is conveyed by mosquitoes” (p.20). Murugan who has specialized in “the medical history of malaria” gets more and more obsessed to illuminate the details of the decisive phase of Ronald Ross' research. The possibility is given that Murugan got interested in the subject for “biographical” (p.30) reasons, he was born in Calcutta, the same city where Ross made his breakthrough

experiments. While investigating his subject Murugan has begun to doubt the correctness of what is told about Ross' research and result, since the 1980ies he began to write articles like "Certain Systematic Discrepancies in Ronald Ross's account of Plasmodium B", 1987, and "An Alternative Interpretation of Late 19th Century Malaria Research: is there a Secret History", 1989 (p.31). The History of Science Society refuses to publish these articles, and its opposition to Murugan's ambitions is further underlined by the fact that in 1990 "the Society took the unprecedented step of revoking his membership" (p.31). While "[h]is advocacy of this bizarre" project alienates him from "several of his friends and associates" (p.31) Murugan succeeds, finally, to be sent to Calcutta (p.32). Up to this point, this means, that the reader is told at the same time Murugan's research in late 20th century and by way of that, is told what happened in the world of Ross world at the end of the 19th century.

Complications, however, begin with the fact that Murugan, having entered a decisive phase of his research on research, has vanished on *The Day After*, that is after *August 20: Mosquito Day* 1995, what is the reason, that the story must be told years afterwards by someone else. One learns that Murugan over years had been reconstructing the events around Ross laboratory in Calcutta through the perspective of a former colleague of Murugan. This is Antar, who years after only by chance finds Murugan's identity card in his computer. He remembers that he, Antar himself had typed "just a few years ago" into the file: "Subject missing since Auguts 21, 1995" and "last seen Calcutta, India" (p.19). Curious Antar starts to gather old materials, like old telephon records,

and computer memos and entries in order to find out what has happened to Murugan whose identity card had indeed been found exactly in Calcutta (p.10).

The time which passes on the about two hundred and fifty pages of the novel, thus, comprehends only some hours of one, if fatal, evening in Antar's life. On the level of his research during these hours are narrated mainly the events of about thirty-six hours from noon August 20 to the evening of August 21 in 1995, that is as a story developing in Calcutta as a parallel story to that of of Antar's research in New York. There, Murugan again tells Urmila Roy, who works as a journalist, and whom he has met, as it first seems, only by chance, what he has found out up to that point about the events around Ross. He does so because it turns out that Urmila has run, as well as it seems by mere chance, into some photocopies of newspapers from the end of the 19th century, who seem to contain decisive clues for Murugan's research, what makes her say "It's just that I think I may be able to fill in a part of the picture", Urmila said" to Murugan (p.211).

Finally, while Antar in New York is going back into his memories up to his childhood in Egypt, so does Murugan to his in Calcutta. What Urmila has to tell to Murugan has much to do with the life of Urmila's elder colleague Sonali Das, as well from the time of her childhood on.

Phulboni's *Laakhan Stories*

Without doubt one of the most prominent personalities in the novel is the writer Phulboni, who, despite this being so, enters the scene directly one moment only, when three of the other major figures, Sonali

Das, Urmila and Murugan get a glimpse of Phulboni "in the flesh" (p.27) while he is speaking in "an award ceremony". Still, Murugan, being without a press tag, is lead out of the auditorium.. And yet, Phulboni is almost omnipresent in the novel, which could not exist without his figure, and what is more, without one of his stories.

One may even say that this story, of which it is not said that it had been written down, but which seems to belong to a collection of stories written by Phulboni in his younger age known as the *Laakhan Stories*, in a certain sense forms the nucleus of the whole novel, or, as it is told almost at the end of the story, one should perhaps better say a key to the novel. In the novel the story is told to Murugan by Urmila as she has heard it by Sonali, who on her part has heard it from her mother who, finally, had, on her insistence, narrated it by Phulboni. This chain of transmittance is important because it evidences the many persons who finally get involved with the story, and the (con)sequence(s) of it.

The story depicts Phulboni as a young man at the beginning of his employment by "a well-known British firm, Palmer Brothers, which made soaps and oils and other household goods" (p.212).

'I remember', Murugan said suddenly. "Phulboni" is the guy's pen name, right?"

'That is right', Sonali nodded. 'His real name is Saiyad Murad Hasain. He began writing under a pen-name because his father threatened to disown him if he became a writer.' (p.24)

This is an observation which makes remember that Ronald Ross as well was told by his father not to become a writer.

To understand what happened to Phulboni it will be useful to summarize events which are scattered over the novel and put them into a chronological order. To begin with, Elijah Monroe Farley has to be introduced, Farley who had been doing research, that is as well on Malaria, with W. G. MacCallum and Eugene L. Opie at Johns Hopkins in Baltimore (p.100). Soon Farley had left the team and entered as a volunteer "a missionary group from Boston" (p.100). As Antar can understand from a not fully reconstructed¹¹ e-mail sent to him by Murugan shortly before his departure to Calcutta (p.101), but which Antar, at that time infuriated because of Murugan's behaviour, had deleted (p.106) unread, "Elijah Monroe Farley left for India in October 1893" (p.114). In summer of the following 1894 Farley worked as as Reverend in a "charitable clinic in ... Barich, in the eastern foothills of the Himalayas" (p.114). Five months after he had begun his work in Barich Farley learnt from a by the way notice in a letter from Opie that his former colleagues were about to take along their research "building on the findings of ... Alphonse Laveran" (p.114; cf. here, p.). Laveran's ideas were at that time still much questioned, even "unbelieved", but or because of this fact, Farley's scientific curiosity is awakened one time more. When inquiring, a member of the Indian Medical Service (IMS), Surgeon-Colonel Lawrie, assures him that "Laveranity was without foundation", nevertheless Farley wants to prove himself. By help of Farley he is introduced to an outstanding member of the IMS, D.D. Cunningham himself (p.116). Farley must have been in Calcutta and visited Cunningham in his laboratory (pp.117ss) still in 1894, because the important letter he wrote at the end of his stay, was composed, it is said,

in 1894 (p.100). At that time Farley encounters in Cunningham's laboratory a certain woman named Mangala, who seems to suffocate herself from syphilis and is giving attendance to syphilitics (pp.118ss.). Cunningham had "found" her as all his "bearers and assistants: at the new railway station ... Sealdah"¹². He meets as well a young man working as a bearer and a kind of assistant for Cunningham who has been introduced to the doctor by Mangala. This man is from Renupur, a station on the railway line connection Calcutta and Barich (p.123). And as Murugan suggests many factors mentioned in Farley's letter speak for the fact that this man must have been Lutchman who will assume one of the most decisive roles in the novel (p.209).

In his letter to Opie Farley indicates that he soon will be able to write much more to him — one can only assume that this concerns malaria research — after he has accompanied Cunningham's assistant, most probably Lutchman, to his birthplace. Thereafter Farley has vanished, and this, after having been seen in the company of a young bearer and boarding his scheduled train at Sealdah, and having got off the train in "Renupur, in severe monsoon weather" (p.129).

While all this happened Ronald Ross had begun his work as an Army doctor in "Begumpett, not far from Hyderabad", and he had started researching malaria. He had been overheard repeatedly when boasting to be familiar with Laveran's findings, however, a braggingly announced experiment had failed (p.116). Soon after this Ross is said to have moved to Secunderabad, that is "'On the 23rd [of April] 1895 ...'" (p.74). One month later, on "May 25, 1895 at 8 p.m. Lutchman presented himself to Ronald Ross, or as it is said "walked into Ronnie Ross's life"

(p.200); the importance of this incident is underlined in the novel by Murugan bringing it up repeatedly¹³. From this time on Lutchman is said to have been omnipresent in Ross' life:

'For the next thirty-four months — the entire period that Ron's working on malaria — Lutchman sticks to him like roll-on deodorant. Starting May 1895, until July 1898, when Ron makes his final breakthrough in Calcutta, Lutchman almost never lets Ron out of his sight. ...(p.65)

It may be mentioned as well in the context of chronology that Murugan already in his New York talk to Antar had suggested that Lutchman had been sent to Ross, and this is, probably, from a circle around or including Mangala (pp.64-65). Those who sent Lutchman could have known about Ross' research because, as was said, he had been boasting in public about it.

While staying in Secunderabad a certain J.W.D. Grigson comes to spend a weekend at the same place on the invitation of a former classmate in grade school who is now "one of Ron's room-mates" (p.76). There is no hint for when exactly this happened, anyway, Lutchman is already there, but this does not say much because he arrived only a month after Ross.

The Grigson episode deserves much attention. To begin with like Ronald Ross Grigson, too, is a historical figure. His name has been altered but he can easily be identified with the Irish linguist Sir George Abraham Grierson who as such worked in India as a civil servant¹⁴. This means that his figure will be of importance in the context in which the colonial realities in will be discussed. The historical fact of Grigson's (Grierson's)

linguistic activity in colonial India leads to the narratological level. About Grigson it is said: "wherever he goes Grigson takes notes" (p.76)¹⁵, that means above all notes of scientific character by the way of which many details of everyday routine are transmitted too, what again is of use, here for Murugan, for the reconstruction of what happened at that time. This means concretely, as a linguist Grigson understands at the very moment of his arrival by way of Lutchman's pronunciation that he cannot be from the region surrounding Secunderabad as Ross, without further reflection, even naively, assumes as a matter of fact. He begins experiencing calling Lutchman by his name and not as Lutchman is used to be called, "bearer", or "boy" or "hey you" and recognizes that Lutchman then hesitates, if for the slightest moment. Murugan explains to Antar:

He [Grigson] notes in in his diary that there's just this instant's delay before Lutchman responds: just that additional nanosecond it takes when somenone responds to a name that's not really their own. Now Grigson's sure his name's not really Lutchman: he's changed it to make sure it look like he's from the area. (p.76)

The next thing Grigson finds out is that Lutchman belongs to the "commonest" names, but it varies in its form and pronunciation from region to region. Grigson stages a new experiment. One night he seeks Lutchman out in his room in the servant's quarter; pretending to be only able to speak "pidgin Hindustani" (p.78) he lures Lutchman, who is suspicious about his visitor, into a linguistic trap. Lutchman's room is lit by a curious lamp what Grigson guesses must be, because of its "long

handl" and its "small circular pane of red glass" a "standard-issue railway signal lamp" (p.78). He makes Lutchman, who on his side speaks "pidgin Hindustani", believe that he wants to know how this lamp is called. Lutchman, for whom *lantern* is a foreign word, tells him that it is a "lantern" but pronounces this "lalten" The very moment he does so Grigson is sure that Lutchman is from a very northern region, as he already had guessed because of "the way he says his unvoiced labials and retroflex dentals" (p.77). Grigson tells Lutchman on the spot that his really name must be Laakhan. Grigson's selfcomplacency hinders him to recognize Lutchman's dramatic reaction at this 'revelation' (p.79). This observation must be considered, too, in the context of survey, research and control and command in colonialism. Urged by Lutchman/ Laakhan to follow him to outside Grigson complies, but he has difficulty to follow the hastily running Lutchman of whom he soon sees only the lantern shining though the night. Staggering on, meanwhile on the railway tracks, he falls down, and can escape within a hair's breadth not to be overrun by a train. Being sure that Lutchman had tried to kill him Grigson "catches the next train out of Secunderabad" (p.80). The night had been a moonless monsoon night (p.78). Coming back to narratology, this episode is another example of how texts of the most various genres, here as it seems Grigson's "diary" or "journal" (p.76) and of different times become elements for the construction of Murugan's mosaic-like picture.

The Grigson episode is told by Murugan to Antar still in New York when he is preparing his stay in Calcutta and still at the beginning of the novel. The Phulbony story is told almost at the, dramatical, end of

the novel. The novel, one might even say, at least on one of its levels is structured narratologically around these two incidents, counting of course with the surprise effect on the reader. The similarity of the episodes becomes most clear in Grigson's and Phulboni's cases. However, already during the first reading of the novel and, especially after running in so many identical details of that 'adventure' a second time in Phulboni's account, the suspicion arises that Farley must have experienced an 'adventure' of the kind, too. About the possibility that Cunningham, when he arrives obviously under shock in January in Madras, has experienced it, too, can only be speculated; anyway the figure of Laakhan is of importance there as well. Much more probable is, that the same adventure is occurring one time more on the level of contemporarity in the novel involving the novels protagonists living at the end of the 20th century. One must add that this episode happens, too, on the two levels of authenticity and virtuality.

As Phulboni tells in his story, to him happened almost the same as to Grigson. Having arrived in Renupur, where he had be posted by his firm, he had to spend the night of his arrival, a monsoon night, at the lonely and "ramshackle tin-roofed" station house. He had been greeted there on his arrival in the afternoon by the station-master, a man with a curious behaviour. The station-master wanted to dissuade Phulboni to stay at this lonely place, but Phulboni had insisted. To render here the story in detail would be too much. In short, after a quite afternoon and evening — and it is here with the almost serene description of the monsoon landscape with a, then, dramatic sunset, that makes the language so different from mostly all other parts of the novel —

Phulboni's night in the station-house developed into a ghostly adventure. Things became moved without people being around, and finally, Phulboni had escaped twice at hair's breadth being overrun by a train, a virtual one and a real one. In the first case he had followed a station lantern as had Grigson, then the station-master had appeared again and as in a dream spoken to Phulboni, who after that had found himself alone lying on the rails in full reality with the real train rushing on. Having escaped he learns from the guard of the train that "[i]n '94, there was another who was not so fortunate: he died there - in just that way, lying on the rails, at dawn" (p.232). This man, of course, must have been Farley, who had met Cunningham in that year. In that terrifying night Phulboni had heard a voice shouting a name through the night: Laakhan. Phulboni had also learnt that after Renupur station had been founded no station-master was willing to stay there. Then a young boy had moved into the station house. However, he is told further:

The boy [i.e. Laakhan in the Phulboni story] was in his teens when a station-master was finally found for Renupur. As it turned out this station-master was an orthodox, upper-caste man: he took an instant dislike to the lad, looking on him as an affront to himself. He told the villagers that Laakhan was worse than untouchable; that he carried contagion; that he was probably the child of a prostitute; that his misshapen left hand was a mark of hereditary disease. (p.233)

The allusion that Laakhan "carried contagion" must mean of syphilis; this and the mentioning of the "mishapen left hand" cannot but lead to the conclusion of a connection between this 'proto-Laakhan/ Lutchman'

and (the) other figures who get involved with the same adventure. Narratologically one may see this as in a role defined as “actant” by the French linguist A.J.Greimas.”¹⁶

One may ask oneself whether the adventure which Phulboni and others go through is a kind of revanche by Lutchman. This is, if he represents the Indian assistant of the real Ross, a revenge not only against Ross but against a colonial society including the collaborators or those who only want to save their own upper position in a colonial society which — as such ‘upper’ people must welcome — does not have any intention for democracy. It may be mentioned, still, that Phulboni does not pay attention to the believes and warnings of the local people, what reminds of Grigson’s unattentiveness.

An important hint for the identification of Lutchman may be found from Sheldon Watts, *Epidemics and History. Disease, Power, and Imperialism*, there one reads: “In the case of malaria, the requisite breakthrough occurred in 1897 when a hot-temperec English medical officer serving in India, one Ronald Ross, took credit for the intuitive insights of his Indian field assistant, Muhammad Bux (underlining EJ). Emerging from this exercise was identification of the *Anopheles* mosquito as the carrier host of *falciparum* malaria”¹⁷ (p.256) [by the way, cf figure 4].

Mangala-puja

Murugan had found the hotel for his stay in Calcutta by chance, it was only a small pension-like hotel and not further known to the employee at the hotel information at the airport, there recorded under

the name "Robinson Guest House" (p.68). However Murugan had decided, intentionally, on it because it lay in the same street, Robinson Street, where Ronald Ross had lived in Calcutta, that is "at a 'European only' boarding house at number three". Robinson Guest House, "number twenty two" (p.68) which turned out to consist of one "spare room" (p.69), was run by a certain Mrs. Aratounian. And from here begins one more string of accidents and incidents of the novel which are difficult to be called by chance, but rather fateful or predestinated events.

From the balcony of his room at Mrs. Aratounian's Murugan can get a glimpse of number three, "a large, old-fashioned colonial mansion" (p.70). The house seems to be under reconstruction, and, when returning to the guest house in the evening, Murugan learns that number three is to be rebuilt to become "Robinson Hotel" of a certain Romen Holder (p.72). At that time the reader already knows that Mrs. Aratounian is well known by Sonali Das and Urmila Roy. Mrs. Aratounia who is said to stem "from an Armenian family that had been in Calcutta for generations" (p.53) — a circumstance that will put her in a context with Antar, too — until some years before had been running a flower shop. What is more, Urmila had met Sonali for the first time at Mrs. Aratounian's shop, then by chance and without getting acquainted, but some time after that they had become near colleagues working for the same paper. At that time Sonali, who had become some celebrity of the cinema world, had entered the shop in the company of Romen Halder. There had been a little incident by the occasion of which Urmila observes "that one of the hands [i.e. Romen Halder's] was partly paralysed, with the thumb lying stiffly curled against the palm" (p.54). Little later she

had heard "that Romen Haldar had started with nothing; that he'd arrived at Calcutta's Sealdah Station without a coin in his pocket" Those details are too many not to become invited to put Romen Haldar into a context with that Lutchman/ Laakhan, who, as has been shown had been 'engaged' by Cunningham at Sealdah station where he arrived, according to Cunningham, probably from Renupur (p.123), and the handicapped hand of whom, as Murugan remarks in his conversation with Urmila (p.210), must have been noticed by Farley (p.120), what for Murugan becomes one more argument to identify Cunningham's assistant with Ross' Lutchman. Still more, Urmila wants to speak to Sonali on the night of Mosquito Day because she wants to ask her about Phulboni and especially about *The Laakhan Stories* (p.93), one of which being the nucleus of the whole novel discussed here.

When Murugan, at the beginning of the novel, makes a visit to P.G. Hospital where Ronald Ross had made his final experiences and decisive findings he is disturbed by an impertinent boy who refuses to stop to follow him. Searching around the hospital's ground Murugan finds, in an alcove-like hole, a small figurine. He just has enough time to look at it so sufficiently that he remembers its important features when the boy, who still reappears, snatches it from Murugan who tries to get it back, wherewith the figurine falls to the ground and breaks (pp.36-37). Later, when talking to Urmila, Murugan draws a sketch of the figurine from his memory into his pocket diary, to ask her whether she ever had seen such an object:

When he had finished, he tore the page out of the diary and passed it to Urmila. It was a sketch of a figurine, a semi-circular

mound with to painted eyes. On one side of the mound was a tiny pigeon, and on the other a small semi-circular instrument.
(p.189)

Murugan already seem to have some assumptions but he is not sure. So he and Urmila try to get some explanation in Kalighat¹⁸ where figures of gods are made. However when showing the drawing they meet with aversion and even hostility. By chance there is a little girl on the road pushing an object which looks very similar to the “semi-circular instrument” in the figurine Murugan saw and which he now recognizes as a “stylized microscope” (p.194). When they inquire they learn from the girl, that her father, who works at the workshop where they had been turned off, just has made a lot of such figurines on occasion of “... the big puja tonight ... “Today is the last day of the puja of Mangala-bibi ...” and they learn that her father has told her on that night of August 20th “... Mangala-bibi is going to enter a new body”, the body of whom, the girl can still explain, before she is fetched away hastily by her father, is not known by anybody (p.194). The pigeons who had been used by Mangala in Cunningham’s laboratory, and, by the way as well for Ross’ experiments, and the microscope can only confirm Murugan’s assumption that the figure must be an image of “... the demi-urge of Ron’s discovery” (p188).

What Murugan and Urmila do not know at that time is that in the night of Mosquito Day, when Romen Haldar who had promised to come, had not done so in a very unusual way, Sonali had set out to the former boarding house, where Ross had stayed and which is now under reconstruction. There she had become an eyewitness of a frightening

scene. She had been at the house before with Romen Haldar and knew that the men who were rebuilding the house had come from Nepal and had brought their families with them and all lived in the building under construction (pp.134-135). Entering the house and coming to the second stair under already adventurous circumstances Sonali had seen some light, scented smoke and heard various noises, and finally had, hidden on a stage-like gallery overlooking the building's largest room, been confronted with a large group of people, among whom she recognized some of those who had come from Nepal. Then however she had recognized, too, a boy, that is the boy who had been working part-timely at her house until now but had disappeared all of a sudden with all his, if few, luggage on that very day. This boy, the reader knows already, cannot but be identical with the boy who had pestered Murugan on the morning of that day; Murugan, it is said, saw a T-shirt with the same imprinted scenery and Pataya Beach imprint, as the boy from the morning had worn on the drying line in the garden of the boarding house (p.73). In addition to that Sonali had seen the face of a woman whose name she feels she knew, however, she can recall it only later as Mrs. Aratounian's. The woman/ Mrs. Aratounian at that moment is arranging a birdcage and some scalpels around her, in a way, the reader remembers, Farley had seen Mangala doing so in Cunningham's laboratory. Then the woman/ Mrs. Aratounian had risen her voice "in archaic rustic Bengali: 'The time is here, pray that all goes well for our Laakhan, once again' (p.140). Before Sonali fainted she had seen a body before the woman/ Mrs. Aratounian, that is the body of Roman Haldar. After Murugan and Urmila finally have found Sonali, still in the

boarding house, and go to Murugan's guest-house they find that his host Mrs. Aratounian has moved out and, as they learn as a hard to understand surprise, according to a contract signed one year before. Most strange and 'incomprehensible' to Murugan (p.250) is the fact that on the list of the items which have to be transported away and are so when they arrive at the spot, a list which, too, had been drawn up a year before, appear as well those items which belong to Murugan's luggage. The man who is supervising the transport had received a note from Mrs. Aratounian in which she tells "... she was going to catch a train at eight thirty ... 'To Renupur, from Sealdah'" This note he had given to a man who had just been in the guest-house some moments before, this is Phulboni. Phulboni on his side had been informed, to come to the guest-house by a visitor from the night before, a visitor who can only be Romen Haldar, who, as in the novel is said, had planned to go to Phulboni on Mosquito Day's night. Shocked Sonali confesses that Phulboni is her father.

By now the reader knows already that things are repeating themselves again, and they repeat on 21 August 1995 in Calcutta, perhaps more really, as they do some years later in Antar's apartment, probably more virtually. The point is, almost all figures in the novel are interrelated by way of infections, either of malaria or syphilis. An important narratological tool are the pigeons which continue to be ominously present, that are the pigeons which were used by Ross — and in the novel first by Mangala — as a kind of test-tube. To demonstrate how these relations build up would, here, go to far, one example may suffice.

When the Hungarian “amateur archeologist ... Countess Pongracz” appears as a member of Liisa Salminen’s Society of Spiritualists appears at the end of chapter 30 (p.170), this is, really, not the very first time. She appears already at the end of the very first chapter, and that is, indeed, as a Hungarian female archeologist, whose name nobody “could pronounce” (p.6, also, p.5). In chap.30 one learns that near the site of the excavations the Countess directed had occurred a mysterious kind of malaria. And it is while researching this epidemic that Murugan runs upon the name of the Countess. This malaria seems to have been the cause of death of the Countess and of “a family of migrants from the South — Coptic Christians” (p.169) what makes to remember Mrs. Aratounian’s origin from Armenia. Murugan, then, had attracted syphilis in his youth near the Armenia school in Calcutta. (By the way only a boy had survived the malaria epidemic in Egypt, what again makes to think of the various other boys in the novel who seem to be an eternal Laakhan/ Lutchman. However, more important than this detail, is the fact that Antar, as a boy, had been near the site of excavations as well. So, this becomes an important link in the circle of coherence of the story, as to the possibility of how and where who could have been infected, in this case, of course, Antar himself, with the virus, which here should not be seen alone under medical aspect but as well seen from the novel as a ‘vampire story’. At the end of the novel one is left with speculations that Antar suffers from a new malaria attack, what medically seen is a typical phenomenon of the disease. He seems to meet Murugan through his computer, that is Murugan who must be suffering in the final state of paralysis caused by the syphilis he had attracted in

his youth, before he, Antar, himself hears voices who "were saying: 'We're with you; you're not alone; we'll help you across'" (p.256). These words remain those of Mrs. Aratounian during the terrifying spectacle of which Sonali becomes an eyewitness on Mosquito Day (p.140).

Following the narration one is suggested that while Ronald Ross wants to find out how Malaria is transmitted, Mangala Bibi, she herself being, probably, hereditarily syphilitic, does find out that malaria possesses effects on syphilis, that is in its final stage. This happens when she is assisting Ross in his work and research, and presumably less intentionally than by chance and intuition. Whether she had been working, or active, and how, among syphilitics already before Ross had met her at Sealdah station, remains, as everything about her life before entering Ross' laboratory the object of speculation. Here arises the question whether she made herself met by Ross in order to get into his laboratory or whether she got the idea to use malaria in cases of syphilis only later. The quick way of her progresses makes the former assumption more probable. To prove this, or to at least show the probability it is necessary to consider how far malaria had been researched, especially, in India until Ross' beginning his research"¹⁹.

Anyway, putting aside the question of chronology for a moment, Mangala did find out that while treating the syphilis of her 'patients' with the Malaria virus, which she conveys via pigeons, there occurred certain mental 'disturbances', or "weird side-effects — what looked like strange personality disorders" (p.206). She then observes that rather than being "personality disorders" these "side-effects" should be seen as 'transmittances', or "transpositions" (p.206) from one infected person to

another one. This happens by using the pigeons as “a test-tube, or an agar plate” (p.205). To understand this one must first know, as explained, too, in the novel, that one effect of syphilis in its “final paralytic stage” is the destruction of “the blood/ brain barrier” (p.205). Second one has to know, that the malaria virus “has the capacity to “cut and paste” its DNA” (p.205) and in addition to this, is able to recombine the DNA (p.206). Mangala, it is said, must have noticed that the malaria virus, when taken from one patient, takes along certain brain features and, when introduced into another patient may transmit these features as information, that is by way of the affected “blood/ brain barrier” (p.205). After having noticed the regularity of the effect it is suggested that Mangala now, as a next step, must have been thinking how to avoid syphilis, that is as pre-condition for a blood-brain-passage, and then, how “to stabilize the chromosome during the process of transference”, that is to bring under control the “recombinatory powers” and the “redistributing” process of the malaria virus in order to be able to transmit systematically as many selected and determined features as possible (pp.201-208).

Among the various types of Malaria, falciparum Malaria, as well called malaria cerebrale, does not have curing effects on syphilis but it can produce, at least, some mitigating effects. Among the many authentic figures appearing in the novel is as well the physician Wagner von Jauregg who invented, indeed, “la malariathérapie dans le traitement de la paralysie générale”²⁰; this, however happened only in 1917, but was awarded the Nobel Prize for medicine, as said in the novel, in 1927 (p.46).

As already indicated above with the figure of Mangala Bibi, in the novel *Mangala* is supposed to have given decisive impulses for Ross' research through Lutchman.

The story around Mangala must, without doubt, be read, too, before the background of the Kali cult in Calcutta, the ceremony in the former boarding house reminds of that of Kali-puja²¹. The importance of Kali in Calcutta is underlined by Anita Desai in her *Foreword* to Krishna Dutta's book about Calcutta:

I too wrote my book about Calcutta, calling it *Voices in the City* and portraying it as a vast temple of Kali, its citizens her devotees who worshipped in a thick smog of smoke from kitchen fires instead of incense to the clamor of traffic instead of temple bells²².

Colonialism and Vampirism

The introduction of the Society of Spiritualists presided by Liisa Salminen from Finnland into the novel opens ways for the narrator to introduce, too, in a, for the reader, acceptable way glimpses of a world of mystery which moves between knowledge, semi-knowledge and believe(s) as already suggested by H. Wassef (cf. footnote 8). Liisa Salminen is said to have been "Mme Blavatsky's arch-rival" (p.171), however, the description of Liisa Salminen with her Society of Spiritualists in *The Calcutta Chromosome* may be read as well as some caricature of Madame Blavatsky and her Theosophical Society, which represents one more facette of colonialism's culture and society. The blurb of the edition of Ghosh's novel here used announces that it is as

well “a Victorian ghost story”. But for the reader there is no need for such a declaration to see as well the Victorian background — as e.g. with the many allusions to Ross prudery which hinders him a long time to understand the asexual process of the malaria virus’ procreativity — as a gothic aspect of the narration. To continue from here to Bram Stoker’s *Dracula* becomes already a matter of fact.

But before continuing this line of considerations, one must remember that one of the most important details of the novel is the ‘discovery’ how malaria is transmitted by the *Anopheles mosquito*²³. And before following the way of the implications in the novel here involved, it might be just to recall here some moments of the connection of malaria research and colonialism from late 19th century on.

The most important stages of malaria research in late 19th century are related by Murugan to Antar in chapters nine and eleven. If these chapters are important to understand the historico-medical background with its groups of historical figures of the novel, chapter ten is — what is a crucial moment of narratological strategy — a chapter that illuminates the relationship of that group of people who are or are to become involved with semi-scientific or sub-cultural scientific events which, however, cannot be strictly severed from the first group. Murugan’s explanations follow the historical events, his sloppy language, bringing things to the point, becomes here a medium to take some distance and invites as well to look critically at what is celebrated as, in this case especially Ross’ achievements, which is, of course, Murugan’s main aim. This aim of Murugan, and it may be added of the novel as a “medical thriller” (blurb), and here, I would like to add, too, not only in fictional

terms, becomes apparent in the following piece of talk between Murugan and Antar: After Murugan, most ironically, has set the scene of the scientific landscape of the second half of the 19th century with the French Laveran, and the Italians Celli, Golgi, Grassi and many other names, a stage on which Ross turned himself up quite naïvely, Murugan continues:

... And you know what? He did it; he beat the Laverans and the Kochs and Grassis and the whole Italian mob; he beat the governments of the US and France and Germany and Russia; he beat them all. Or that's the official story anyway: young Ronnie, the lone genius, streaks across the field and runs away with the World Cup.' [cf. figure 2]

'I take it you don't go along with this', said Antar.

'You said it Ant. This is one story I just don't buy.'

.....

'I take it', Antar persisted, 'that you have your own version of how Ronald Ross made his discoveries?' (p.49)

Of course Antar does and the reconstruction and narrative of this alternative version becomes the origin of the novel. Murugan mentions Meckel's detection of 'round and crescent shaped protoplasm in the blood of malaria patients' in the first half of the 18th century and that only about forty years afterwards Alphonse Laveran's finding that the 'crescent shaped granules' do move and that "the cause of malaria [is] a protozoan — an animal parasite" Murugan explains that only in Italy scientists followed Laveran and that in 1886 Camillo Golgi found out:

that Laveran's parasite grows inside the red blood cell, eating

its host and shitting black pigment; that the pigment collects in the centre while the bug begins to divide; he demonstrates that the recurrence of malarial fever is linked to this pattern of asexual reproduction. (p.59)

However he adds that many renowned scientists were “busy refuting “Laveranity””. At that time Patrick Manson, who became Ross’ mentor in England, was as well researching malaria. Manson had found out “that the mosquito was the vector for filaria”, and from him Ross should have heard that mosquitoes might to be linked as well with malaria. The, scientifically anyway belated, Ross first follows Manson’s idea that the malaria virus “was transmitted from mosquito to man via drinking water” (p.60). In order to get malaria infected blood Ross only after some time comes to know a certain Abdul Kadir on whom he experiences by making him be bitten by mosquitoes, and “on June 26, 1895” Ross saw [t]he first tiem ... the crescent-sphere transformation of the parasite” (p.61). He is reminded by Manson “that “the beast in the mosquito ... gets to man in mosquito dust”” (p.62). At this time appeared Lutchman at Ross’ place, Ross made him drink a concoction, but Lutchman does not get ill with malaria, however from now on he stays with Ross. In 1897 Ross spends some time, always with Lutchman, in the Nilgiri Hills. Finally, “On August 20 1897 Ronnie makes his first major breakthrough” (p.66).

In Murugan narration two details of different character should be remembered. Before entering into details of his version of Ross’ research story he asks Antar, in an almost warning tone, if he really is ready to hear it. When Antar confirms Murugan reminds him “remember, it was

you who asked. It's your funeral" (p.50). The importance of this sentence, at that point somewhat enigmatic, becomes clear at the end of the novel (p.244). Then, at a very early point Murugan mentions the fact that malaria can be a cure, and that is for syphilis (p.46), a second detail which is related to the first

Regarding the scientific progress Murugan's version follows the authentic development of malaria research. It is not possible to give here an overview of the history of medicine and research regarding malaria. The disease was named malaria, that is from Italian *mal(e)*, bad, and *aria*, because it was believed, as Sheldon Watts summarizes, that the outbreak of the disease was "caused by the vaporous fumes arising from the swamps and stagnant waters of a particular malodorous place and that, being indigenous and place specific, it could not be imported"²¹ With Laveran's discovery of the "*plasmodia*, of malaria", later known as well as *falciparum malariae*²⁵, in 1860, Sheldon Watts writes, this belief was given up for sake of "this medical knowledge", but, as Watts comments in a lapidary footnote the situation in India: "In India, among top echelon British medical officials, the place specific idea remained firmly entrenched until after 1898"²⁶. As was already said, malaria was indeed used as a cure for syphilis by the Austrian Julius von Wagner-Jauregg (cf. footnote 19)

Back to colonialism

The medical doctor Ross in Ghosh's novel is made to appear quite a queer figure. I myself do think that it is so because he becomes the representative of a queer society of colonialism. Again in Murugan's

description Ross is said to have entered the field of medicine under the force of his father, who, as is it is said in the novel, did not want to approve to the poetical call of his son, and one day told him: "Our family's been out here in India since it was invented and there's no goddam service here doesn't have a Ross in it, you name it, Civil Service, Geological Service, Provincial Service, Colonial Service ... I've heard of them all, but no one told me about no Poetical Service yet. ... So kiss goodbye to this poetry shit, poetry just don't cut it." (p.46)²⁷ [cf. Figure 1]. That Ghosh's narrator is not exaggerating about Ross' ambitions as a poet is confirmed by a statement one can find in the internet: "He [i.e. Ross] was awarded the Nobel Prize in 1902 (Ross never aspired to be a physician, he wanted to be a writer. His father forced him to join medicine!)"²⁸ Ross celebrated his findings with a poem. In his Memoirs he remembers:

... I scribbled the following unfinished verses in one of my *In Exile* notebooks in pencil:

This day designing God
Hath put into my hand
A wondrous thing. And God
Be praised. At his command,

I have found thy secret deeds
Oh million-murdering Death.

I know that this little thing
A million men will save—

Oh death where is thy sting?

Thy victory oh grave?²⁹

It goes without saying that this is not only a novel about Ross' personality, and one central question is, why Ghosh took up the history of malaria research. Introducing Ross, the narrator makes Murugan put Ross explicitly into the colonial context:

... here 's this guy, a real huntin', fishin', shootin' Colonial type [cf. Figure 3], like in the movies; ... likes a night out on the town every now and again; drinks whisky for breakfast some mornings. (p.44)³⁰

Research on malaria, as that of cholera and other diseases, belonged to the European colonial project. Laveran did his research, as Watts observes, "as part of the Pasteur Institute crash program to advance settler penetration into Muslim North Africa"³¹. However there are more and deeper implications of malaria and colonialism (as of other diseases). Malaria research is, too, deeply imbued with the question of racism. When discussing the "miasmatic understanding of disease then current", and British consideration on malaria in Bengal, David Arnold demonstrates the connection between "medical topography" and the colonial discourse. It is worth to cite this in some length:

Malaria was represented as an 'emasculating' disease that threatened reproduction, rendered individuals weak and sickly, and so accentuated the division already entrenched in colonial ideology and practice, between the 'manly' and 'martial' races of the north and northwest and the 'effeminate' Bengalis

It is barely necessary to sample this medico-ethnographical

discourse to understand the authority medicine brought to colonial representations of race and why Bengalis themselves internalised such representations in seeking to explain their own physical and political weakness³².

Citing from an article attributed to Ross Watts demonstrates that this connection can be traced easily as well in Ross' ideology.

Malarial fever ... haunts more especially the fertile, well-watered, and luxuriant tracts. ... There it strikes down not only the indigenous barbaric population, but, with still greater certainty, the pioneers of civilisation—the planter, the trader, the missionary and the soldier. It is therefore the principal and gigantic ally of Barbarism ... it has withheld an entire continent from humanity—the immense and fertile tracts of Africa³³.

Describing the phase of Ross' research in 1895 in Begumpett when he tried to verify "Doc Manson's mosquito-juice theory", Murugan depicts him as follows:

On his way up [i.e. to his regiment in Begumpett/ Secunderabad] Ronnie sticks needles into anything that moves. When he pulls into Begumpett he begins to offer money for samples of malarial blood — real money, one rupee per prick!

However, despite the money offered nobody in this mosquito and malaria fed region nobody is willing to spend his blood, what Murugan comments:

Suddenly Ronnie finds himself starring in a bad breath commercial: every time he steps out on Main Street, Begumpett, it's empty. (pp.60-61)

Ross "stick[ing] needles", his search for "malarial blood" and his being

fled by anybody, these observation must invite to see that Ross figures as well as caricature of Dracula himself. I would like to ask why it should not be possible to proceed to the following association.

In order to transmit the illness the mosquito has to suck the blood the of its first 'victim' to transmit it to its next ones. This leads to the association of the vampire who sucks the blood of his victim to create new vampires. And this, again, invites to compare blood the sucking vampire with the exploiting colonizer and the process of colonization, with its drainige of the colonized country's richness. If seen before the background of Malaria research provoked by hygienal problems in colonies and the harsh presuppositions and conditions of it, which, last not least led, in many cases less to a solution of the problem but to an increasement of the desease, this circle-like associations seems all the more plausible.

The connection between vampirism, and especially Dracula's case and imperialism and colonialism has been studied by Joseph Valente in his book about the Irish writer Bram Stoker's *Dracula* putting the novel into exactly that context. Valente makes observations about the "likeness to vampiric condition" in "metrocolonial subjectivity" and remarks:

... to be a metrocolonial subject, Dracula's composite construction suggests, is always to be alienated in what you call home and always implicated in what you call alien³⁴.

Still of more interest is in my context here Valente's interpretation of the "symbolic correspondence of Van Helsing and Dracula"³⁵, what brings, in my case, the figure of the IMS man Ross into a fine relation to vampiric

The Colonial Virus in Literature: Medical and Colonial Adventures in Amitav Ghosh's novel medicine of late 19th century"³⁶. Reading Ross' *Memoirs* in this context even turn into a comical version of history if one reads e.g. the following extract:

Here all day I toiled hard trying to find Laveran's malaria parasites in the blood taken from the pricked fingers of patients; but without success, because I was using an elaborate technique of my own, which was, well, too elaborate!³⁷

An attempt of a conclusion

If the blurb text wants to invite the reader announcing that this novel by A. Ghosh is: "A medical thriller, a Victorian ghost story and a scientific quest ..." I would like to add, summarizing, that one may dissect four dimensions in the text. First, it is a narration of historico-medical facts and events. It is, second, a narration of late nineteenth century colonialism in India which is highly interspersed with speculation and fantasy which lend the the text, indeed, the somewhat mysterious atmosphere of a gothic novel. As a third and fourth dimension, overlapping partly with the first and second, one may distinguish a real level and a virtual level. However none of these dimensions can be considered seperately and the reader is left with unsolved riddles on each. As is done in so many texts of contemporary literature, the narrator demonstrates the many dimensions of (hi)story and the various facets and possibilities of their interpretation but impossibilities to come to an overall conclusion. Seen as a contribution to postcolonial literature one may put the novel, too, into a context with recent attempts to recontemplate history (cf. here footnote 11), which

may be allowed as well when considering Amitav Ghosh's activity as well as a cultural anthropologist.

- *1 Amitav Ghosh, *The Calcutta Chromosome. A Novel of Fevers, Delirium and Discovery* (1996), Delhi, Ravi Dayal Publisher, 4.1998. All quotations made here from the novel are from this edition; from here I shall give in my text only the pages in brackets.
- *2 Amitav Ghosh, *The Circle of Reason* (1986), London, Granta Books, 1998.
- *3 Amitav Ghosh, *The Shadow Lines* 1988, Delhi, Ravi Dayal Publisher, 9.1997.
- *4 Amitav Ghosh, *In an Antique Land* (1992), New York, Vintage Books, 1994.
- *5 Amitav Ghosh (2000), *The Glass Palace*, New York, Random House, 2001.
- *6 Always remembering the importance of distinguishing author, narrator, figures the observation may be allowed that in this choice of places one may see reflected at least a biographical background of Ghosh who was born in Calcutta and studied among other places in Egypt. The extract of the historical story based on the authentic papers by Ben Yiju the Jew of In an Antique Land and the research papers of S.D. Goitein, and others, was published by Gosh as well a a scientific paper, cf.: A.Gh., *The Slave of Ms. H. 6*, Centre for Studies in Social Sciences, Calcutta, Occasional Paper No. 125, October 1990; here I want to thank Professor Osada Toshiki from the Research Institute for Humanity and Nature (RIHN) who presented me a text of the first edition of this well known study by Ghosh, just while I was writing this essay and still using the later editions. Later it was published as A.Gh., "The Slave of MS.H.6", in: Partha Chatterjee, Gyanendra Pandey, eds., *Subaltern Studies. Writing on South Asia History and Society*, vol.VII (1992), Oxford UP, Delhi, Calcutta, Chennai, Mumbai, Oxford India Paperbacks, 4.1997, pp.159-

220., By now A. Ghosh is living in New York. Cf. here as well my article, E.J., "Unseen Boundaries between No So Different Worlds — Amitav Ghosh's *In an Antique Land* (1992). Problems of Identity in Novels by A. Desai, S. Rushdie, A. Ghosh, and R. Mistry (Part III), in: *The Integrated Human Studies*, Faculty of Integrated Human Studies, Kyoto University, Vol.8, 2001, pp.19-34, where I made as well a few considerations upon *The Circle of Reason and The Shadow Lines*. Amitav Ghosh is also the author of *Dancing in Cambodia, At Large in Burma*, Delhi, Ravi Dayal Publisher, 1998, which is a book about cultural and political events of Cambodia and Burma, Myanmar. A. Ghosh deals among other events with the Pol Pot regime, 1975-1978, in Cambodia; in Myanmar he interviewed Suu Kyi, who appears as well in Ghosh's historical novel *The Glass Palace. In Countdown*, Delhi, Ravi Dayal Publisher, 1999, A. Ghosh writes critically about the nuclear tests by the Indian government on May 11, 1998. As *Dancing in Cambodia, A Large in Burma* this text is at the same time a kind of travelogue. A. Ghosh's, *The Imam and the Indian. Prose Pieces*, Delhi, Ravi Dayal Publishers, 2002, is a collection of essays with cultural and historico-political implications which had been published elsewhere before.

- *7 Hind Wassef, "Beyond the Divide: History and National Boundaries in the Work of Amitav Ghosh", in: *Post-Colonial Discourse in South Asia*, Alif, Journal of Comparative Poetics, No. 18, 1998, The American University of Cairo Press, Cairo, 1998, pp.75-95, here, p.93.
- *8 Hind Wassef, "Beyond the Divide", op.cit., p.94.
- *9 Ronald Ross, *Memoirs with a Full Account of the Great Malaria Problem and its Solution*, London, John Murray, 1923.
- *10 R. Ross, *Memoirs*, op.cit., pp.223 and 225. Mosquito Day continues to be remembered today, cf. e.g. the website "When is Mosquito Day", http://www.ent.uga.edu/mosquitoes/mosquito_day.htm
- *11 It will need no further explanation that information which is not fully

constructed or reconstructed pulls through the novel as one postmodern leitmotif, that is e.g. of the difficulty to reconstruct history, here an episode of colonial history. In this case the information is even further disintegrated. Murugan found his information by chance, when doing research of Eugene L. Opie's private research papers in a library in Baltimore. This letter was written by Farley in 1894 to Opie, who like MacCallum had been his former research colleague. The letter, however, had not been catalogued and when Murugan wants to see it a second time it cannot be refound so that Murugan's informations to Antar are based on Murugan's memory account written down at that time (p.101)

- *12 Sealdah station, together with Haora station one of the two main stations in Calcutta "founded in 1862 in north Calcutta, is also connected to major cities all over the country", Krishna Dutta, *Calcutta. A cultural and literary history, Cities of the Imagination*, Oxford, Signal Books, 2003, p.xvi.
- *13 The just cited reference is made when Murugan explains his theories to Urmila, and in this same talk he repeats the date twice. Referring to the mentioned letter by Farley he explains to her that the assistant in Cunninham's laboratory must have been "the same guy who turned up at Ross's door on May 25, 1895" (p.209), and moments later varies Lutchman's appearance: "in May 1895, 'Lutchman' walked into Ronald Ross's lab in Secunderabad" (p.210). When talking to Antar in New York Murugan had as well been precise: "on May 25 1895 at exactly 8 p.m. a guy Lutchman walks into Ronnie's life" (p.62).
- *14 Sir George Abraham Grierson, 1851-1941, was born in Ireland. He left for India in 1873. One of his major works was the *Linguistic Survey of India* which he conducted from 1898 to 1928. He died in England, in the novel it is said "This Grigson's quite a character: he's going to die in the forties, in northern Burma, trying to settle a tribal dipute" (p.76). For information about G.A. Grierson one may begin with the entrance from

the *Encyclopedia Britannica* available by the internet access:
<http://www.britanica.com/eb/article?eu=38874> and consult as well
<http://concise.britannica.com.ebc/article?eu=391461>.

- *15 G.A. Grierson's published work is, indeed, impressive. His major work is the publication of the *Linguistic Survey of India* in 19 volumes, each of several hundred pages, compiled and edited by G.A. Grierson, C.I.E., PH.D., D.LITT., I.C.S., Delhi, Low Price Publications (1903-1900), Reprinted 1990-1900). In Murugan's language this is described: "When Ypsilanti College bought his collected papers in 1990 they had to hire an eight-axle truck to ship the stuff out" (p.76).
- *16 cf. e.g. A.J. Greimas, "Les actants, les acteurs et les figures", in: "C. Chabrol, ed., *Semiotique narrative et textuelle*, Paris, Larousse, as for Greimas' theory, here I follow the article "Actante", in: Carlos Reis, Ana Christina M. Lopes, *Dicionário de Narratologia*, Coimbra, Livraria, Almedina, 1990, pp.15-18.
- *17 Sheldon Watts, *Epidemics and History. Disease, Power, and Imperialism*, New Haven and London, Yale UP, 1997, p.256.
- *18 Kalighat: For anybody with ambitions to do a walk of/ through (the) literature of Calcutta cf. e.g.: Krishna Dutta, *Cities of the Imagination, Calcutta*, op. cit., cf. footnote 12 ; referring to Kalighat 「カーリー寺院」, e.g., most concretely: 『地球の歩き方3インド編2002-2003年版』、ダイヤモンド社、2002年、p.351の地図etc.ibidem.
- *19 Cf. David Arnold, *The New Cambridge History of India, III. 5, Science, Technology and Medicine in Colonial India*, Cambridge UP, 2000; as well Sheldon Watts, *Epidemics and History*, op.cit.
- *20 Claude Quétel, *Le Mal de Naples. Histoire de la syphilis*, Paris, Seghers, Medicine et Histoire, 1986, p.345.
- *21 For the Kali cult and the Kali-puja, cf. Narendra Nath Bhattacharyya, *A Dictionary of Indian Mythology*, New Delhi, Munshiram Manoharlal, Publishers, 2001, pp.139-140; Jan Knappert, *An Encyclopedia of Myth*

and Legend. Indian Mythology, London, Diamond Books, 1995, pp133-134.

- *22 Anita Desai, Foreword, in Krishna Dutta, Calcutta, op.cit., pp.vii-xii, here, p.ix.
- *23 ἀνωφελής [anopheles], literally: "... unprofitable, useless, Soph. [Sophokles] ... 2. hurtful ... Thuc. [Thukidides] ...", here cited from: *An Intermediate Greek-English Lexicon*, Founded upon the Seventeenth Edition of Liddel and Scott's Greek-English Lexicon (1889), Oxford UP, 2002.
- *24 Sheldon Watts, *Epidemics and History. Disease, Power, and Imperialism*, New Haven and London, Yale UP, 1997, p.216. The name, *mal(e)*, bad and *aria*, air, which could be as well of Portuguese or Spanish etymology becomes dated back to 1717 and linked to the Italian Lancisi, cf. e.g. the webside "History of malaria", <http://www.malariasite.com/malaria/History.htm> In Spanish exists as well *paludismo*, from Lat. *palus*, swamp etc. Concern with location and air in the history of European colonialism can be observed in a name like that of the Argentine capital, Buenos Aires, which indicates a place idoneous for settlement, good airs.
- *25 plasmodium malariae, falciparum malaria: cf. D. Arnold, *The New Cambridge History of India*, III.5, op.cit.; Sheldon Watts, *Epidemics and History*, op. cit., indices: "malaria" etc., and the websites cited here in footnotes 10, 24, 28.
- *26 Sheldon Watts, *Epidemics and History*, op.cit., p.216, and footnote Chap.6.15, p.345.
- *27 Reconsidering the two 'faces' of Dracula as discussed in J. Valente's study, I cannot help but to imagine here, that the narrator of Ghosh, the novelist and the cultural anthropologist must have, here, confronted himself with overlapping roles of participants in the 'colonial game'.
- *28 cf. "History of malaria" <http://www.malariasite.com/malaria/History.htm>

- *29 R. Ross, *Memoirs*, op.cit., p.226. Ross continues that he wrote "amended verses" on the next day. This second version is cited in Ghosh novel, at the very beginning (p.2) and p.35.
- *30 That Murugan does not exaggerate in his description of Ross can be confirmed by passages from Ross' *Memoirs*, where Ross e.g. writes: "On the 23rd I left for Secunderabad, which we reached at midnight, 24-5th, and I lived there in a bungalow en garçon, with Captain Thomas the Adjutant, and Lieut.. Hole, both first-rate fellows. We had our mess, and there was the Secunderabad Club, where we played golf and and tennis; but I kept no ponies, as I expected to be put upon special malaria work at any time." Self-assuredly he adds: "... but after paying the usual ceremonial calls, I to got to work at once in the best of health and spirits. (*Memoirs*, p.134). This passage is cited in Ghosh's novel on p.74. This passage is, among several others, a prove that Lutchman/Laakhan indeed continued to be around Ross.
- *31 Sheldon Watts, *Epidemics and History*, op.cit., p.216.
- *32 David Arnold, *The New Cambridge History of India*, vol.III.5, *Science, Technology and Medicine in Colonial India*, Cambridge, Cambridge UP, pp.78 and 79. In this context attention deserves e.g. a study by Maneesha Lal, "The ignorance of women in the house of illness": gender, nationalism, and health reform in colonial north India, in: Mary P. Sutphen, Bridie Andrews, eds., *Medicine and Colonial Identity*, London and New York, Routledge, 2003, pp.14-40.
- *33 Ronald Ross, *Instructions for the Prevention of Malarial Fever for the Use of Residents in Malarial Places*, the passage is quoted here as it appears cited in Sh. Watts, *Epidemics and History*, op.cit., p.256, for Watts' source, cf. his footnote 6.166, p.357.
- *34 Joseph Valente, *Dracula's Crypt. Bram Stoker, Irishness, and the Question of Blood*, Urbana and Chicgao, University of Illinois Press, 2002, p.71.

*35 J. Valente, *Dracula's Crypt*, op.cit., p.101.

*36 Bram Stoker, *Dracula* (1897), A Norton Critical Edition, Edited by Nina Auerbach and David J. Skal, New York, London, W.W. Norton & Company, 1997.

*37 R. Ross, *Memoirs*, op.cit., p.101.

Figure 1



"Our family's been out here in India since it was invented and there's no goddam service here doesn't have a Ross in it, Civil Service ... I've heard of them all, but no one told me about no Poetical Service yet. ... So kiss goodbye to this poetry shit, poetry just don't cut it", A. Ghosh, *The Calcutta Chromosome*, op.cit., p.46; here: Ronald Ross' father, photo taken here from: R. Ross, *Memoirs*, op.cit., Plate I, with the caption: "General Sir Campbell Clave Grant Ross, K.B.C., Bengal Staff Corps.", before the titlepage (which would be p.ii)

Figure 2



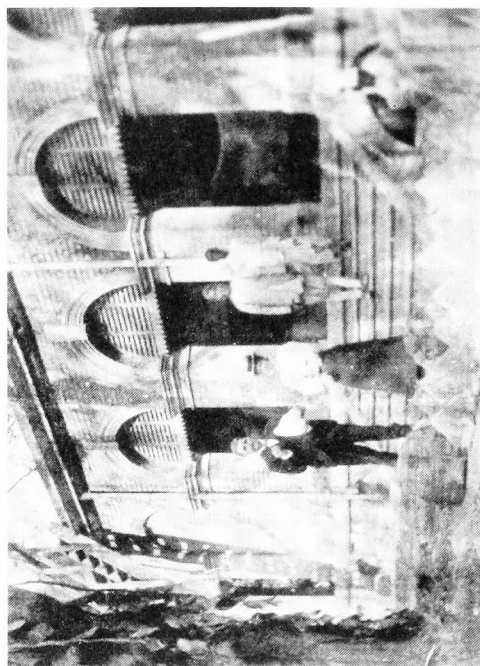
"...young Ronnie, the lone genius, streaks across the field and runs away with the Wold Cup", A. Ghosh, *The Calcutta Chromosome*, op.cit., p.49; here: Ronald Ross (1857-1927) at the age of 42, photo taken here from Ronald Ross, *Memoirs with a Full Account of the Great Malaria Problem and its Solution*, London, John Murray, 1923, Plate VI. (above), with the caption: "Ronald Ross, 16 November, 1899", between pp.278-279.

Figure 3



... here's this guy, a real huntin', fishin', shootin' Colonial type ...", A. Ghosh, *The Calcutta Chromosome*, op. cit., p.44, here: a contemporary caricature of Ronald Ross, photo taken here from R. Ross, *Memoirs*, op. cit., Plate XI (above), with the caption: "Moustique et Malaria .. (From a Mauritian Newspaper, 1908)", between pp.518-519.

Figure 4



"names", "figures", "actants" (here, Greimas, footnote 16); the laboratory where Ronald Ross researched in Calcutta and where the events in Calcutta begin on August 20: Mosquito Day, 1995, in Amitav Ghosh's *The Calcutta Chromosome*, photo taken here from R. Ross, *Memoirs*, op. cit., Plate VI (below), with the caption: "Laboratory at Calcutta. Surgeon-Major Ross, Mrs. Ross, Mahomed Bux, a Laboratory Assistant, and Birds in Cages, 1898", between pp.278-279.