The Social in/and the Scientific

Book Review of Pankaj Sekhsaria's 'Instrumental Lives: An Intimate Biography of an Indian Laboratory'

VASUNDHARA BHOJVAID

Department of Sociology, Shiv Nadar University, NH91, Tehsil Dadri, Greater Noida, Uttar Pradesh 201314.

Email: vasundhara.bhojvaid@snu.edu.in

Corresponding Editor: SUTIRTH DEY

DIALOGUE
Science, Scientists, and Society

Table of Contents

The Social in/and the Scientific

Book Review of Pankaj Sekhsaria's 'Instrumental Lives: An Intimate Biography of an Indian Laboratory'

VASUNDHARA BHOJVAID

Department of Sociology, Shiv Nadar University, NH91, Tehsil Dadri, Greater Noida, Uttar Pradesh 201314.

Email: vasundhara.bhojvaid@snu.edu.in

Corresponding Editor: SUTIRTH DEY

Pankaj Sekhsaria's *Instrumental Lives: An Intimate Biography of an Indian Laboratory* (hereon *Instrumental Lives)* published by Routledge in 2019 is an ethnography of the life of a laboratory in the Physics Department of Savitribai Phule University, Pune headed by Indian Scientist CV Dharmadhikari. Three terms dominate how the book is framed – intimate, ethnography and instruments. All three are interlinked throughout the narrative and yet occupy important standalone significance in guiding the reader on how to approach the book. For instance, I use the words 'life of a laboratory' to describe *Instrumental Lives* as Sekhsaria brings out how the laboratory is intimately tied to the biography of the career of Dharmadhikari as an Indian scientist. The story begins in the 1980s when a group of researchers led by Dharmadhikari started developing a range of scanning tunnelling and scanning force microscopes, some of which were the first-ever such microscopes made in India; and concludes with the life of the laboratory ending in March 2011 with Dharmadhikari's retirement. This intimacy is established early on when Sekhsaria enters the laboratory, stating that it was a 'crucial moment of Dharmadhikari's professional life (he had reached the age of retirement)' (Sekhsaria 2019: 80) and towards the end in the epilogue Sekhsaria reflects 'Dharmadhikari agreed to become the subject of my research without, perhaps, explicitly knowing it himself, this was it. He wanted the story told and hoped, maybe, that this telling will ensure something for the laboratories and the instruments that might otherwise be lost' (Sekhsaria 2019: 81). In other words, the life of the laboratory is intimately tied to the life of Dharmadhikari as a scientist affiliated to the Physics Department of Savitribai Phule University, Pune.

I will come back to the issue of intimacy, but first I want to discuss the significance of how early on Sekhsaria identifies himself as 'a researcher and an ethnographer' (Sekhsaria 2019: 8), implying that the output of the activity of research undertaken by the ethnographer is that *Instrumental Lives* is an ethnographic text. In fact, this is emphasized at several points in the book, from the series editor's foreword, to Sekhsaria outlining the methodology of the book and in other parts. For instance, Sekhsaria documents this in how he clarified his research project to Dharmadhikari recalling, 'I tried my hand at explaining what I was trying to do – the field of Science and Technology Studies (STS) that was the framework for my research project, innovation in nanotechnology research in India, lab ethnography, the theory of the Social Construction of Technology…' (Sekhsaria 2019: 26). Thus, the reader is directed to locate the ethnography of the laboratory in STS, which is emphasized at several points such as when Sekhsaria addresses himself as '…I as a STSer saw and interpreted in the laboratory..' (Sekhsaria 2019: 34). This is important for two reasons, firstly it locates *Instrumental Lives* as an ethnography positioned in STS; and secondly, it makes the reader recognize the intimacy that the ethnographer established with his field, the laboratory. This is the second way in which 'intimate' frames the book – the intimacy or immersion of the ethnographer in their field in order to produce an ethnographic text. This is closely related to the third version of intimacy in *Instrumental Lives* – intimacy with instruments.

Instruments in the lab, specifically the range of scanning tunnelling microscopes (STMs) are central to the life of the laboratory and the scientist. In *Instrumental Lives,* science is done in the fabrication of these instruments in the laboratory, but more importantly it is the possibility of these instruments that not only make the laboratory but take Dharmadhikari out of the lab and back in. In the narrative of Dharmadhikari's life as a scientist, the reader follows him across laboratories and conferences, such as the first STM conference in Spain in 1986, the second STM conference in Oxnard, California in 1987. While in the USA, Dharmadhikari visited many laboratories such as the IBM labs at San Jose and the Lawrence Berkeley National Laboratory in California and met the scientists that worked to develop these instruments. This is important as Sekhsaria establishes that all these travels and associations make Dharmadhikari a STMer. As Dharmadhikari's story unfolds, the reader follows Dharmadhikari to the waste market in Pune and back into the laboratory to fabricate the instruments. Finally, in the end with Dharmadhikari's retirement, the instruments are left in the corridors and the lab simply becomes a space that other scientists in the university will compete for. This intimacy with instruments is the analytical lens used to frame the chief conceptual category that the ethnography offers – technological *jugaad* (discussed later). It is also, what allows Sekhsaria to frame the practice of 'science in India' and how that relates to the way, that science is envisioned in the Indian context through the Science Technology and Innovation Policy (STIP) 2013 and India Technology Vision (2035), often in problematic ways.

The three terms – intimate, ethnography and instruments – come together in the title of the book *Instrumental Lives*. In the book, Sekhsaria presents a complex narrative that questions the instrumentality of the scientist, the lab and instruments and how they feed into, give and affect each other's lives in intimate ways. In this article, I will discuss two theoretical frames that emerge in the book and the questions they lead to. The two theoretical frames are - ethnography of the scientific and bricolage, technological *jugaad,* and the Indian scientist.

Ethnography of the scientific

Bruno Latour and Steve Woolgar's (1986) *Laboratory Life. The Social Construction of Scientific Facts* (hereon *Lab Life)* remains a classic ethnography of a laboratory. In fact, it could be convincingly argued that it was the book to set off the ethnographic engagement with laboratories at all. Given this, it is not for nothing that an American virologist and medical researcher, Jonas Salk wrote the introduction of the second edition, published by Princeton University Press. It is even more important to note that Latour carried out two years of ethnography in a laboratory in the Salk Institute for Biological Studies that was founded by Salk himself. I would like to focus on some important points made by Salk, Latour and Woolgar that have deeply affected future ethnographies of laboratories in relation to *Instrumental Lives.*

Salk points out that there is something very specific and important to an ethnographic engagement with science, which previous social science engagements with science as undertaken by historians, philosophers and policymakers have not been able to bring out, which is documenting the activity or the doing of science (Latour and Woolgar 1986). It is precisely for this reason that *Instrumental Lives* is an important text in that it aims to document the doing of science in a laboratory in India. More importantly, Salk puts forth how Latour and Woolgar's ethnography wonderfully presents that the social and the scientific are not too separate domains but in fact imbue one another. As Latour and Woolgar qualify,

'…our concern with the "social" is not confined to those non-technical observations amenable to the application of sociological concepts such as norms or competition. Instead, we regard the process of construction of sense implied by the application of sociological concepts as highly significant for our own approach. It is this process of construction of sense which forms the focus of our discussion. As a working definition, therefore, it could be said that we are concerned with the *social* construction of scientific knowledge in so far as this draws attention to the *process* by which scientists make sense of their observations' (Latour and Woolgar 1986: 32).

The question then is how do Latour and Woolgar demonstrate this in their ethnographic writing and the answer is what has become a tenet in any kind of ethnographic engagement – detailed and laborious description of the everyday functioning of the laboratory. Throughout, *Lab Life* Latour and Woolgar present detailed descriptions of the activity taking place in the

lab, from the conversation among scientists in the lab, to the spatial configuration of the lab, to how materials moved inside the lab and out, to how translations take place between material and non-material engagements, leading to authoritative scientific statements. These descriptions bring out what Salk rightly notes is the importance of the ethnography – to bring out the social in the scientific through a presentation of the doing of science. This view has found traction over the years, as one ethnographer of laboratories puts it:

'The strength of ethnographically grounded accounts of science studies is the way these accounts approach the scientific field as any other social-cultural-material field. This goes directly against the common understanding of science as being different from and privileged other kinds of knowledge (such as lay knowledge, religious knowledge, and practical knowledge). The contribution made by ethnography is that it explores the processes through which something becomes known and consequently understands knowledge not as a substance, but as relational and situated. The personal, social, political and ethical dynamics of the scientific fields are opened up' (Bulled et al. 2012[1]).

This is something that I found lacking in *Instrumental Lives*. I did not get a sense of the everyday functioning of Dharmadhikari's lab. How did scientists in the lab undertake science? How was their day broken up? What exchanges took place between scientists in the lab in working with STMs? How did the scientists make their observations and then decisions? I am sure Sekhsaria had these details but did not add them in the book, as his aim perhaps was to comment on science and technology policy in India and the making of STMs over four decades of Dharmadhikari's tenure. However, in Sekhsaria's discussion of the Science and Technology Innovation Policy (2013) and India Technology Vision (2035), the main critique is that innovation and the doing of science is understood in a monolithic manner, and hence would not be able to account for the non-conformist and messy form of innovation as undertaken by Dharmadhikari in the development of the STMs. The STMs were very much made in the laboratory and an in-depth description of the activities undertaken, the decisions made, and how they all feed into the doing of science, would have given greater depth to Sekhsaria's arguments. That is how the social in the scientific could be brought out more robustly by displaying the operations of what Sekhsaria calls the 'de-centred culture of innovation' in Dharmadhikari's laboratory. The laboratory in *Instrumental Lives* is thus rendered somewhere in the background and a careful description of life in the lab, would undoubtedly have brought the lab to life more, as it is the practice of science that makes a laboratory more than just a space.

This is intrinsically related to the second point that Salk, Latour and Woolgar make in *Lab Life* – that this sort of a narrative, can only be given by non-scientists, whom Latour and Woolgar term as 'The Observer'. Endemic to the position of 'The Observer' in the ethnography of a laboratory is self-reflexivity, which is not normally evident in many studies of science. By reflexivity, Latour and Woolgar '…refer to the realisation that observers of scientific activity are engaged in methods which are essentially similar to those of the practitioners which they study' (Latour and Woolgar 1986: 30). It is precisely for this reason that Salk comments in the introduction,

'…for me the most interesting part of the work and of its outcome, is that Bruno Latour, a philosopher-sociologist, began a sociological study of biology and along the way came to see sociology *biologically.* His own style of thought was transformed by our concepts and ways of thinking about organisms, order, information, mutations, etc. Curiously, instead of sociologists studying biologists, who in turn are studying life processes —in a sort of infinite regression— here are sociologists coming to recognize that their work is only a subset of our own kind of scientific activity, which in turn is only a subset of life in the process of organization' (Latour and Woolgar 1986: 12).

This is something that I felt could be useful in *Instrumental Lives.* Did Sekhsaria's position as 'The Observer' observing science in the laboratory, at all make him think about STS? Though Sekhsaria does discuss the history of S&T narratives in India, his conclusions are similar to those of Salk, Latour and Woolgar – history, philosophy and even policy that engage with science ignore the content and process of scientific work itself (Latour and Woolgar 1986). More importantly, did Sekhsaria's position as the observer open up an inquisition to the question that *Instrumental Lives* importantly asks – why are there so few ethnographies of laboratories in India? The last footnote in chapter seven in *Instrumental Lives* points out exactly that, the handful ethnographic explorations of laboratories in India. Could it be that the lineage of STS scholarship in India, did not feel the need to undertake ethnographies of laboratories until fairly recently and if so why? Without doubt, this is also representative of the kinds of fields ethnographers deem worthy of study, thus forcing ethnographers to question how their disciplines work as they study scientists.

This also relates to the self-reflexivity of the observer in terms of their ability to access the field, which is the laboratory. Ethnographies of laboratories have established,

'There is no single answer to the question of how scientists respond to being studied….In many cases, individual scientists turn out to be quite enthusiastic for an opportunity to discuss their work, its challenges, its possibilities, with an interested and engaged observer from the outside….As for how scientists respond to being studied, science is unique in that the interlocutors that ethnographers of science relate to can speak back, can banish us from their worlds, and can correct our numerous ignorances on the go. Not that this does not occur in all ethnographic field projects; it does. However, scientists have a unique competitive advantage relative to ethnographers at least, in the very public tournaments for accepted theories of the way the world is and works' (Bulled et al. 2012 [2]).

In *Lab Life* the fact that Salk wrote the introduction to the book and that the Salk Institute was unlike other science laboratories in that it had a department of linguistics, goes a long way in opening its door to the ethnographer (Latour and Woolgar 1986). In *Instrumental Lives,* the reader is made aware of the jubilation that Sekhsaria feels in being given access to Dharmadhikari's laboratory, but there is no discussion about the politics of access. In this regard, Paul Rabinow's analytic of 'adjacency' is useful in ethnographies of science, such that the ethnographer is not identical to their interlocutors and certainly not a '"fly on the wall" observer' (Rabinow 2008: 42), but occupies a place somewhere in the middle. Sekhsaria engages

with Dharmadhikari and his students on the means, manner and future of the practice of science in the laboratory throughout *Instrumental Lives*. What does this position of adjacency of Sekhsaria in relation to his interlocutors do to the way that the ethnography unfolds? I think this is a very important question not only for any ethnography but also to answer the main question that *Instrumental Lives* asks – why are there so few ethnographies of laboratories in India? I do not think it can be as simple as the fact that when Sekhsaria approached Dharmadhikari, he was near retirement and wanted his laboratory and instruments to survive in the pages of *Instrumental Lives,* though it may very much be one aspect to granting Sekhsaria access to his laboratory. This comes out when Sekhsaria discusses Dharmadhikari's weariness to 'people walking around with recording devices and asking for interviews' (Sekhsaria 2019: 4). This is in response to a journalist that had earlier interviewed Dharmadhikari about the instruments he was developing in his laboratory and had published an article that had led to the scientist being flagged with phone calls that required endless clarifications. Given this, why did Dharmadhikari let Sekhsaria into his laboratory? Did it have to do with the fact that Sekhsaria was not a journalist but a social scientist? Did the fact that Sekhsaria's visiting card have him affiliated to Maastricht University make a difference? Did Sekhsaria's gender have any impact? I remember being denied access to do an ethnography of a laboratory in India for my own PhD fieldwork and then had to find an alternative field. Unlike Sekhsaria, I was a PhD scholar affiliated to a University in India, and I could tell that the scientist I was trying to explain my researchto, was definitely disturbed by the idea that a young woman was seeking permission to spend a year in his laboratory to document and watch his and his team's actions and activities. These are important questions that must be reflected upon as they may shed light on why there haven't been enough ethnographies of Indian laboratories. Perhaps *Instrumental Lives* is a positive indication of the changing landscape of not only what social scientists consider worthy field sites but that scientists can and will open up their laboratories to them.

Bricolage, technological *jugaad* and the Indian scientist

The most important conceptual category that is offered in *Instrumental Lives* is that of technological *jugaad.* Sekhsaria explains it as follows,

'There is one thing that stands out in most of these cases of localised and contingent improvisation and innovation, and it is indeed at the heart of what I am proposing as "technological jugaad." It is the element of reconfigured materiality that is implicated very centrally in the processes involved – in putting materials to uses not imagined initially, giving them fresh meaning and purpose and creating new worth and value. My key intention is to narrow down from what is otherwise a many-possibility and broad-spectrum interpretation of jugaad, to focus attention on the making of the instruments by Dharmadhikari and his research group. It is this concept of reconfigured materiality and technological jugaad that I saw operating prominently in this microscope-making enterprise of more than two decades…' (Sekhsaria 2019: 37).

Sekhsaria discusses technological *jugaad* in the fifth chapter after establishing the veracity of *jugaad* in India and how it figures in recent academic literature in the fourth chapter. In the sixth chapter technological *jugaad* is positioned in conversation with Schumpeter's theorizations on innovation and invention, before going on to find resonances of technological *jugaad* to bricolage, siqizai (a form of local innovation in Taiwan), jua kali (a form of local innovation in Kenya) and user-driven innovation. Though Sekhsaria finds overlaps in what sorts of activities these terms signify he goes on to state,

'Jugaad, siqizai, bricolage, user-driven innovation, jua kali: these are five terms from five different languages, cultures and histories that span the entire globe – yet there is something that ties them together. All appear interchangeably usable and at the same time there are factors embedded in the social, cultural and economic contexts that makes each one unique. Problems are solved, new ideas are generated and innovation happens in all these frameworks – in that sense one is like the other. At the same time however, they happen differently – de-centered both, in space and in action' (Sekhsaria 2019: 77).

The implication is that technological *jugaad* is specific to Indian laboratories. This is emphasized in Sekhsaria identifying future research questions that emanate from *Instrumental Lives*, which he presents in the postscript – need for a deeper understanding of *jugaad* in the laboratory and determining etymological explanations of *jugaad.*

I want to ask what such a proposition in STS is doing in framing the Indian scientist as engaging is a specific form of innovation that is presented as endemic to Indian culture? In order to bring this out, I will engage with Lévi-Strauss's notion of *bricolag*e, especially as Sekhsaria presents it as a way to understand scientific innovation in the global north as opposed to technological *jugaad* in India. He further stresses that technological *jugaad*, is not even part of the conversation of understanding innovation when he puts forth 'Bricolage and user-driven innovation are well-established and accepted conceptualisations; jugaad, on the other hand, evokes mixed feelings, and technological jugaad is not even part of the discussion yet' (Sekhsaria 2019: 78). To support my point further, I will take up the prevalence and genealogy of *jugaad* in Indian science and technology discourse and its implications thereof.

Social Anthropologist, Claude Lévi-Strauss first offered *bricolage* as a conceptual category in his book *The Savage Mind* in 1962 in French (translated to English in 1966), in which he presented his structural analogy for how mythic thought works. More specifically, *bricolage* is discussed in the first chapter titled 'The Science of the Concrete', wherein Lévi-Strauss uses an extensive corpus of secondary literature to establish that though 'savage thought' is different; it is a fully evolved system capable of abstract and systematic thinking of indigenous systems of classification, which is in no way inferior to modern science (Lévi-Strauss 1966). Though Lévi-Strauss does not engage much with modern science in the chapter, interestingly *bricolage* has been assimilated into scientific discourse (amongst many others). For instance in evolutionary biology,

'to describe the process of evolution not as a product of design—the unfolding of a predetermined plan or template—but rather as the makeshift adaptation of existing structures and functions to new ends. The originator of this particular use of *bricolage* was the French biologist François Jacob, Lévi-Strauss's colleague at the Collège de France, who published a landmark article in 1977 on evolution as "tinkering"' (Johnson 2012: 356).

Tracing this genealogy of *bricolage*, Johnson attempts to locate how Lévi-Strauss's *bricolage* has become a universal concept for understanding the history of science and technology. In explaining the activity of the *bricoleur,* Lévi-Strauss juxtaposes the *bricoleur* to the engineer. Johson points out that it is important to recognize that the distinction between the engineer and the *bricoleur* is an idealized one for 'Lévi-Strauss concedes that like the *bricoleur*, the "means, power and knowledge" of the engineer are also limited, and that he too must come to terms with the "resistance" of the natural world and the limitations of the "material means at his disposal"' (Johnson 2012: 363). Thus, the idealized figures of the engineer and the *bricoleur* are two ways of being and dealing with the material world. Such recognition allows for a fuller appreciation of *bricolage* as a universal concept and can encourage the question whether the history of all technology is imbued with the process of *bricolage?* As Johnson elucidates, '[b]eyond its paradoxical function as a technical metaphor applied to the cognitive realm of myth, what *bricolage* as a universal concept teaches us is that the evolution of technology is always a two-way (retroactive, feedback) process of projection and retrospection, thought and action, abstraction and application' (Johnson 2012: 368). Is this not reflective of how Dharmadhikari and his team work in their laboratory to produce STMs? Be it the usage of a fridge that was left to the scientist when a student vacated their room or trips to the Pune junk market to develop the STM, the process is characterised by 'a two-way (retroactive, feedback) process of projection and retrospection, thought and action, abstraction and application' that is determined by the material means at their disposal.

Another way of asking the same question is – is *jugaad* merely a transmutation of the process of *bricolage* or does is connote something else and relatedly, why has *jugaad* become a pervasive way of thinking in science and technology discourse? In *The innovative Indian: Common man and the politics of jugaad culture* (2016), Kaur looks at how *jugaad* has gained wide popularity in policy circles for economic growth. The pervasiveness of *jugaad* Kaur argues has been the result of two moves, the re-interpretation of the Indian common man in relation to modern science and technology; and how the lack of public services and state support is positioning India as an 'ideal laboratory within which a culture of innovation takes birth' (Kaur 2016: 215). I will use Kaur's argument to locate 'innovation' and '*jugaad'* in conversation with *Instrumental Lives.*

Kaur offers an etymological explanation of *jugaad,* as she explains,

'The expression *jugaad*, a Punjabi variation of the Hindi *jugat*, derives from the Sanskrit word *yukti*, root *yug*, *yog* or union, joint (see Whitney [1885] 2006) which carries multiple meanings

ranging from skillful reasoning, argumentation, trick, cunning device, adaptability, adjustment, being inventive, dexterous and clever. In northern India, *jugaad* has long been a popular vernacular expression for improvisation, quick-fix, intermediate solutions that allow everyday life to somehow function even in the absence of permanent, durable infrastructures. *Jugaad* is, thus, both a process and a product' (Kaur 2016: 314).

The last line in this excerpt is important to note - *Jugaad* is, thus, both a process and a product – as it is not just an activity like *bricolage* but an essentially Indian product – an Indian form of innovation, such that it is presented as a critique to the western model of innovation. To make this claim Kaur takes up the 2012 bestseller *Jugaad Innovation: Think Frugal, Be Flexible, generate Breakthrough Growth* by Radjou, Prabhu, and Ahuja, which presents *jugaad* as the enterprising ability of Manuskh Prajapati who develops a clay refrigerator to keep water cool with the minimum resources and material entities he had at hand. Sekhsaria refers to this book too amongst others to trace the meaning and connection of *jugaad* to innovation. Kaur's investigation differs in the fact that she investigates *jugaad* as a signifier and as a means to re-interpret India as a model for innovation. In this formulation while *jugaad* starts with an activity undertaken by people of marginalized groups with limited means, Kaur also locates *jugaad* in how R. Mashelkar was born in an impoverished household but through his curiosity for science, he became the chief scientist at ISRO. Similarly, how Sam Pitroda's personal resolve amidst an outdated telecom system led to the telecommunication revolution in India under the Rajiv Gandhi regime. This is important as, 'The emphasis on the condition of adversity creates a form of symbolic unity, where Indians from divergent backgrounds – Prajapati, the unlettered maker of the clay refrigerator, Sam Pitroda, the techno-friendly policy-maker, and Mashelkar, the high-ranking scientist – come to share innovation as a defining feature of Indianness' (Kaur 2016: 322).

For Kaur, this is evidenced in Narendra Modi's call to invite the world to 'Make in India' and the National Innovation Foundation which was set up in March 2000, with the aim to 'to strengthen the grassroots technological innovations and outstanding traditional knowledge'[3]. It could be argued that a similar movement can be located in Sekhsaria's narration of the history of science and technology narratives in India in chapter seven of *Instrumental Lives*. Starting from Nehruvian science as a way to make India a modern country albeit with limited resources through science and technology to Sekhsaria identifying a similar intent in that 'Many people I spoke to, including Dharmadhikari himself, noted that there was a culture of making instruments in the physics department at the university in Pune from the very beginning. This was inspired quite explicitly by the larger ambition of building a (postcolonial) modern nation state that was both self-reliant and also scientifically and technologically advanced' (Sekhsaria 2019: 20). It is in this sense that *jugaad* is an Indian product. A product that is offered as a critique to the Western paradigm of innovation in the East's ability to innovate in circumstances of adversity with limited material abundance, especially when Sekhsaria compares siqizai, jua kali to technological *jugaad.* In such a narrative, as Kaur points out '…is the making of the figure of innovative common man, who embodies and lives the spirit of *jugaad* in everyday life' (Kaur 2016: 321). Is Sekhsaria then similarly making the figure of the

innovative Indian scientist, who embodies and lives the spirit of technological *jugaad* as he tells the reader '…this time into the world of jugaad, a world I have already qualified earlier as one which is as quintessentially Indian as anything can really be' (Sekhsaria 2019: 27). What does it mean to take a vernacular expression of quick-fix, which is often an illegal and shadowy solution to connote an Indian system of innovation and the doing of science in the laboratory? Does it lead to a specific way to understand the Indian scientist and if so what does that mean for the way that the activity of science in laboratories in India is understood? These are questions that the usage and proposal of technological *jugaad* made me ask of STS and the ethnography of the laboratory.

In conclusion, *Instrumental Lives* presents the reader with the life of a laboratory in India. This in itself is a compelling feat given the paucity of such ethnographies from the country. It also points to the changing landscape (hopefully) of social science engagements with science and more importantly scientists willingness to open their laboratories to ethnographers, not only in the case of Dharmadhikari but as signified in the response Sekhsaria gets to his publication in *Current Science* of his work from a physicist in IIT Delhi (as narrated in the postscript of *Instrumental Lives).* In this sense, *Instrumental Lives* signals the need and importance of such ethnographic engagements in Indian laboratories and hence forces the reader to ask questions about the everyday practice of science in India.

Notes

[1] https://journal.culanth.org/index.php/ca/ethnographies-of-science-interview. Accessed on 20th September 2020.

[2] See http://nif.org.in/aboutnif. Accessed on 15th September, 2020.

References

1. Sekhsaria, P. 2019. Instrumental Lives. An Intimate Biography of an Indian Laboratory. Routledge: New York.
2. Latour, B. and Woolgar, S. 1986. Laboratory Life. The Social Construction of Scientific Facts. Princeton University Press.
3. Bulled, N. and Zogas, A. 2012. "Ethnographies of Science: Interview with the Authors", Cultural Anthropology. https://journal.culanth.org/index.php/ca/ethnographies-of-science-interview
4. Rabinow, P. 2008. Marking Time. On the Anthropology of the Contemporary. Princeton

University Press.

5. Lévi-Strauss, C. 1966. The Savage Mind. London, Weidenfeld and Nicholson.
6. Johnson, C. 2012. "*Bricoleur* and *Bricolage*: From Metaphor to Universal Concept", Paragraph , 35, 3, pp. 355 – 372.
7. Kaur, R. 2016. "The innovative Indian: Common man and the politics of *jugaad* culture", Contemporary South Asia, 24, 3, pp. 313 – 327.