Thanks to Lysenko, we got Haldane

by Abhishek Hazra

Thanks to Lysenko, we got Haldane contextualises a set of artworks that reflect on the notion of error - both scientific and political - and the epistemological implications of partisanship. The artworks juxtapose diverse historical contexts, which might or might not share actual causal linkages.

1.

Introductory Note

Before we move onto an elaboration of the artworks, I would like to briefly contextualise this exposition[1]. In this section, I will give a very brief background to what led me to this project followed by some remarks on the relationship between the text of the exposition and the artworks.

The artworks shown in this exposition emerge from my long-standing interest in the following areas:

History of science.

For me the history of science has been an interesting entry point to think of historicity within the context of science. For it seems that in the popular understanding of science there is an implicit assumption of atemporality – of an unchanging nature which slowly reveals to the scientific gaze its fundamental laws and their complex interaction. However, in recent years, we have become sceptical of this transparent model of an inherently 'knowable' natural world yielding up its secrets in incremental steps. Such a sombre view also connects with those trajectories of post-Enlightenment European philosophy where there has been an ongoing discourse on the limits of human knowledge. In beginning to consider the horizon of human knowledge, we also realise that the 'past' – the prime site of history as a discipline – also has its limits of know-ability.

At a more instrumental level, the history of science makes one aware of the meandering trajectory of scientific 'development'[2] and the rich universe of false starts and dead theories that swarm about the 'correct' natural laws. Perhaps these dead theories are never really dead – paradigm[3] shifts can often resuscitate them into the pink of certitude and health.

Cultural history of Marxism.

In recent years we have become quite familiar with a particular kind of conference: one that brings together the 'cutting edge' of theoretical thinking on Marxism to reflect on the global future of communism – and somehow by some strange coincidence the globe shrinks into Europe in these instances as on the conference panel one can hardly find a 'southern' thinker.

Perhaps China or Cuba can't really think of Marxism in theoretical terms, yet. But this is not about the settling of parochial scores – because I also recognise the necessity of de-provincialising[4] Marx (see fig. 2). Trapped into the specificity of a local context, it often becomes impossible to think of Marxism in non-partisan terms and a rich and complex body of thought collapses into the dictates of the local communist party.

The remainder of the exposition is roughly grouped around three sections. In each of them, I will present the artworks and offer a brief outline of the relevant historical context. While the artworks presented here try to grapple with complex, theoretical questions around the notion of error, or the epistemological implications of partisanship, this exposition itself will abstain from any involved theorisation. Although there is research involved in my art practice, I have often viewed my artworks as 'Presearch': an effort to produce a body of research material that can then serve as the raw material for the research proper.

As an artist, the singularity of an artwork and the range of experience that it is capable of potentially producing, continues to excite me. And when diverse contexts[5] previously rendered distant through discursive boundaries, are pulled close to each other, within the framework of this artistic singularity, then it becomes interesting to read these contexts off each other: what would happen if we read McCarthyism through Lysenko's Stalinist excesses? Would it just lead to some trite generalisation on power and anxiety in geo-political relations or might it allow us to think further about the larger implications of partisanship?

I would also like to state that there already exists significant scholarship[6] in the humanities in the areas that I am going to discuss and I do not claim to have produced any particularly original research that uncovers previously unknown information. My interest is more in exploring the connections between diverse contexts.

---

1 The term 'exposition' here is used specifically in relation to this article's development for publication in the Journal for Artistic Research (JAR). Given the journal's online character, its capacity for presenting multi-media content and its professed interest in exposing research aspects of artistic practice, contributions have been referred to as 'expositions' during the editorial process.

2 Yes, the D word: pardon for sounding flippant, but just dip into Hegel and you can get a sense of how historically the very notion of development has typically been an exercise in teleological grandstanding.

3 Paradigm? As in Thomas Kuhn? Yes, of course. This brief note on the history of science is well, just a bit too brief too elaborate on particular theoretical contributions. And in trying to construct it as a highly telescoped recapitulation I am hoping that my particular subjective take on this rich and complex terrain will get fore grounded to some extent. For reasons of brevity, I will not even attempt to outline Kuhn's work here, apart perhaps from mentioning in passing that his work on the 'structure of scientific revolutions' brought discussions around the 'subjectivity' of 'objective' science into a much wider envelope of public discourse (Kuhn 1970)

4 I am referring here to Dipesh Chakrabarty's provocative formulation of Provincialising Europe (Chakrabarty 2000). And what are you anticipating now, dear reader? My reluctance to introduce the works I refer to should have become familiar to you by now, and you might be justified in wondering if 'reasons of brevity' is a convenient excuse for something else. Okay, let my try to short-circuit a full-blown discussion of my supposed reluctance by offering another writer's reading of Chakrabarty's book. Here is Amit Chaudhari in the London Review of Books (Chaudari 2004). This excerpt might seem arbitrary but it does talk about an arresting image. And in case, you are familiar with the work of the Delhi-based Raqs Media Collective then this image of the imposter might be already familiar to you (Raqs Media Collective 2004).

> "And this, of course, is the crux of Chakrabarty's book. 'Historicism – and even the modern, European idea of history – one might say, came to non-European peoples in the 19th century as somebody's way of saying "not yet" to somebody else.' To illustrate what he means, he turns to John Stuart Mill's On Liberty and On Representative Government – 'both of which,' Chakrabarty says, 'proclaimed self-rule as the highest form of government and yet argued against giving Indians or Africans self-rule."'
>
> > According to Mill, Indians or Africans were not yet civilised enough to rule themselves. Some historical time of development and civilisation (colonial rule and education, to be precise) had to elapse before they could be considered prepared for such a task. Mill's historicist argument thus consigned Indians, Africans and other 'rude' nations to an imaginary waiting-room of history.

The 'imaginary waiting-room of history' is another of Chakrabarty's compressed, telling images.

5 As you read further you may find yourself asking whether we really need a Mrinal Sen film and the predictable Bengali obsession over their supposedly radical Marxist credentials to better understand Linus Pauling's failed attempt at solving the double helical structure of DNA? Is this bringing together of diverse historical strands then to be read as yet another, possibly pedestrian, instance of 'everything is connected' hypothesis which here commits the additional sin of masquerading as artistic research? Today, a simple JavaScript automated connection generator can effortlessly spew out seemingly profound connections between random historical events. While it would be interesting to speculate on a Turing Test for artistic research, this perhaps is not the apt context for that.

6 And even in citing or rather summarising the existing research I had to struggle with my own frustration at not being able to adequately address, or even merely hint at, the spectrum of grey shades that cross hatch many of the areas I refer to.

2.

The Triple Helix:
Linus Pauling's failed attempt at solving the DNA puzzle.

Linus Pauling, the only person to win two unshared Nobel Prizes[7], the first in Chemistry and the second in Peace, was a towering presence in twentieth century science. One of the first chemists to rigorously apply the insights from the then emerging discipline of Quantum Mechanics, it was Pauling who, in the 1930s, made fundamental breakthroughs in our understanding of the chemical bond – that complex force between atoms and molecules that allows the formation of chemical compounds. Pauling's work was also critical for some of the key insights into the nature of the three dimensional structure of complex biological molecules like proteins.

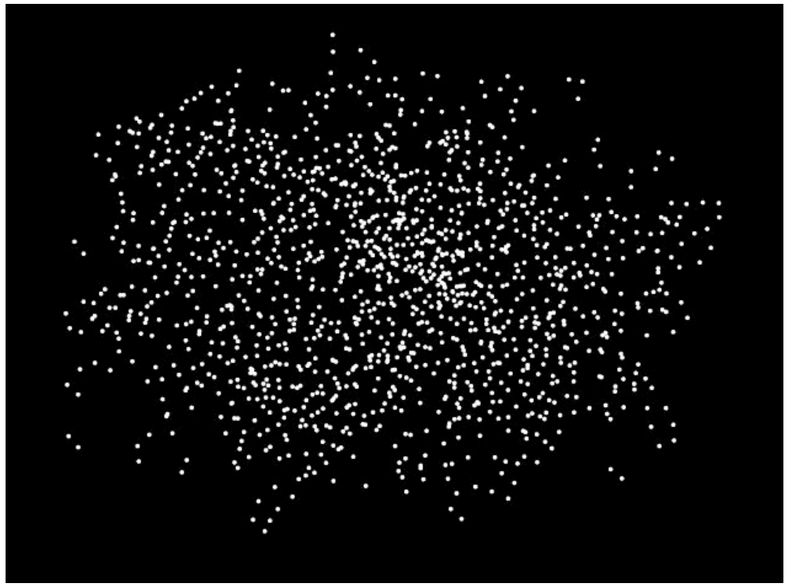


fig.1
Still from the video
To Everything Turn! Turn!
2010

By the 1930s scientists had a strong sense that the complex biomolecule, DNA or Deoxy RiboNucleic Acid, found primarily in the nucleus of cells, was indeed the site for genetic inheritance. Therefore, a proper understanding of its chemical structure held the key to any further development in understanding the exact way in which genes worked. There was a palpable excitement in biological circles[8] – as it was understood that such an insight would compel one to re-engage with Mendel and Darwin's work on genetics and evolution thereby opening up completely new insights into key biological processes. The task at hand was to arrive at a three dimensional configuration of the DNA molecule – a structure that would explicitly state the spatial location of each constituent atom in DNA and explain its chemical and biological properties as a consequence of this three dimensional arrangement.

Pauling had already proved his brilliance in solving the three dimensional structure of some other complex bio-molecules – in fact the suggestion that a certain class of molecules can have a helical three dimensional structure was also his conceptual breakthrough. Pauling was expected to crack the DNA problem as well.

The genius however faltered and his paper outlining a triple helical model of the DNA, instead of the double helical model - as discovered by Watson and Crick, with help from Maurice Wilkins and Rosalind Franklin[9] - was blighted by errors so elementary that would be apparent even to a chemistry undergraduate.

The basic process in solving the DNA structure involved obtaining a particular kind of a 'photograph' of the DNA, through a process called X-Ray Diffraction where the DNA molecule was bombarded with X-Rays and the trace of the collision between the radiation and the molecule was captured in an image. By closely analysing this image it was possible to work out the exact details of the three dimensional molecular configuration. Not only was this 'working out' a difficult task, obtaining good X-Ray Diffraction images of DNA too was a significant challenge.

Now compared to Pauling, Watson and Crick had the advantage of Franklin's superlative X-Ray Diffraction images and also her ruthless critique of their earlier failed model, which interestingly was also a triple helix. What would have happened if Pauling had also worked from the same data set? The obvious answer is perhaps that he would have solved the problem correctly. But what if he – and in the context of the video piece, 'he' need not be the historical Pauling, but could possibly be a Pauling like figure extrapolated from him - made a more interesting error and suggested something else? The possibility of the same data to throw up two different 'solutions' is something that I find quite fascinating.

---

7 Most often, when Pauling has to be introduced to a general audience his double Nobel is the most favoured opening line. Perhaps it has something to do with the entire awe and wonder associated with the Nobel Prize but also because Pauling's work can't be encapsulated in a ready-made popular image, like the Double Helix of DNA.

8 By this time, physicists, many of them inspired by Schrödinger's work, had started moving into biological, particularly genetic research. One such scientist was Max Delbrück who along with Salvador Luria headed the phage group in Berkeley. James Watson's initiation into genetics was through Delbrück and years later when the DNA model was discovered Delbrück enthusiastically reported the news to his teacher, the physicist Nils Bohr. This migration of physicists into genetics marks an important moment in twentieth century science and studying the early years of this migration is instructive for it reveals the complex relationship between the perceived hardy, exactitude of physics and the fuzzy, softness of the biological sciences.

9 This almost seamless narration of four scientist names might give one the impression of an easy camaraderie of scientific collaboration. Apart from the famed bonding between the highly driven, ambitious personalities of Watson and Crick, in this instance, collaboration between all four was a highly fraught territory. And then of course, there is the question of Franklin's erasure from the annals of scientific greatness – a glaring mistake that has begun to be addressed only recently.

In the video piece *To Everything Turn! Turn!* (see fig.1) I have worked with the diagrams that Watson and Crick and Pauling published to explain their respective models in the journal *Nature*. The Double Helix is of course by now a familiar part of our visual landscape whereas Pauling's Triple Helix is not, for obvious reasons. For their respective *Nature* publication, Pauling and Watson-Crick chose different visualisation approaches to depict their version of the DNA.
In the video, in an attempt to foreground the epistemic kinship between these two models, I therefore render both these diagrams in a semi-abstract 'pointillist' manner and present them as coalescing from the same broth of (data) points. The suggestion that the video piece *To Everything Turn! Turn!* makes about both the models being possibly correct is not about forgetting basic chemistry (apropos the flaws in Pauling's model) but is rather an attempt to point to the highly provisional nature of what we perceive to be an error. And like the accuracy of a microscope, an error too can have different gradations, or different 'error values' from low to high.

Do we know all that is there to know of the DNA and its molecular structure? The zipping and unzipping of the DNA strands during cell division is such a compelling image and has of course explained various genetic phenomena with such comprehensive detail that its hard to consider the possibility that the DNA can indeed have some other structure – or rather can have additional wrinkles to its structure that we are not yet aware of.

It might be relevant at this point to share a short extract from S. Chandrasekhar's *Truth & Beauty: Aesthetics and Motivation in Science*.

> "Freeman Dyson has quoted Weyl as having told him: "My work always tried to unite the true with the beautiful; but when I had to choose one or the other, I usually chose the beautiful." I inquired of Dyson whether Weyl had given an example of his having sacrificed truth for beauty. I learned that the example which Weyl gave was his gauge theory of gravitation, which he had worked out in his Raum-Zeit-Materie. Apparently, Weyl became convinced that this theory was not true as a theory of gravitation; but still it was so beautiful that he did not wish to abandon it and so he kept it alive for the sake of its beauty. But much later, it did turn out that Weyl's instinct was right after all, when the formalism of gauge invariance was incorporated into quantum electrodynamics." (Chandrasekhar 1990)

I do not necessarily agree with Chandrasekhar's notions of 'truth' and 'beauty', whose normativity is never unpacked but always treated as an almost universally applicable meta-category. Therefore, understandably enough, the social context in which ideas of 'beauty' are often constituted is never addressed. However, this particular example of Weyl's physics offers us an interesting glimpse into the cognitive framework in which the search for 'truth' is indeed conducted and how the truth of a given scientific theory, or law, or model, is perhaps perpetually contingent.

In the context of this exposition, I invoke the figure of Pauling not only for the speculative possibilities offered by his triple helical error but also because of Pauling's harassment by McCarthy regime in America and his own active pacifism. If Haldane and Lysenko can be seen as one part of the science-politics narrative referenced later in this work, Pauling's continued harassment under the communist witch-hunt of McCarthyist America can be imagined as its ironic counterpoint. Many have felt that one of the reasons for Pauling's failure at the DNA puzzle was that he didn't have a Franklin at his end in Caltech and was handicapped by poor experimental data.[10] The suggestion being that if he had only managed to catch a glimpse of Franklin's images while he was still turning over the problem in his head, he would have realized his mistake and immediately made the necessary corrections.

In the lead-up to the DNA discovery Pauling was invited for an important meeting of the Royal Society for sharing his work with protein structures where he was very likely to see Franklin's superlative DNA X Ray images. However, suspicious of his allegedly communist links - Pauling was already a vocal supporter of pacifism and nuclear disarmament - the US government refused to renew his passport and Pauling missed this conference. 'Missed' however would be a wrong word. The international scientific community was alarmed at the shabby treatment meted out to Pauling – this ensured that his passport problems got cleared and within 10 weeks he travelled to London and effectively managed to engage in all the scientific interactions that he had planned to have.

But as has been commented by other scholars, at that point, Pauling was more interested in proteins rather than DNA and even though he was in England for a month, he didn't think of visiting Wilkins and Franklin in their lab and consequently didn't see Franklin's superlative images of the DNA, photos 51 and 52.

Perhaps it is the hallucination of being inside a hall of mirrors – where everything reflects everything else thereby erasing the perceived distinction between discrete objects – but here in this exposition, the figure of Pauling continues to resonate with multiple frequencies. Towards the end of his life, Pauling became convinced of the miraculous properties of Vitamin C and started promoting it as the cure for not only the common cold but also for more serious ailments like cancer and heart disease. Other scientists seriously questioned many of Pauling's claims for Vitamin C but Pauling was apparently utterly convinced in his findings. Unlike Lysenko, whose actions I will come to later, Pauling was not scheming to dispatch his dissenters off to inhumane labour camps; we are speaking of a Nobel Peace Prize winner here.[11] However, his determined dedication in promoting Vitamin C as the grand elixir and his belief in his theories of 'orthomolecular medicine' – ideas that were often on shaky scientific ground - does make one think of the shadow lines that separate the domain of 'irrational' belief and scientific conviction. From our contemporary vantage point it might be easy to ridicule the 'committed' scientist of the early twentieth century and his faith in the scientific validity of dialectical materialism, but perhaps many of them did feel in their scientific bones that matter and motion are eternal.[12]

---

10 One can't help but notice how in popular narration Franklin is often portrayed as the 'experimenter-data generator', in a way that implicitly suggests a lack of the larger synthetic vision of Watson and Crick.

11 Which of course, is not guarantee of a given Peace Prize awardee being an authentic denizen of the moral high ground. Not that we want to treat the dynamite inventor's legacy as a sacrosanct institute – but rather our constraints of space prevents us from entering into that discussion.

12 And by the same token, it is important to distance oneself from obscurantism. While today ecological and green concerns have become fairly mainstream, it was the New Agers of a different generation that actively practised a 'green' worldview. But I have signed the petition in support of the maligned British author Simon Singh – and so, how indeed does one distinguish between 'ecological sensitivity' and 'chiropractic miracle'?

3.

Can one denounce Stalin and still be a leftist?

The figure of the mid-twentieth century intellectual caught up within the contradictory pulls of ethics and politics remains fascinating. The 'committed' intellectual becomes a communist – often a partisan communist by formally joining the communist party - in his first flush of ideological enthusiasm, but is later traumatized by Stalinist horrors and suffers from a lacerating dilemma: whether to leave the party or accept the price of temporary errors, irrespective of their horrifying nature, for larger, historical gains? How should one determine the ethical position – is it ethical to foreground the individual, humanitarian[13] spirit or is it ethical to stand by the cause of larger humanity, which the political movement, the very political movement one has committed oneself to, seems to represent?

What does the partisan lose or gain in being a partisan? Is it absurd to consider partisanship as a critically efficacious position, where one recognizes the impossibility of complete and absolute objectivity, and knowingly accepts the fragmented vision of a subjective, and possibly flawed framework?[14]

Various versions of this dilemma have been played out in wide ranging historical contexts. However, in the larger project, to which this exposition belongs, I am trying to explore it within twentieth century Bengal, given the region's long history of Marxist and communist politics. The first Indian translation of the Communist Manifesto was published in Bengali in the early years of the twentieth century and as Gayatri Spivak has so eloquently argued elsewhere, 'Bengali communism is actually pre-Bolshevik' (Spivak & Guardiola Rivera 2006) noting that M.N. Roy, a Bengali communist was one of the co-founders of the Mexican communist party[15]. While the 1940s marked a significant coming of age of Marxist politics in the mainstream political space – possibly as a response to the man made (British colonial) Bengal famine - the official communist party of India had to wait till the late 1960s to occupy legislative power[16].

The communists - or the left front coalition - still hold power in West Bengal in an unprecedented instance of political continuity. As can be expected, the official left front is no longer the epitome of progressive politics it once aspired to be and recent events have conclusively demonstrated its brutally anti-democratic character, happily servile to the same forces of neo-liberal capital that it routinely dismisses from its official pulpit.

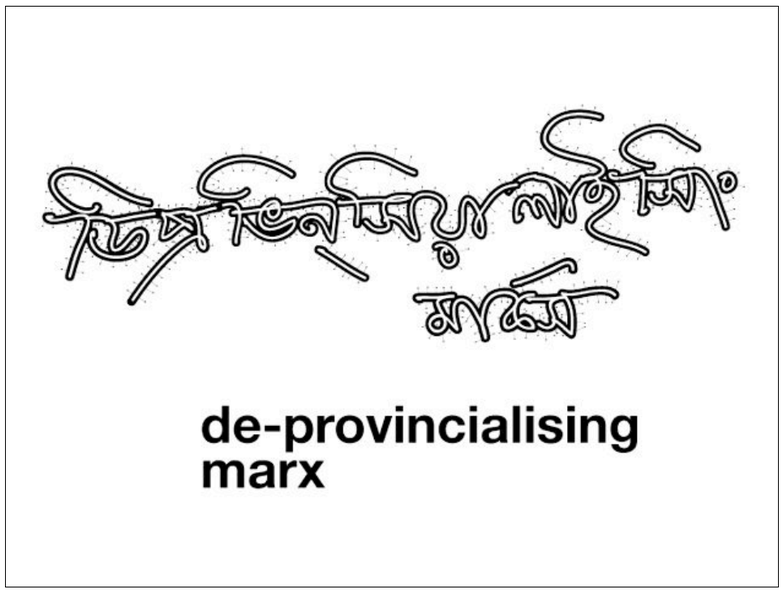


fig 2.
Still from the video
Deprovincialising Marx
2010

13 Humanitarian? Like, you mean, UN Humanitarian Aid? Or human as in humanism / humanist? And how difficult indeed it has become to evoke the precarious figure of the human subject and the equally fragile bond shared with fellow subjects without falling into the minefield of the various non-emancipatory frameworks of thought that have historically spoken in the name of this human subject. And yes, I am fully aware that I have used 'precarious' here in this footnote – am I being ironic here in using a word that enjoys a certain currency in contemporary critical left liberal circles or am I registering my struggle with the inescapable sedimentation of discourses that characterise language.

14 But what if those very flaws produce nothing but violence and trauma?

15 Now within a certain international art world context such an assertion might be read as an example of the vibrancy of parallel or alternative modernisms or colonial cosmopolitanisms, within India, a statement such as this would possibly invite a sniggering remark on 'Bong' (the popular slang for Bengali) parochialism and their misplaced sense of cultural and political avant-guardness.

16 This however was not the first instance of a democratically elected communist government in India. Kerala, the other 'red' state in India, took the lead when EMS Namboodripad took oath as the chief minister of Kerala in 1957. Here is Prabhat Pattnaik, noted Marxist economist and also a vocal spokesman for the Communist Party of India (Marxist) CPI(M) giving a brief outline of the context around this important electoral win:

> "The Communist Party, consisting of Marxist revolutionaries who had emerged, to start with, in different parts of British India, had made significant inroads into the princely states by the early 1940s. Telengana, Punnapra-Vyalar, Ranpur and Nilagiri (both in Orissa) illustrated this spread of the communist movement from British India to the princely states. In the south, in the British Indian territory itself, the communists were so strong that in the 1952 elections to the Madras province, consisting largely of the old Madras Presidency, they emerged as the single largest party in the legislative assembly, but were denied, unfairly, the chance to form the government. Instead, Rajaji was brought from Delhi to head the first elected government in the province. After the formation of states on linguistic basis, when the old princely domains were assimilated with regions of British India, the strength of the Communists in the south got enhanced in two specific areas where they could hope to form governments. These were Andhra and Kerala. They failed in Andhra in March 1955 but succeeded in Kerala in April 1957. Interestingly their vote share in the two states were not too dissimilar. But they faced united opposition in one, and not in the other. Kerala thus became the site for the first elected Communist ministry in the world. (True, San Marino and Guyana can claim precedence over Kerala in this regard. But San Marino is too small; and Chedi Jagan's party in Guyana, though inspired by Marxism, and consisting of Communists, was not exactly a Communist party)". (Pattnaik 2010)

fig 3.
Still from the video
In Search of G
2010

The video piece *In Search of G* (see fig.3) reworks a fragment from Mrinal Sen's 1981 film *Akaler Sandhane* (In Search of a Famine) (Sen 1981).

Now, the protocols of this exposition, or perhaps even just basic good manners, suggest that I should provide a brief background introduction to the film, situate the fragment within the larger narrative and perform other framing actions. However, I find myself tongue-tied, cursor-locked. Having been surrounded by cinephilia all my life – my father was quite actively involved in the film society movement of the small town that I grew up in and now many of my friends negotiate fluently the universe of Bela Tarr and Kitano – I am always acutely embarrassed by my near complete ignorance of the film form. But on the other hand I also remember the excitement of reading Tejaswini Niranjana and Vivek Dhareshwar's engaging unpacking of Prabhu Deva's dance in the hit Tamil film *Kadhalan* (2002)– which is to say that contemporary scholarship in Indian Film Studies remains a reference point for me, which perhaps prevents me writing about a film the way a fan would write on a cinema fan site like www.passionforcinema.com. And when I know that the eminent film scholar and theoretician Ashish Rajadhyaksha has already commented upon *Akaler Sandhane* in the *Encyclopedia of Indian Film* (1999). I realise it would be a travesty for me to attempt a summary.

So, what you find below is Rajadhyaksha's summary of *Akaler Sandhane* on the left and some marginal notes that I have pencilled in to your right. However this Recto-Verso arrangement also makes me think of the liminal zone between artwork and non-artwork. What if I had printed out Rajadhyaksha's text – one paragraph each on a large, say four feet by three feet, sheet of acid free watercolor paper, and then scrawled over my comments, affecting perhaps a bit of Cy Twombly? And then for the exposition I could have photographed those sheets and placed them as large resolution JPGs so that if you zoomed in you could still read the text without any difficulty. Would the materiality of the text there have added any more layers to your understanding of Indian alternative film making practices and its relationship with the history of the Indian left?

Mrinal Sen's self-critical film, and one of his best-known 1980s productions, shows the experiences of a contemporary film unit going into a Bengali village to fictionally reconstruct the 1943 man-made Bengal famine. The director describes that tragedy: ". . . in our country, in Bengal, still undivided, not a shot was fired, not a bomb burst. And yet in a year five million people starved to death. They just starved and dropped dead."

For me, the film also recalls Ritwik Ghatak's *Komal Gandhar,* where he adopts a self-reflexive gaze at his own milieu of cultural-political workers and their active involvement with leftist theatre.

The 1943 Bengal famine—one of pre-independent India's most horrifying human disasters—has been the subject of considerable literature and several plays and films. One of the reasons for so much literature is that, in a real sense, the event remains impossible to assimilate or even understand. An estimated five million people died through starvation (official figures in 1945 put the figure at 1.5 million). It was as a consequence of war profiteering, a complacent state administration that refused to acknowledge a crisis until the famine was a reality, and a quiescent peasantry that refused to rise up in revolt.

However, in 1946-47 the peasantry did revolt during the Tebhaga Movement – that witnessed one of the largest incidences of peasant participation, including women. One of the central demands of the movement was to change the 'prevailing system which obliged sharecroppers to relinquish half of their harvest as rent' and make it mandatory for the peasant to retain a ¾ part of the produce.

In 1943 the Indian Peoples' Theatre Association made its debut with the epochal production of Bijon Bhattacharya's *Nabanna* , addressing the famine. This play, staged by Sombhu Mitra, remains one of the landmarks for the modern Indian theatre. In 1960 Mrinal Sen himself made a film set in the famine, *Baishey Shravana* (*The Wedding Day*), and in 1973 Satyajit Ray adapted a Bibhutibhushan Bandyopadhyay story to make *Ashani Sanket* (*Distant Thunder*). This was not the only famine to hit the region, as *Akaler Sandhane*'s film unit shows when they play the game of guessing from photographs which year the corpses could have come from. But the extent of the literature, theatre and cinema that address the 1943 event is an important sub-text for the film, which critiques that body of work as much as it critiques itself and its maker.

In recent years some of you might have found a reference to the 1943 famine in the writings of the economist Amartya Sen (1981) while speaking about his motivation for embarking on his sustained investigation between the causal linkages between famine and electoral democracy.

There are three sets of histories that weave into the plot: the film unit arrives in Hatui on 7 September (presumably the day Sen's own unit began filming) and quickly has problems. The unit's own professional unconcern for the issues their production seeks to address culminate in the actress Devika plucking her eyebrows and cutting her hair short, and being summarily expelled from the cast. The second history features the village itself, invaded by mass culture including a Communist Jatra (Bengal has had a Communist government in power since 1967) which has taken to "Hitler, Lenin and Stalin" in the words of Haren, loudspeakers advertising *The Guns of Navarone*, and the film unit which promptly buys up all the food from the village and is accused of starting a new famine. Some villagers, led by Haren (played by noted filmmaker Rajen Tarafdar), try to cooperate with the crew, but divisions erupt when Haren tries to get Chatterjee's daughter to replace the expelled Devika as an actress (because the role is that of a woman reduced to prostitution during the famine). The schoolmaster has to remind Chatterjee, and other local notables, that they were themselves descendants of 1943 war profiteers. The third, and the most poignant, is that of the dying Zamindar and his wife, in whose abandoned mansion the crew lives: this story is juxtaposed with that of Durga, who forms the only living memory of the tragedy of 1943, and whose intimations of the future—the "flash-forward" death of her son—making up the end of the film (as the crew returns to Calcutta, their film unfinished).

Mrinal Sen is best known for his late 1960s and 1970s style, of a freewheeling, politically involved and didactic cinema using numerous alienation-effects that he once described as "playing around with tools as often as I could, as a child plays with building blocks. Partly out of sheer playfulness, partly out of necessity, also partly to shock a section of our audiences [to violate the] outrageously conformist . . . mainstream of our cinema." ("Towards Another Moment of Truth," 1987). The style changed dramatically with *Ek Din Pratidin* (1979), a relatively straightforward tale with a minimal plot—in which a middle-class woman 'disappears' for a night—into a realist idiom usually set in Calcutta's middle-class, where a large number of characters would respond in various tell-tale ways to an event that disrupts their lives and values for the brief period (Chaalchitra, 1981; Kharij, 1982) before normalcy returns.

Akaler Sandhane is the most ambitious of this genre. The story here too is straightforward, but the numerous disruptions on the soundtrack, the playful effects of several Bengali and Hindi (Smita Patil) actors and Sen regulars playing themselves, and the freeze-frame ending on Durga, is more reminiscent of his late 1970s Calcutta trilogy, more inclined to break out of linear dramatic idioms. (Rajadhyaksha 1999)

If we had time, we could have elaborated more on the highly contested field of popular culture during the left front regime in Bengal and the heated debates in the mid 1980s and early 1990s around what constitutes authentically progressive culture and what should be the relationship of a good working class citizen to the 'culture industry' of Bollywood. 'Bollywood' as a discourse, was not so conspicuously visible back then. But there were of course Hindi films from Bombay, which the cultural apparatchiks from the party office never forgot to remind us, peddled a recognisable form of "apasanskriti' (literally bad or low culture)

The late 1970s and the early 1980s were the most active period for the Indian New Wave and by the time *Akaler Sandhane* was made, one could say, that a popular image of Indian 'art film' had already taken shape with the actors Om Puri, Shabana Azmi, Smita Patil and Naseruddin Shah as its most recognisable face.

Growing up in West Bengal in a left liberal family I was surrounded by communists, Trotskyites, ex-Naxalites and other denizens of the left spectrum. Through out my childhood, there have been innumerable occasions where I have found myself as a fly on the wall in a heated debate around some aspect of local or international left politics. You have to remember, in Calcutta and other small towns in Bengal, the politically informed individual, particularly from the red range of the spectrum, considers himself an expert on the intricacies of communist ideology. But I don't ever remember hearing any argument on the horrors of Stalin's totalitarian regime. Perhaps these discussions happened elsewhere and I missed them. But I have always tried to imagine these Stalin discussions in my head.

And in the video piece, *In Search of G* (see fig. 3), that is exactly what I try to insert in my reworking of the guessing game in *Akaler Sandhane*.

Towards the end of this guessing game, when after a series of photographs of starving children the director shows the photograph of a famous Gandhara sculpture that depicts the emaciated figure of the Starving Buddha, the film suddenly opens up its historical horizon to imagine hunger in much broader terms.

And I wondered what if the director showed an image of a starving man at a Stalinist gulag? How would the protagonists have reacted to the image of communism's dark history? Would they have spoken of their own position as a Marxist, as a leftist sympathiser, as a communist filmmaker, as a fellow traveller cultural worker? How would they recollect the memory of peasant insurgency? Would they have justified Stalin's terror the way Rubashov's comrade does in Arthur Koestler's novel *Darkness at Noon* (1941)? Would they have tried to gauge if anything good came out of the entire Lysenko episode?

4.

Objectivity and Partisan Science?
Haldane and Lysenko.

STS or Science and Technology Studies, borrowing significantly from the Foucauldian turn in humanities scholarship, has consistently demonstrated the discursive dimension of contemporary scientific knowledge and the how scientific certitude is often socially constructed in a complex and often contradictory process. *Thanks to Lysenko we got Haldane* however does not seek to recapitulate the science wars[17] but is more interested in initiating discussion about the limits of scientific objectivity.

Trofim Lysenko was a Soviet biologist who formulated his own version of Lamarckism as a dialectically materialist (read 'official Soviet communist dogma') friendly version of genetics[18]. Since Lamarckism argued for the inheritance of acquired characters, it was seen to favour 'nurture' more than 'nature' and therefore provided more agency to the proletariat to sculpt their own future. Inheritance of acquired characters essentially implied that if a worker developed strong biceps as a result of determined exercising, his progeny too could boast of such a physique. The genetic make-up of the worker could be thus rendered unimportant. Needless to say, this was completely against orthodox genetics and went against proven scientific knowledge. Backed by Stalin, Lysenko became the pre-eminent scientific tsar and mercilessly pursued any Mendelian 'counter-revolutionaries' like the famous geneticist Vavilov, who eventually perished in a prison camp.

Although Lysenko was a charlatan, Lamarckism, or the inheritance of acquired characters, is no longer the scientific anathema that it once was. Sustained research on gene expression has shown us that the nature-nurture debate is not a hard binary between one's genes and the environment one finds oneself in, but rather a very complex interaction between the two. Also, importantly, recent studies in the emerging field of epigenetics, have demonstrated various acquired characteristics that can indeed be transmitted from one generation to the next.

JBS Haldane was one of the most brilliant scientific minds of his generation and a polymath of the highest order. He easily moved between diverse disciplines and co-established, along with Fisher and Wright, the emerging discipline of population genetics. Apart from his scientific brilliance Haldane was also famously a larger than life character with seemingly contradictory and idiosyncratic traits and was loved and hated in equal measures by the students and colleagues at University College, London, where he was the professor of genetics for many years. By the time Lysenko emerged on the Soviet scientific scene in the 1950s, Haldane was already a committed communist and a regular contributor to *The Daily Worker* where he wrote, in his characteristically accessible and illuminating style, some of his best popular science essays.

In the early years of Lysenkoism, Haldane gave Lysenko the benefit of doubt and was open to examining his theory in all fairness before dismissing it outright, unlike some of his other scientific peers who were much more critical towards Lysenko. He wanted to read Lysenko's original papers describing his field experiments with wheat. In all probability the Lysenko papers proved elusive and its most likely that even the British communist authorities failed to secure the papers for Haldane. By 1949 it was clear to Haldane that to continue as a party member he would have to support scientific ideas that he knew were wrong. Although he remained a Marxist he severed his official ties with the Communist Party.

His withdrawal from the Communist Party perhaps added to Haldane's growing disenchantment with European / Western political establishment. Forever the anti-authoritarian, Haldane wanted to make a new start and chose India as his new home country - at that time a newly independent nation state and a site of possibilities. So, after his retirement from University College, London, along with his wife and scientific colleague Helen Spurway, he joined the Indian Statistical Institute in Calcutta at the invitation of P.C. Mahalanobis.

The Haldanes settled in remarkably well to their new home and in their characteristic manner collected a wide circle of friends. JBS also did some important work on the 'cost of natural selection' apart from being a mentor to younger scientists like K.R. Dronamaraju, S.K.Roy and T.A. Davis. The presence of a scientist of Haldane's eminence was definitely an exciting point for the generation of young scientists in India, particularly at the Indian Statistical Institute. For many of these students, it was an introduction to a typically Haldensque way of un-orthodox thinking where the disciplinary boundaries were happily ignored for a more synthetic view of things.

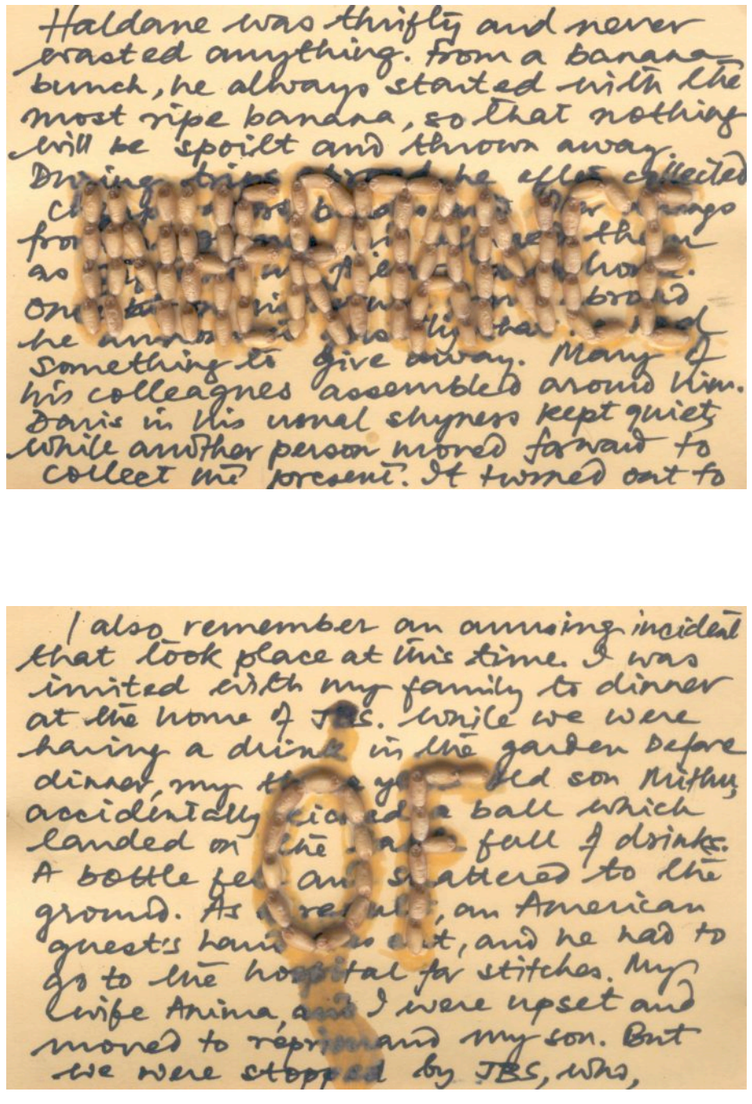
One has only to read some of the reminiscences from his old colleagues, friends and co-workers that were complied by the Indian Statistical Institute, to realise the wealth of affection that many felt for JBS. These remarks make up the text that fills the series of postcards from the work *Thanks to Lysenko we got Haldane* (see fig.4). However to extend the epistolary conceit, I have framed the author of each of the reminiscences as the addressee of the given postcard.

In working on these postcards, I imagined a silent but devoted Haldane fan at his research station in Bhubaneshwar – Haldane moved there after his time at the Indian Statistical Institute – patiently copying out these textual fragments from a secret archive that only he has access to. And perhaps he would have copied more, but a young scientist, perhaps a new Haldane student, impatient to test the coloration of the new strain of wheat grains he has been busy investigating, takes the entire cache of postcards and uses it as his experimental surface.

---

17 The term here refers to the Sokal Affair, and the related controversy, which eventually ended up being unproductively polarized.

18 There are other various relevant and densely interconnected strands to the British Marxist response to Lysenko – for example, there is physicist J.D Bernal's spirited defense of Lysenko – but for reasons of space and immediate context, I will refrain from exploring them here. However, it can be mentioned in passing that after her work on the DNA at King's college, Rosalind Franklin moved to J.D. Bernal's lab at Birkbeck College, London.


Haldane was thrifty and never
wasted anything. From a banana
bunch, he always started with the
most ripe bandna, so that nothing
will be spoilt and thrown away.
During trips [illegible] he often collected
[illegible] for [illegible] and
from [illegible] them
as [illegible]
One [illegible]
he arrived [illegible]
something to give away. Many of
his colleagues assembled around him.
Davis in his usual shyness kept quiet
while another person moved forward to
collect the present. It turned out to
I also remember an amusing incident
that took place at this time. I was
invited with my family to dinner
at the home of J.B.S. While we were
having a drink in the garden before
dinner, my [illegible] son Nithy
accidentally kicked a ball which
landed on the [illegible] full of drinks.
A bottle fell and shattered to the
ground. As a result, an American
guest's hand [illegible], and he had to
go to the hospital for stitches. My
wife Amina, and I were upset and
moved to reprimand my son. But
we were stopped by JBS, who,

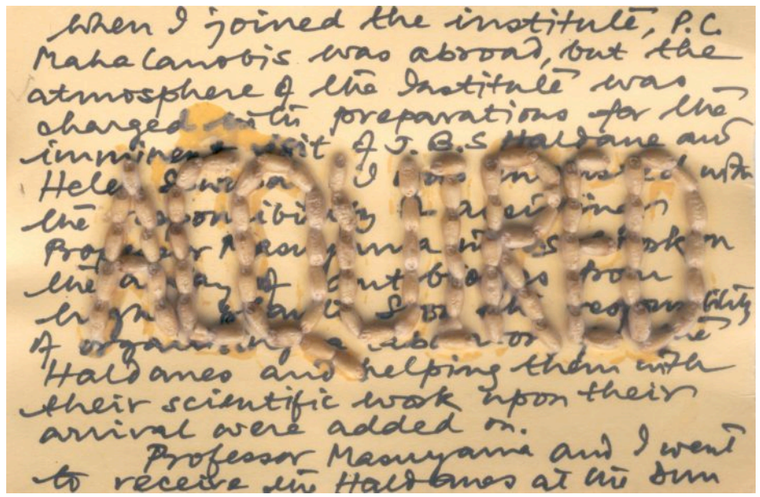

When I joined the institute, P.C.
Mahalanobis was abroad, but the
atmosphere of the Institute was
charged [illegible] preparations for the
imminent visit of J.B.S Haldane and
Helen [illegible]
the responsibility [illegible]
Professor Nayudamma [illegible]
the [illegible]
[illegible]
of organising [illegible]
Haldanes and helping them with
their scientific work upon their
arrival were added on.
Professor Nayudamma and I went
to receive the Haldanes at the dum
A day or two later, J.B.S. Haldane
came in, handed over some calculations
and said, 'Could you check these for
me, please?' They were to do with
[illegible]
and [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
experts on these, and I had only
started in the department 2 days
previously. However, on looking at
the calculations, I thought that there
was an elementary error in the algebra

fig. 4.
Thanks to Lysenko we got Haldane
44 Postcard Prints, 2009.

References:

Bibliography:

Kuhn, T. (1970) *The Structure of Scientific Revolutions*, 2nd ed. Chicago, University of Chicago Press.

Dhareshwar, V and Niranjana, T. “Kaadalan and the Politics of Resignification” in Vasudevan, R. (2002) *Making Meaning in Indian Cinema*. New Delhi & Oxford, Oxford University Press.

Chaudhuri, A. (2004) “In the Waiting-Room of History”. (Review of *Provincialising Europe: Postcolonial Thought and Historical Difference* by Chakrabarty, D.) *London Review of Books* [Online] vol. 26 no. 12 pp. 3-8. Available from http://www.lrb.co.uk/v26/n12/amit-chaudhuri/in-the-waiting-room-of-history [Accessed 5 December 2010].

Chakrabarty, D. (2000) *Provincializing Europe : Postcolonial Thought and Historical Difference*. Princeton N.J, Princeton University Press.

Raqs Media Collective (2004) *The Impostor in the Waiting Room*. [Online]
Available at: http://www.raqsmediacollective.net/impostor.html [Accessed December 5, 2010].

Koestler, A. (1941) *Darkness at Noon*. New York, Macmillan.

Glynn, J. (2008) “Rosalind Franklin: 50 years on” in *Notes and Records of the Royal Society* No. 62 pp. 253-255. [Online]
Available at: http://rsnr.royalsocietypublishing.org/content/62/2/253.full.pdf [Accessed December 5, 2010].

Maddox, B. (2002) *Rosalind Franklin : The Dark Lady of DNA,* 1st ed. New York, HarperCollins.

Watson, J. (1968) *The Double Helix, A personal account of the discovery of the structure of DNA*, 1st ed. New York, Atheneum.

Linus Pauling and the Race for DNA: A Documentary History. Special Collections, Oregon State University. [Online]
Available at: http://osulibrary.oregonstate.edu/specialcollections/coll/pauling/dna/index.html [Accessed January 6, 2011].

Profiles in Science, The Rosalind Franklin Papers, The DNA Riddle: King's College, London, 1951-1953. [Online] Available at: http://profiles.nlm.nih.gov/KR/Views/Exhibit/narrative/dna.html [Accessed January 6, 2011].

Petersen, C. & Oregon State University (2006) *The Pauling Catalogue : Ava Helen and Linus Pauling papers at Oregon State University*. Special Collections, Oregon State University.

Pauling, L. (1931). “The Nature Of The Chemical Bond. Application Of Results Obtained From The Quantum Mechanics And From A Theory Of Paramagnetic Susceptibility To The Structure Of Molecules.” In the *Journal of the American Chemical Society* 53(4) pp. 1367-1400.

Pauling, L. (1960). *The nature of the chemical bond and the structure of molecules and crystals : an introduction to modern structural chemistry*, 3rd ed. Ithaca N.Y., Cornell University Press.

Bernal, J. (1971) *Science in History*. Cambridge Mass., M.I.T. Press.

Swann, B. (1999) *J.D. Bernal : a life in science and politics*. London & New York, Verso.

Sen, A. (1981) *Poverty and Famines : an Essay on Entitlement and Deprivation*. Oxford & New York, Clarendon Press; Oxford University Press.

Chandrasekhar, S. (1990) *Truth and Beauty : Aesthetics and Motivations in Science*, 3rd ed. Chicago, Univ. of Chicago Press.

Rajadhyaksha, A. (1982). Ritwik Ghatak : a return to the epic, [Bombay]: Screen Unit.

Ghatak, R. (2000) *Rows and Rows of Fences : Ritwik Ghatak on Cinema*. Calcutta, Seagull Books.

Rajadhyaksha, A. (1999) *Encyclopedia of Indian Cinema : new revised edition,* revised ed. London & New Delhi, British Film Institute & Oxford University Press.

Sen, M. (1983) *In Search of Famine : a film*. (script reconstructed and translated by Bandyopadhyay, S.) Calcutta: Seagull Books.

Patnaik, P. *The First Communist Ministry. 50th Year of Kerala's First Government*. [Online] Available at: http://www.firstministry.kerala.gov.in/ptnaik_art.htm [Accessed December 5, 2010].

Spivak, G & Guardiola-Rivera, O. (2006) *Gayatri Spivak, interviewed by Oscar Guardiola-Rivera*. [Online] Available at: http://www.nakedpunch.com/articles/21 [Accessed January 7, 2011].

Film Details:

Akaler Sandhane
(In Search of Famine)
India, 1981
Director: Mrinal Sen

Production: D.K Films Enterprise; colour; running time: 131 minutes (also 124 minute and 115 minute version); language: Bengali. First public screening 12 February 1982. Filmed on location in Hatui and neighboring villages, Bengal.
Producer: Dhiresh Kumar Chakraborty; screenplay: Mrinal Sen, from a novel by Amalendu Chakraborty; photography: K.K. Mahajan; editor: Gangadhar Naskar; art direction: Suresh Chandra; music: Salil Chowdhury.
Cast: Dhritiman Chaterjee (Director); Smita Patil (Actress); Sreela Majumdar (Woman); Gita Sen (Widow); Dipankar Dey (Star).
Awards: Silver Bear, Berlin 1981.
Akaler Sandhane (1980) - IMDb. The Internet Movie Database (IMDb). Available at: http://www.imdb.com/title/tt0080341/ [Accessed December 5, 2010].

Acknowledgments:

I would like to thank:

. India Foundation for Arts (particularly Shai Heredia and Madhuban Mitra) for the Extending Arts Practice grant that helped me conduct much of the preliminary research on this project.

. Gallery SKE for hosting my solo show *Inheritance of Alphanumeric Characters* in 2009, where some of the works shown in this exposition were first exhibited.

. The helpful library staff at the Raman Research Institute, Bangalore, Asiatic Society, Kolkata and Indian Association for the Cultivation of Science, Kolkata.

. As someone who has till now operated as an independent artist without any institutional or academic affiliation, I would like to thank the editorial board of The Journal for Artistic Research for inviting me to contribute for this inaugural issue. The process of formulating this exposition has been an invaluable opportunity for me to think through a range of issues and concerns.

. Barnaby Drabble for various critical inputs through out the writing process and for being a patient sounding board for various ideas

. The usual disclaimers apply, of course.