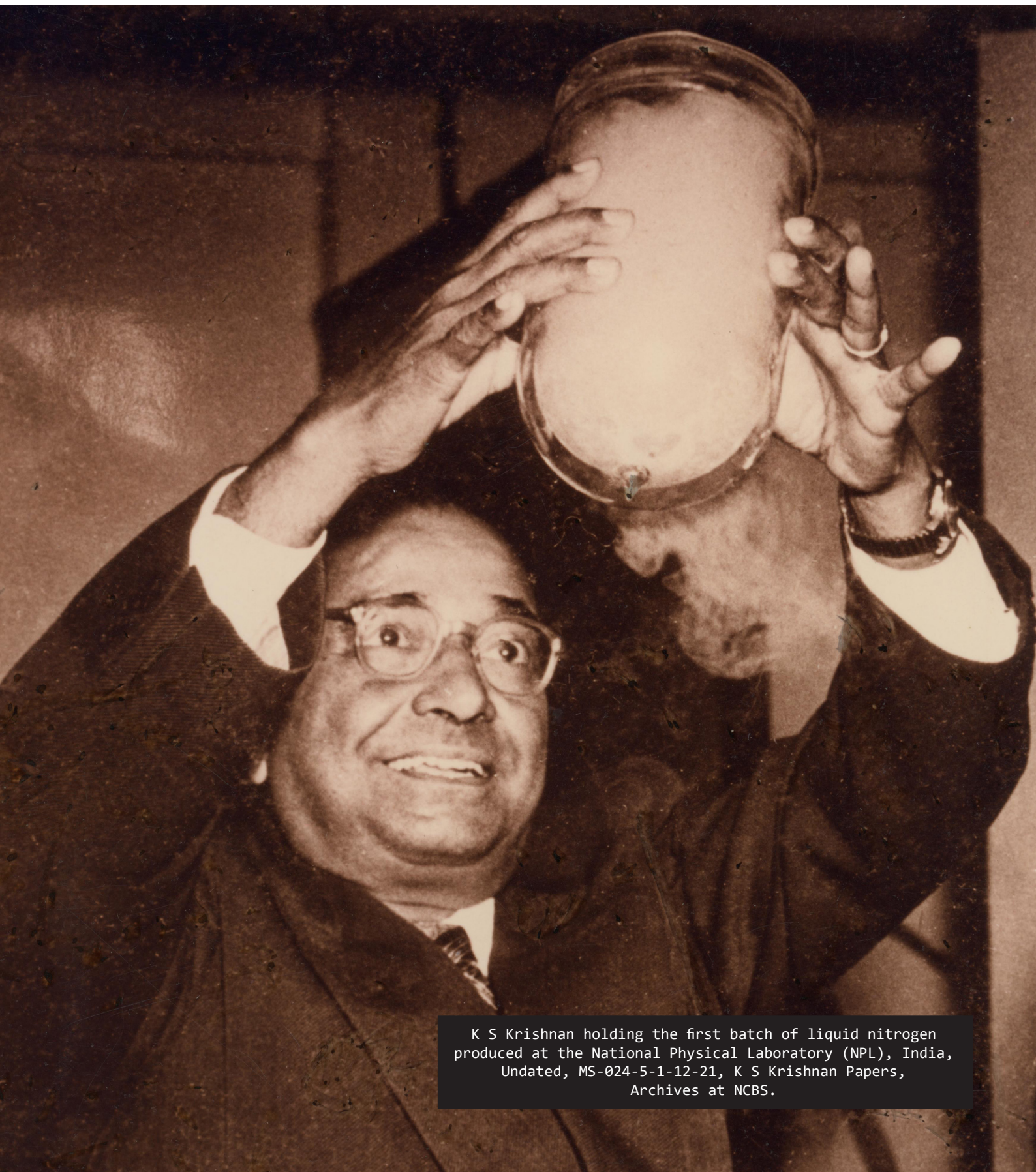


THE SILVERFISH

ISSUE 1, AUGUST 2024

A publication by the Archives at NCBS, Bangalore.



K S Krishnan holding the first batch of liquid nitrogen produced at the National Physical Laboratory (NPL), India, Undated, MS-024-5-1-12-21, K S Krishnan Papers, Archives at NCBS.

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THE SILVERFISH SPEAKS!

In the opening sequence of *Inside Out 2*, one sees Joy (voiced by Amy Poehler, in irony that will soon become more apparent) select those memories she deems unfit to be preserved and fed into Riley’s sense of self, and exiles them to the Back of the Mind™. Currently defined by my archivist’s habit, I apply it to the act of the construction of human memory – what is erased, what is elevated, what is fed into the collective conscience. From a vast and undefined sea of unknown unknowables, the trivial and the trivialized – we extract the stories we believe need to be told.

As archivists we participate in the creation of the archive and its shadow archive. While the anointed archival object is elevated to permanence, we look at those objects we have renounced, and sense the slumber of stories that wait for the right narrator. Some of these stories are well-known – such as that of the man who makes the cover of this issue, physicist K S Krishnan, and his participation in the discovery of what came to be known as the Raman effect. Here we provide a small ancillary story: the view-from-the-archives as we trundled through Krishnan’s collection, demonstrated through key objects in his collection.

There are more stories that we have trapped in our midst, and pin into this issue like so many butterflies on a corkboard (per the latest scientific method). Raza Kazmi starts off our issue by recounting his search for the lost works of ‘bird-woman’ Jamal Ara, who gave in to her inner organic anti-archival impulse and burnt all her papers. We then have archaeology student and former intern Aditya’s reflections on the liaisons between the fields and the challenges presented by a ceremonial figurine in the C P Rajendran and Kusala Rajendran Papers. Biology student Anjana T speaks of a superseded scientific method in Krishnaja A P’s papers. To round it off, a brief aside on how the archival impulse deals with guns and firearms in the archives.

The Archives at NCBS is a collecting centre for the history of contemporary science, and yet somehow we’ve weaseled our way in, a graphic designer, a linguist, a historian, a film buff, a mechanical engineer, a computer geek and so on – flogging our own little particular morsels. We are the anti-archive of the archive, alive and impermanent. Thus we’ve decided to call ourselves the Silverfish, seeking our little sustenance from great reams of paper, quiet and momentous as we traipse in the annals of history.

Signing off,
The Silverfish



Editor: Sravya Darbhamulla, Deepika S
Design and Illustration: Dhatri S
Photography: Ravi Kumar Boyapati
Printer: Printo, Yelahanka

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Archives at NCBS,
Tata Institute of Fundamental Research
GKVK Campus, Bellary Road,
Bangalore – 560065. Karnataka. India
+91-80-2366-6010 / +91-80-2366-6011
archives@ncbs.res.in

The collections at the Archives are funded by Arcadia and TNQ Technologies.



any women here?

science archive

Field investigation in Bhuj, Gujarat, April (ca 2001), MS-016-2-2-5-5, C P Rajendran and Kusala Rajendran Papers, Archives at NCBS.

Archivist's Notes

WHY WE CHANGED THE WAY WE COLLECT MATERIAL IN 2024

Deepika S – Archivist

In 2023, we went on a rather energetic, and (for us) unprecedented drive to bring in exciting new material into the archives. Rather quickly into the year, we realised that the standard methods of acquisition just didn't bring in archival material from female scientists, the way they did from male scientists. We had less of a problem with this when it came to oral histories, but for physical material like photographs, letters and notes, we found that institutes and individuals tended to retain less material related to female scientists, if at all.

We're in the business of preserving history, so it grates on us that this leaves an enormous hole in science history, and perpetuates the idea that women played no significant role in the development of Indian science. The same seems to apply to people marginalised on the grounds of caste, religion, and class. We knew that if we wanted an archive that was truly representative of science in India, we would have to modify our day-to-day functioning and figure out a more inclusive way to bring in material.



Group photograph: Leslie C Coleman, Davison and others, Undated, MS-012-5-2-4-3, Leslie Coleman Papers, Archives at NCBS.

Photographed here are the members of a Planters Association with Leslie Coleman (seated in the centre) who was the Director of Agriculture in Mysore in the 1930s and whose work as an entomologist for the princely state has been catalogued at the Archives at NCBS. However, seated two seats to his right is a woman, the only one amongst a group of 50-odd people. She is Sakamma – the name behind one of the oldest local coffee powder enterprises to be set up in the state.

Besides this photograph and a mention of her in a letter from the chemist H V Krishnayya, there is hardly any primary material on her to be found online. We can only ask, where are her papers?

There is physical material out there, even if it is small in volume: whether it yields a single photograph or a hundred, we still hope to pursue every lead that we get. We've set aside 2024, for a start, to prioritise an inclusive approach, and focus on bringing in diverse material.

If you've got leads for us or would like to help, do get in touch!

A FEMINIST SCIENCE STUDIES SCHOLAR AT THE ARCHIVES



The Archives offers a position called the Obaid Siddiqi Chair in the History and Culture of Science, supported by the TNQ Foundation. The Chair is named after Obaid Siddiqi, the founder of the Molecular Biology Unit at the Tata Institute of Fundamental Research (TIFR) and whose sustained vision led to the development of NCBS. Every year, the Chair is awarded to a distinguished scholar with a substantial body of work that deepens our understanding of the history and culture of science. They are known for transcending disciplinary boundaries in their work and engaging with the public. They also work closely with the Archives at NCBS to reimagine the role of the archive in both academic and public spaces.

This year, Prof Gita Chadha, a sociologist and Feminist Science Studies scholar, served as the third Obaid Siddiqi chair, initiating conversations about the practice, method and the social construction of scientific knowledge. She began her time here by teaching a course titled Modernity, Science, Gender: An Introduction to Feminist Science Studies, in which she discussed the history and philosophy of science from an intersectional feminist perspective. With readings of plays, poetry and theory, and a focus on the lived experience of students in the biological sciences, the course aimed to equip students to “develop their own understanding of the gendered nature of science and an imagination of how to change it.” In addition to the course, Prof Chadha – or Gita, as we know her – along with her research associate Hetal Vora, organised a round-

table discussion with students and faculty from NCBS and other institutes on re-envisioning the idea of ‘scientific temper’.

They also organised a screening of *Unlimited Girls* – Paromita Vohra’s layered and thought-provoking film about feminism, a poster competition for International Women’s day, and put up posters with film reviews of Bollywood blockbusters, and other activities that encouraged the campus to think about and respond to feminist ideas on matters beyond science. Over the last year, Gita also interacted with students and educators from other institutes, and worked with the Archives to encourage feminist archiving.

As part of her ethnographic work on campus, she interviewed male and female faculty about their gendered experiences as scientists, and her insights from these interviews found their way into a series of talks across the city that concluded her year at NCBS. The Obaid Siddiqi Lectures, delivered to a varied audience, covered the contours of the field of feminist science studies and her work within it, including her attempts to archive the contemporary experiences of women scientists and examine the idea of the ‘Man of Science’ through interviews with male scientists about masculinity.

While Gita’s time as Chair may have ended, the interviews with faculty that she began will continue, as will her valuable collaboration with the Archives!

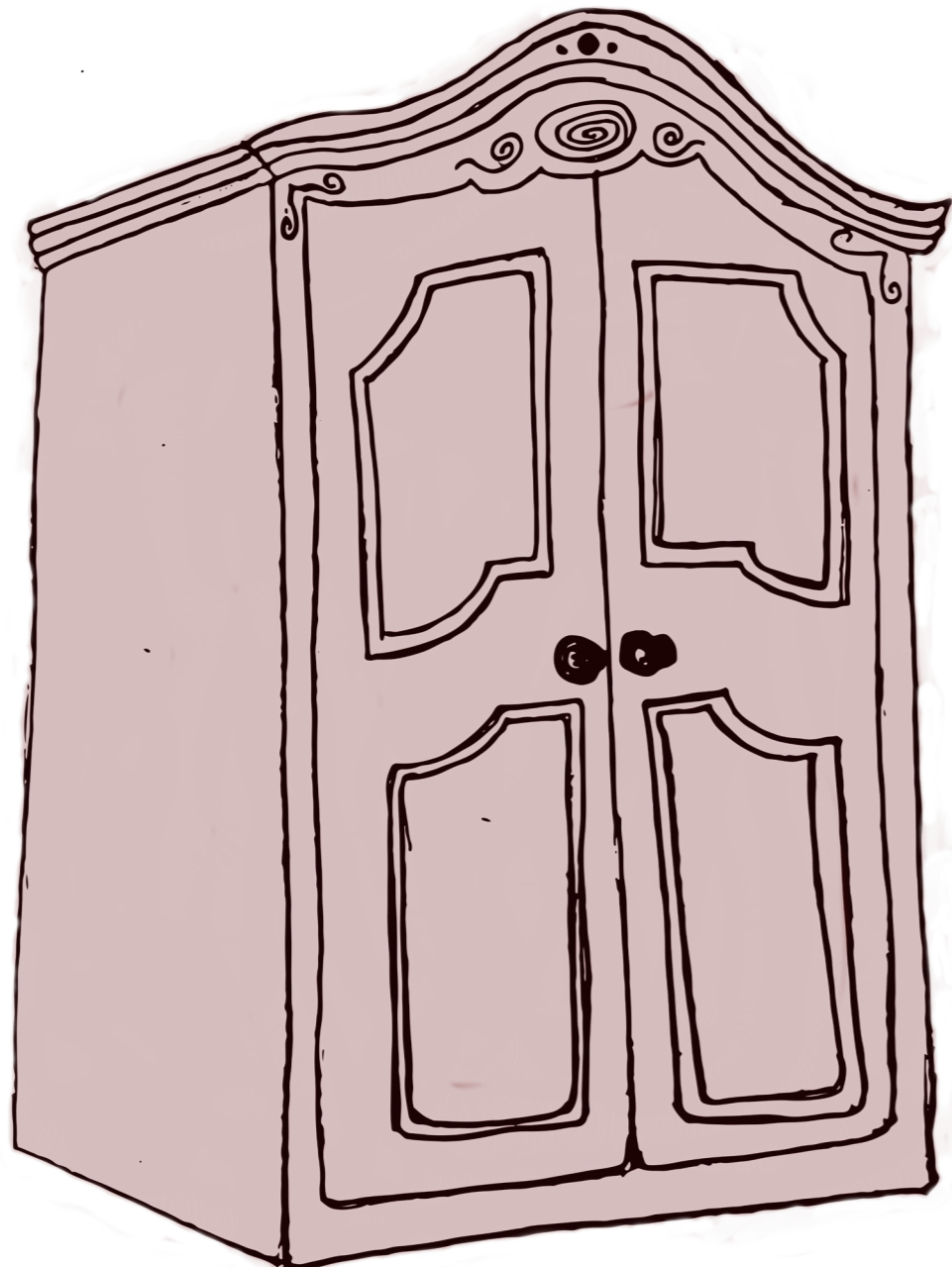


THE ALMIRAH – IN SEARCH OF JAMAL ARA’S PAPERS

Raza Kazmi - Subject Expert and Contributor

“Birds of Bihar... Birds of Bihar... she would keep mumbling this over and over again in her last days. I am not sure why she kept repeating the phrase. Perhaps it was a draft of a book that she was writing, or a project she wanted to undertake.

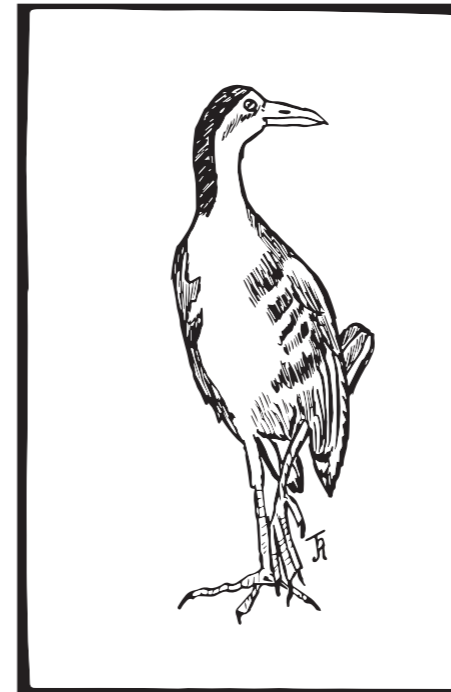
I do not really know. But as her mind crumbled, it was something that she would keep reiterating to me over and over, almost as if she was in a daze,” recalled Madhuca Singh, Jamal Ara’s daughter, while I interviewed her for my essay on her mother’s life.



The story of Jamal Ara, India’s first bird-woman, was published in a book titled ‘Women in the Wild’, in 2023, and struck a chord with many readers.

To me, however, there was so much more left to uncover of the life story of this mysterious, gifted woman. As I recount in my essay, one of my biggest heartbreaks was to learn from Madhuca that her mother, in her last days, had burnt down all her archives – all her life’s work. When Madhuca had asked her, despairing, why she had done so, Jamal Ara would whisper, catatonic –

“It was all useless”.



“But what about this ‘Birds of Bihar’ thing that she kept repeating on her deathbed?”, I asked Madhuca. She paused for a bit and then said – “Raza, there is this locked almirah that belonged to her that has never been opened since she passed away. I remember she used to keep some of her books in it, but I am not sure if she continued doing so in her final years. So I don’t really know for sure what that almirah contains. I have never had the courage to open it, and I suspect that whatever might have been in there must have turned to dust by now. That almirah has been sitting in a storeroom for nearly 30 years now.”

Despite Madhuca not wanting to raise my hopes up, I was thrilled to hear this. I immediately started wondering if perhaps some of Ara’s writing and notes might have survived, and if they were sitting in this almirah.

However, I could see immediately that this subject was triggering for Madhuca – every time she spoke of this almirah, she would get extremely anxious and uneasy, with a marked sadness and nervousness in her voice. This particular material memory of her mother seemed to traumatise her, perhaps because it brought back painful memories of her mother’s agonising last years as her mental health collapsed. Madhuca would also add that she was worried that opening up this almirah might be a risk to my health as well –

“What if everything inside has rotted away and there is just mold and fungus, you might get sick,” she would add.

Every now and then I would gently suggest to Madhuca that if she would permit me, I would be very happy to get into that storeroom, and pry open that almirah to see what might be inside. To soothe her anxiety regarding the possible ill-effects of this exercise, I would tell her that I would put on a mask. However, every time I made this suggestion, Madhuca would dither and get uneasy.

I would try reassuring her that there is a high chance that the material inside that almirah might be completely intact, and that all her fears might be unfounded. She would ponder for a bit and then simply say “Accha dekhte hain agli baar sochenge ispe” (Ok, we will think over this the next time you come over) and hastily change the subject. Not wishing to reopen old wounds, I did not push her further on it.

Months passed. I would gently remind her about the almirah in each of our multiple meetings and phone calls during this period, and each time she would promise to take it up in the "next meeting". In the meantime, the book had come out and Jamal Ara's story was particularly appreciated by readers. Since Madhuca could not see anymore, I would go over to her place often to read out to her all the messages and comments I had received from the readers telling me about how inspirational they had found her mother's life story to be. A soft smile would appear across Madhuca's face as she attentively heard each message.

During the course of one such meeting, I informed her that I had joined the Archives at The National Centre for Biological Sciences (NCBS) as a Subject Expert. Happy with this news and all the comments about her mother from readers I had read out to her that evening, she called out to Mona Di, her caretaker, to get us a samosa each with a hot cup of tea to celebrate the good news.

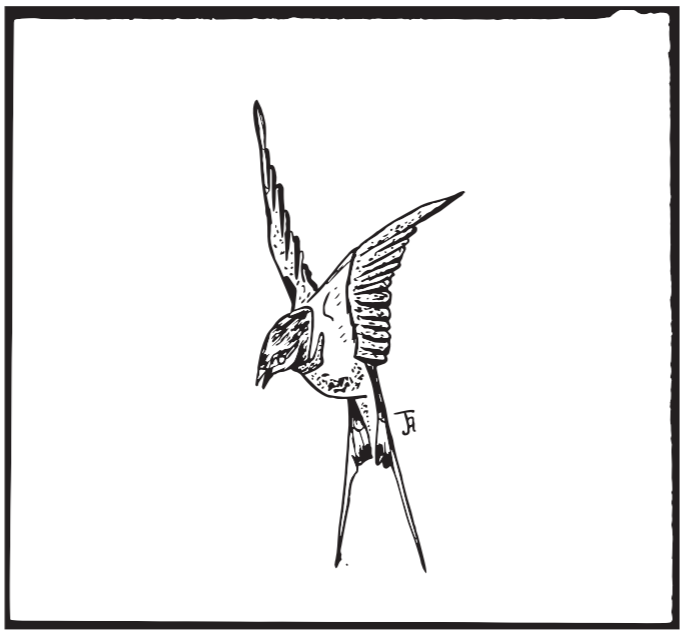
As I informed Madhuca about the work I would be doing at the Archives at NCBS, and more about the collections stored there, I delicately nudged her about that almirah once again - "If we find something in that almirah, we could deposit that material to an institutional archive such as the one at NCBS where it can be preserved for posterity. I am sure Jamal Ara ma'am would have really loved it if her work could find such a permanent home where her archives could be used by a whole new generation of current and future scholars."

"Yes, we must look into that almirah sometime,"

she said, nodding in agreement, but still unable to get herself to commit to the idea of opening that almirah. Finally, one morning in March, more than a year after

she first told me about this almirah, Madhuca called me up.

"Raza, I have made way in the storeroom to the almirah."



Ecstatic at this news, I told her that I would be there at her place by the evening. When I reached, Madhuca was waiting in her spartan, yet beautiful, drawing room. She pointed me to the storeroom, and said "I cannot find the keys to the lock anymore, you will need to break it. I will be here in the drawing room; I am too anxious at the moment to be in that storeroom and watch you open that thing. You can call me out if you need anything."

And so as I walked into that little storeroom, there it was - Jamal Ara's almirah. Surprisingly, contrary to what I had imagined, this was not a usual steel almirah, rather it was a large antique wooden cabinet, a bookshelf. Measuring about 5 feet by 4 feet, carved out of solid teakwood, this cabinet was clearly 70-80 years old, if not more. I knew this because the cabinet was in the standard colonial-era forest department office shelf design, and I had seen examples of such cabinets as part of the British era furniture left behind in a few old colonial forest bungalows and offices.

I was quite certain that this cabinet probably would have originally belonged to Madhuca's beloved 'Akki' i.e. Sami Ahmed, an Indian Forest Service officer and Ara's cousin, confidante, and her biggest support system till his passing in 1966, who had sheltered the mother-daughter duo after Ara was abandoned by her husband.

A flimsy rusted lock held the cabinet's old-world door latch shut. It was finally the time of reckoning. I heaved a sigh and broke open the lock, and gently unhooked the latch. My heart was racing with excitement and I chuckled to myself - "so that is how all those adventurers across the ages must have felt like just as they were opening treasure chests that they had been after for months and years." The doors started creaking open, and I braced myself - it would either be heartbreak or unbridled joy.

As I opened the doors and the first shaft of lights fell on the contents inside, I heaved a sigh of relief - there were old newspapers securely covering whatever lay inside, and while there were cobwebs along with thick layers of dust settled inside the cabinet and over those newspaper coverings, it seemed like everything was in order. However, I could still not be fully sure until I took off the newspaper shrouds to see the condition of whatever lay beneath them.

And so, as I gingerly lifted off the newspapers, what I saw made my heart skip a beat - rows of books, notebooks, files, and other ephemera, all neatly lined up and arranged across the shelves! Additionally, a few plastic carry bags with even more papers, files, cut outs of articles, pamphlets, sketches of birds, and correspondences. I called out to Madhuca. My first instinctive reaction once again was to exclaim - "Come look at this treasure trove" - before it dawned on me, once again, that I could not "show" Madhuca anything, I could only de-

scribe it to her. So, I went up to her. She was sitting in the drawing room and looking out to nothing in particular. Hearing me come in, she said -

"So what did you find?"

"Ma'am, we have hit the jackpot!", I excitedly informed her. "You can finally let go of all your fears. Everything in that almirah is intact, and it is in such good shape in fact that it seems as if that cabinet was bolted in just yesterday. And apart from the books, I have found a decent sized pile of her notebooks and other archives. Despite all that your mother did burn down, luckily for us, a fair bit of her work has survived! I cannot tell you how happy I am."

As she heard me animatedly describe all that I had unearthed, Madhuca broke into a broad smile, a smile that exuded both relief and happiness. Then she spoke, "You know, Raza, I was so scared when you went in to open that almirah. Ever since you had first told me about wanting to open that almirah, I had been plagued by dreadful visions of you opening the doors of that almirah and a pile of dust and ash from rotten books falling all over you. That is why I could not get myself to be there when you opened it..."

"...I am so relieved that it did not turn out to be that way."



I retreated to the storeroom once again, carefully working through the contents of cabinet. The books in the cabinet were an eclectic mix - there were books on ornithology that Jamal Ara used for reference and research, scores of classical and popular literary works that were a testament to incredible amount of literary reading she did in addition to her natural history reading, and a few books on forestry and botany that had belonged to Sami.

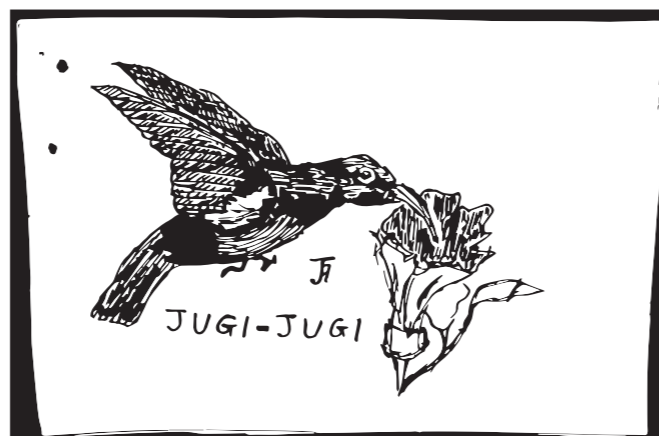
I then turned my attention to the stack of her notebooks - most of which were school notebooks - and picked up one. I gingerly opened the first page, and immediately broke into a smile as I was greeted by an endearing crayon drawing of a colourful flower. Within that flower was a name crayoned in - 'Jamal Ara'.

As I thumbed through her notes, I could feel goosebumps break out all over my arms. It was a surreal feeling - after all this time I could finally touch something that she wrote. The notebooks were a fascinating insight into the mind and work-ethic of Jamal Ara, the amount of research she put into her work, how she categorised and planned out her writings, her inner thoughts, her future plans and so on. Her archives introduced me to many new facets of her work - for instance I never knew that she was a talented artist too, as exemplified by dozens of her beautiful hand drawn sketches of birds, each signed 'JA', that I found carefully tucked in an envelope.

I came across several new pieces of her writings - some published in various newspapers that had been then carefully cut out and archived, and many unpublished writings ranging from short stories to travelogues, from political and philosophical writings to a bundle of loose sheets in neat handwritten Urdu which looked like scripts for her programmes for the All India Radio. Then, I almost gasped when opening another folder for in it I

came across two unpublished book manuscripts - one on a collection of Adivasi folktales from Chota Nagpur and another on Birdwatching. I excitedly kept shouting out to Madhuca, relaying all these finds in real time.

"Anything more?" Madhuca called out as I finally picked up the last file from the cabinet.



It had a bunch of typed papers and a notebook tucked within in it. "Yes, one last folder," I shouted back as I wiped the dust off it to read what this folder was labelled as. As the dust cleared up, my eyes widened as I read the label on the file even as Madhuca called out - "What is this last thing then?" - I stood still and silent for a few seconds, and then slowly walked up to Madhuca with the folder in hand. "What is it?", she asked again. "Ma'am", I stammered momentarily, "the folder label reads - Birds of Bihar".



Outline for a book "Birds of Bihar"

1. A check-list of Birds found in Bihar with the field characters of all the species given, with also references to coloured and monochrome illustrations available in different books.
2. Give as additional help to identification voice, and general habits.
3. The main list under the head "Distribution" should give enough material to enable check list to be made for each district.
4. Give a habitat-break-down and also of biotopes.
5. Indicate new lines of study (1) Display, (2) Status, (3) Territory and (4) breeding calendar.
6. Give a bird calendar.
7. Food Habits + Economic importance. The

Birds of Bihar - Book proposal, outline and main lines of study of field ornithology, Undated, MS-046-2-1-1-11, Jamal Ara Papers, Archives at NCBS.

Note: The bird illustrations featured in the article are a part of Jamal Ara's Collection at the Archives at NCBS.

A WAYANAD INTERLUDE

Sravya Darbhamulla – Archivist

“Bahugana said - ‘Don’t eat the salt of anyone, you will be beholden for life.’”

“Nature is diverse, of course we need to be too.”

“They call us the B-team of the Forest Department.”

With humour and passion, the members of the Wayanad Prakrithi Samrakshana Samithi (WPSS) shared the history of their decades-old participation in complex issues of conservation, land rights and tribal rights in Wayanad, Kerala.



Members of WPSS gathered in archives reading room for an informal session. Photo by Ravi Kumar Boyapati.



ABHIJITH A V



SAMIRA AGNIHOTRI

The organisation, which has been active since the 1970s, is supported by a loose structure of members from different backgrounds including farming, banking and photography, and funded by small donations from individuals within the community. It has a rich and fascinating history, and in 2023, the Archives received papers from a few members of the organisation, which includes documents capturing their work and activism towards the conservation of wildlife and culture in Wayanad. The papers were received through Abhijith A V, a former student of the Masters in the Wildlife Biology and Conservation course at NCBS and spiderhunter architecture enthusiast from Wayanad, and Samira Agnihotri, a bioacoustics researcher working in BR Hills. Both of them are associated with the archives to examine the place of ecology in the history of science in India.

The WPSS collection, like other papers at the archives at NCBS, contains correspondence, photographs, research references, media coverage, and administrative documents created by and relating to the organisation. It also contains legal documents and notices, pamphlets, and booklets. These are unique to the collection as they are crucial to understanding what kind of space, activism and public awareness occupy in our envisioning of science.

After the WPSS papers were launched at the Archives when we turned 5 in February, some members of the organisation paid a visit to the Archives on April 18, and generously participated in an interaction in which they fielded questions about their activities. The visiting team comprised N Badusha, his son Arul Badusha, Thomas Ambalavayal, Babu Mylampadi, and Manoj Kumar A V (Abhijith’s father).

They spoke about their involvement in protests as wide-ranging as those in support of Narmada Bachao Andolan, the issue of sickle-cell anemia amongst Adivasi populations in various forest regions of Wayanad, and the latest issue that concerns them – human-wildlife conflict and vehicular collisions. But they also pointed out that crises such as long-term farmer distress deserve greater, sustained interest over the cause celebre of the moment. Badusha emphatically stated the need for long-term vision, beyond the cycles of elections and bureaucratic changes.

Other resources that must be examined for interconnections include the PK Sukumaran collection:<https://catalogue.archives.ncbs.res.in/repositories/2/resources/41>.



Sukumaran worked on describing cases of sickle-cell anaemia among the Irulas, Badagas and Todas. We will also soon launch the Panduranga Hegde Papers, which deepen our understanding of the Appiko movement – a citizen’s movement like the WPSS that aimed to protect the forests of the Western Ghats.

Abhijith, along with Parvathy V, an archivist here, keep their struggle vibrant through their cataloguing efforts here: <https://catalogue.archives.ncbs.res.in/repositories/2/resources/31>.





Negatives and Slides on Elephants and Elephant Trappings, 1989, MS-014-9-5-11-9, Wayanad Prakrithi Samrakshana Samithi (WPSS) Papers, Archives at NCBS.

സുഹൃത്തേ,

വയനാട്ടിൽ വ്യാപകമായി നടക്കുന്ന വന നശീകരണത്തിന്റെ പ്രത്യാഘാതങ്ങളെക്കുറിച്ച് നാം ബോധവാന്മാരാണ്ല്ലോ. വന നശീകരണത്തെ എതിർക്കുന്നതിനും ജനങ്ങളെയും സർക്കാരിനെയും വന നശീകരണ പ്രവണതയിൽനിന്നും പിന്തിരിപ്പിക്കുന്നതിനും "വയനാട് പ്രകൃതി സംരക്ഷണസമിതി" എന്ന പേരിൽ ഒരു സംഘടനയ്ക്ക് രൂപം കൊടുത്തിരിക്കുന്നു എന്ന വിവരം അറിയിക്കട്ടെ. സംഘടനയുടെ ആഭിമുഖ്യത്തിൽ മെയ് അവസാന വാരത്തിൽ സുൽത്താൻ ബത്തേരിയിൽവെച്ച് പ്രശസ്ത ശാസ്ത്രകാരന്മാരെയും വിദഗ്ദ്ധരെയും പങ്കെടുപ്പിച്ചുകൊണ്ട് വിപുലമായ ഒരു കൺവൻഷൻ നടത്തുന്നതിന് തീരുമാനിച്ചിരിക്കുന്നു. കൺവൻഷൻ നടത്തിപ്പിന് ഒരു സ്വാഗത സംഘം രൂപീകരിക്കുന്നതിനുവേണ്ടി ഒരു യോഗം 1983 മെയ് 10ന് ചൊവ്വാഴ്ച വൈകു: 4-30ന് അസംപ്ഷൻ സ്കൂൾ ഓഡിറ്റോറിയത്തിൽ വെച്ച് ചേരുവാൻ നിശ്ചയിച്ചിരിക്കുന്നു. താങ്കളുടെ സന്നിധ്യം താൽപ്പര്യപ്പെടുന്നു.

എന്ന്,
അധ്യ: സി. സി. മാത്യു,
 പ്രസിഡണ്ട്.
 വയനാട് പ്രകൃതി സംരക്ഷണ സമിതി, ഡി. സി. ബത്തേരി.

എൻ. ബാദുഷ,
 സെക്രട്ടറി.
 എസ്. ബത്തേരി,
 3-5-83.

A notice in Malayalam regarding the formation of WPSS and a convention being organised as part of it, 03 May 1983, MS-014-4-7-7-1, Wayanad Prakrithi Samrakshana Samithi (WPSS) Papers, Archives at NCBS.

9. It is submitted that another study was conducted by the Department of Civil Engineering, TKM Engineering College, Kollam and Department of Civil Engineering, NIT, Calicut and a Paper was presented in the Indian Geotechnical Conference-2010 at the IGS Mumbai Chapter & IIT, Mumbai. In the said Paper, it is stated that the detailed investigations carried out suggests unfavourable geological formations like thick overburden steep slopes, tampering of natural drainage network, large scale indiscriminate deforestation and intense rainfall as the causative factors. The study suggests that a qualitative assessment was made considering different geotechnical properties and a zonation map of the district was performed by following a quantitative estimation of landslide susceptibility of Wayanad District in Kerala. A true copy of the above Paper is produced herewith and marked as Exhibit P2.
10. It is submitted that from Ext. P1 and P2, it is abundantly clear that the Wayanad District is prone to landslides. It is submitted that to the knowledge of the petitioner different studies were conducted regarding the susceptibility of Wayanad District to landslide related disaster and that those study reports are available with the respondents.
11. It is submitted that during July, 2016 a multi story building under construction, adjacent to KSRTC garage, Kalpetta and by the side of Kozhikode - Mysore National Highway-212 collapsed due to landslide. A true copy of the news paper report appeared in the Hindu Daily dated 13.07.2016 evidencing the collapse of under-construction building is produced herewith and marked as Exhibit P3.

Writ Petition- WPSS vs the State of Kerala and others, 2016, MS-014-3-1-4-32, Wayanad Prakrithi Samrakshana Samithi (WPSS) Papers, Archives at NCBS.

This is page 8 of a court case in the form of a Writ Petition initiated by WPSS against the construction of high-rise buildings. The above page documents the susceptibility of Wayanad district to Landslides.

In light of the devastation caused by landslides in Wayanad in July/August 2024, archivist Parvathy V has this to say:

The WPSS papers contain documents that put the current disaster in Wayanad into perspective.

A 2010 document written by Thomas Ambalavayal, a member of WPSS, recommended that Wayanad be designated as an ecologically vulnerable area.

Around the same time, the central government constituted the Western Ghats Expert Ecology Panel (WGEEP) to assess the ecological situation of the Western Ghats under the chairmanship of Madhav Gadgil. The Panel submitted its report in 2011. The report, also widely known as the Gadgil Report, designated the entire Western Ghats as an Ecologically Sensitive Area (ESA) and also classified 64 per cent of the Western Ghats into Ecologically Sensitive Zones - ESZ1, ESZ2 and ESZ3; ESZ1 being the most sensitive region.

It comes as no surprise that Meppadi in Vythiri taluk, which is very close to Mundakkai and Chooralmala, which has now been affected, was designated as one of 18 ecologically sensitive zones, and Vythiri comes under ESZ1. The report cautioned against indiscriminate development in these areas. The WPSS had vigorously campaigned to implement the Gadgil Report, as shown by different notices they have deposited at the Archives, which call for the same.

Their efforts didn't stop at public awareness campaigns. WPSS also initiated a court case in the form of a Writ Petition in 2016 against the construction of high-rise buildings in Wayanad. This Writ Petition extensively mentions Wayanad's susceptibility to landslides, its history, and the associated fatalities. The outcome of the petition is unknown.

As an archivist and memory-keeper, I see the result of not heeding these voices so clearly - it is heart-wrenching and harrowing, especially because this was not a "natural disaster", and it could have been mitigated or avoided. It is easy for me to say this sitting in a location far from the tragedy, but perhaps we would all do well to pay attention to the creators of these documents, who have been part of this landscape for at least six decades. They are intimately familiar with the terrain and its capriciousness, and work to educate the people about the consequences of indiscriminate developmental activities. For this, they are stigmatised as being anti-development. Their voices are either ignored or die down, unnoticed.

Date.....22/03/10.....

വയനാടിനെ പരിസ്ഥിതി ദുർബലപ്രദേശമായി പ്രഖ്യാപിക്കുന്നു

ഔദ്യോഗിക താല്പരവർദ്ധന മൂലമുള്ള മലയാളപ്രകൃതിയാനം വയനാടിന്റെ നിലനില്പിനെ ഭീഷണിപ്പെടുത്തിയിരിക്കുകയാണ്. ചുട്ട് വൻ തോതിൽ വർഷിച്ചിരിക്കുന്നു. മലയാളത്തിലെ താലൂക്കുകളിൽ ഉഷ്ണമേഖലാ മേഖലകളിൽ ഉടലെടുത്തു കിട്ടുന്ന വനമരച്ചുരുട്ടി കൂടെയുണ്ടാകുന്ന മഴക്കാലത്ത് വയനാടിന്റെ നിലനില്പിനായി വയനാടിനെ പരിസ്ഥിതി ദുർബല പ്രദേശമായി പ്രഖ്യാപിക്കണമെന്ന് ലോകവനമൃഗത്തോടനുബന്ധിച്ചു തയ്യാറാക്കിയ നഗ്ന പരിസ്ഥിതി പ്രവർത്തനങ്ങൾ കൂടി ചേർത്തിൽ സർക്കാരിനോട് ആവശ്യപ്പെടാൻ തീരുമാനിച്ചു.

വയനാടിനെ പരിസ്ഥിതി ദുർബലപ്രദേശമായി പ്രഖ്യാപിക്കണമെന്ന് ലോകവനമൃഗത്തോടനുബന്ധിച്ചു തയ്യാറാക്കിയ നഗ്ന പരിസ്ഥിതി പ്രവർത്തനങ്ങൾ കൂടി ചേർത്തിൽ സർക്കാരിനോട് ആവശ്യപ്പെടാൻ തീരുമാനിച്ചു.

പറമ്പി-മണൽ കിഴക്കുള്ള പ്രകൃതി സുരക്ഷിത മേഖലകളിൽ മൂലമുണ്ടായ, ഭാരതത്തിൽ - വനമൃഗ സുരക്ഷിത മേഖലകളിൽ പ്രകൃതി സുരക്ഷിത മേഖലകളിൽ മരണമുണ്ടായും, വനമൃഗങ്ങളിൽ കൂടെയുണ്ടായ പരിസ്ഥിതി ദുർബലപ്രദേശമായി പ്രഖ്യാപിക്കണമെന്ന് ലോകവനമൃഗത്തോടനുബന്ധിച്ചു തയ്യാറാക്കിയ നഗ്ന പരിസ്ഥിതി പ്രവർത്തനങ്ങൾ കൂടി ചേർത്തിൽ സർക്കാരിനോട് ആവശ്യപ്പെടാൻ തീരുമാനിച്ചു.

പരിസ്ഥിതി പ്രവർത്തനങ്ങൾ കൂടി ചേർത്തിൽ സർക്കാരിനോട് ആവശ്യപ്പെടാൻ തീരുമാനിച്ചു. N. ബാലകൃഷ്ണൻ, കെ.എ.പി.എസ്, V.ന.പി.എസ്, P.ന.പി.എസ്, എ.പി.എസ്, B.പി.എസ്, ടി.കെ.പി.എസ്, K.P.പി.എസ്, V.ന.പി.എസ്, സി.പി.എസ്, സി.പി.എസ്, സി.പി.എസ്.

Notices from 2010-2011, bulk: 22 March 2010, 30 March 2011, MS-014-4-1-6-7, Wayanad Prakrithi Samrakshana Samithi (WPSS) Papers, Archives at NCBS.
 This is a notice from 2010 written by Thomas Ambalavayal, a member of WPSS. The title reads "Wayanad should be declared an ecologically vulnerable area."

ഗാഡ്ഗിൽ കമ്മിറ്റി റിപ്പോർട്ട് നടപ്പിലാക്കുക. പശ്ചിമഘട്ടത്തെ സംരക്ഷിക്കുക.



17-11-2013 ഞായർ ഉച്ചയ്ക്ക് 2 മണി മുതൽ എരണല്ലൂർ വൈഷ്ണവ ഓഡിറ്റോറിയം പനമരം

ഗാഡ്ഗിൽ കമ്മിറ്റി റിപ്പോർട്ട് നടപ്പിലാക്കിയിട്ടുള്ള സംഘടനകളുടെ ഏകോപനസമിതി, വയനാട്

Notices from 2013, 2013, MS-014-4-1-6-9. Wayanad Prakrithi Samrakshana Samithi (WPSS) Papers, MS-014. Archives at NCBS.
 This is a notice from 2013 that calls for the implementation of Gadgil Report. The text reads: "Implement Gadgil committee report, Save Western Ghats."

Events by the Archives

Archives Public Lecture Series #61

Making Things, Doing Science

Talk by Arvind Gupta

15 March 2024, 5:00 PM

Lecture Hall 1, Haapus, NCBS

PLAYING WITH SCIENCE

The various toys developed by Arvind Gupta.



Arvind Gupta photographed by Ravi Kumar Boyapati.



The Archives at NCBS were the lucky hosts of Arvind Gupta on 15th March, 2024. Gupta, who calls himself the 'Toy Maker' is known for his work bringing simple, cost-effective toys ('Toys from Trash') and books to children that proselytize the message of science as curiosity, wonder, and play.

His presentation at the Archives Public Lecture Series was dynamic and demonstrative as he spun little whirligigs, played tiny straw flutes, and an origami adventure across the high seas.



Arvind Gupta did a B. Tech from IIT Kanpur and then left a corporate job to pursue a passion that became a life-long quest: making science fun for children.

He has written 24 books on science activities, translated over 1000 books into Hindi and presented 125 films on science activities on Doordarshan. He worked at the Children's Science Center at IUCAA, Pune for 11 years. The Centre produced 8700 short (2-minute) videos on simple experiments and science toys in 20 different languages. The videos have been viewed by over 100 million children worldwide. Every day, thousands of books are downloaded from his popular website, arvindguptatoys.com. He has received many honours including the Distinguished Alumnus Award of IIT/Kanpur and the Padma Shri Award.



PEEPING INTO THE PEOPLE'S SCIENCE MOVEMENT

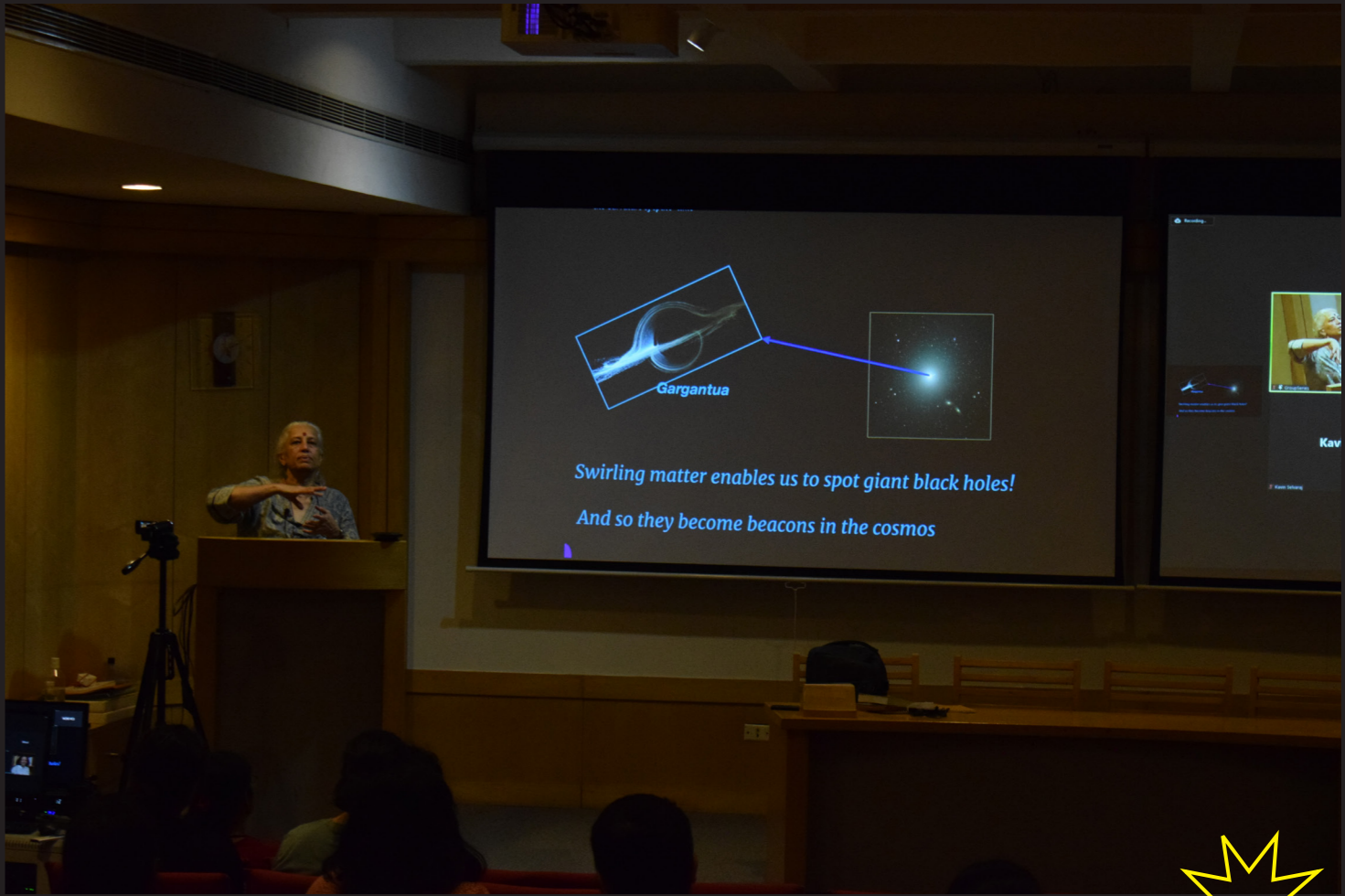


Prajval Shastri is an astrophysicist of over four decades. She was a faculty member at the Indian Institute of Astrophysics, Bengaluru for 23 years. She has also been a Fulbright fellow at Stanford University, Senior Associate at TIFR-ICTS and Senior Fellow at the International Centre for Radio Astronomy Research (ICRAR), Australia.

She is currently Emeritus Scientist at the Raman Research Institute and Adjunct Professor, ICRAR. She is extremely passionate about science outreach. She believes that the cultivation of scientific thinking is for everyone, uses astrophysics as a vehicle to engage lay audiences of all ages with these questions in multiple languages, and works for the people's science movement towards this goal. She is also deeply concerned about the inequities in the sciences and attempts to bring an intersectional lens to the endeavours to mitigate them.

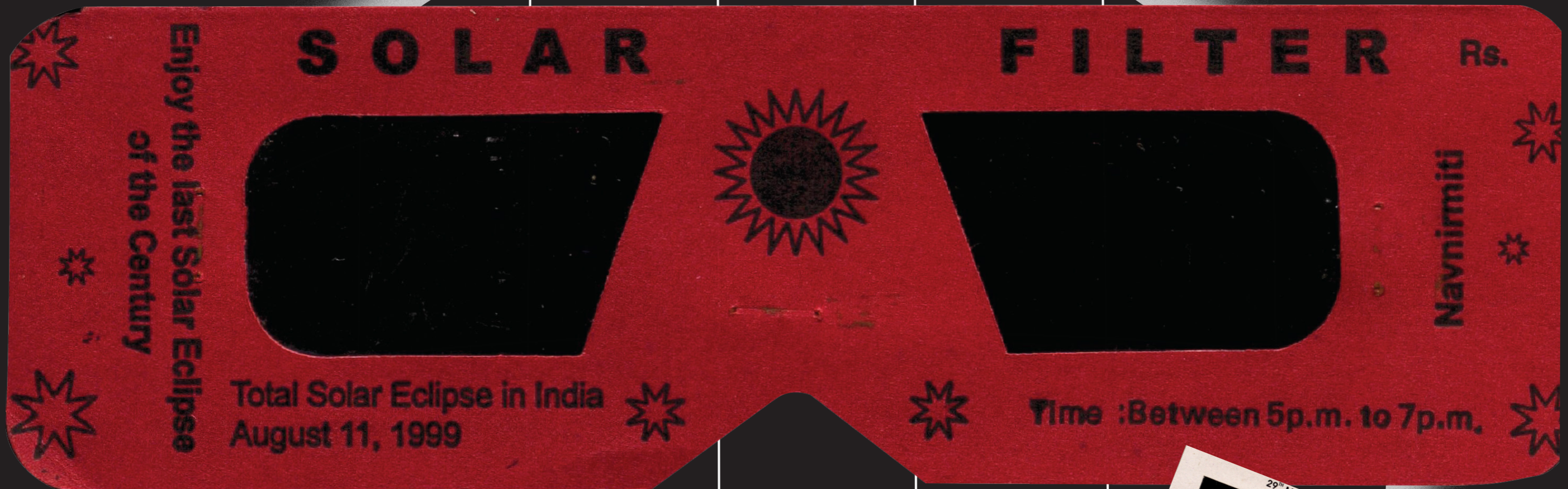
Prajval Shastri photographed by Ravi Kumar Boyapati.

In keeping with the democratic impulse modelled by Arvind Gupta, Prajval Shastri also keys us into the differences between the scientific movements propelled by a sensitised population versus the science of the academy and its insufficient crossover. It is, she avows, school teachers who participate in large numbers in these endeavours, even unexpected actors such as a religious institution that objected to scientific distortions in NCERT textbooks.



The Archives at NCBS has an archival collection from a people's science organisation, the Navnirmiti Papers (MS-031).

Spectacles with solar filters for safe viewing of solar eclipse, 11 Aug 1999, MS-031-2-2-1-14, Navnirmiti Papers, Archives at NCBS.



Navnirmiti is a not-for-profit social enterprise, located in Pune, Maharashtra, which commits itself to popularising science in India through its science communication, publication, and education initiatives. Focusing on 'a hands-on understanding of science', the organization develops methods and learning aids related to math and science, accessible to all age groups.



FIGURE-ING IT OUT

Aditya – Archiving Intern



Among the interesting objects that call the Archives at NCBS their home, lies one that certainly deserves a mention: a terracotta animal figurine from the C P Rajendran and Kusala Rajendran papers.

C P Rajendran and Kusala Rajendran are geologists who have, through their research, contributed immensely to the understanding of geological and seismological processes of the Indian subcontinent. They have also produced valuable research in the field of paleoseismology – to understand the history of seismological activities in the Indian subcontinent and how that affected our forefathers.

Archaeology, in simple words, is the study of the past through material remains. The production of interpretations in archaeology is object-centric and the purpose is to divulge the thought process that went into the creation of material remains. This is achieved by carefully recording the contexts in which the material remains are found through the methods of exploration and excavations. These methods are used by both geologists and archaeologists. Geologists dig trenches to inspect geological sections while archaeologists dig trenches to inspect artificial mounds created by the deposition of cultural remains. It is common for geologists to find cultural material during their explorations and such is the case for the terracotta animal figurine.

One undebatable fact is the figurine’s ability to take on multiple identities. It must have started as a brainchild of a person who wanted it for some unknown purpose. The figurine then took a physical form and fulfilled its intended purpose.

Maybe it found use for multiple functions – I label it a ‘terracotta figurine’ and leave it open for interpretation, still finding my footing in the field.

Two Learned archaeologists who visited the archives could not agree on their interpretations of the figurine either – one said that it could be a bull, and the other, that it could be a horse.

They reached the consensus that it probably served ritual purposes. Somehow the figurine was elevated in divinity and given an earthly tomb; and, later, was woken up from its slumber by C P Rajendran and Kusala during a field trip in Gujarat. The figurine existed as a mere ‘odd find’ at their house till it entered the archives and assumed its current identity as an archival object.



“At the Archives at NCBS, we set the environment according to the collections we receive – which has largely been paper. However, the terracotta figurine that arrived with the papers of C P and Kusala Rajendran requires a slightly lower humid condition compared to that of paper. Although we had observed tiny spores of mold on the object when we received it, the mordent spores only activated later due to the humidity. Thankfully, the team at the archive were able to spot it at the early stage and isolate it for further study.”
Sindhu Nagaraja – Art and Document Conservator

of fungal bloom on its exposed surface. Fortunately, the fungus did not spread to other nearby materials, such as oversized newspapers or maps. This taught me that archival objects have to be understood in terms of concepts of preservation and conservation – under the able guidance of Sindhu, who helps store, conserve and preserve the array of materials in the archive. The figurine provided an interesting challenge to test if the controlled environment at the archives was suitable for terracotta objects.

I remember my archaeology professors talking about the destructive nature of archaeological excavation – how cultural material, once removed from the earth through excavations, tends to deteriorate faster. The life of such cultural material can be prolonged for a short span through interventions, but its ultimate destruction is inevitable. It's ingrained into the very belly of the beast, the conditions of its creation – Sindhu and my team can only reign it in from galloping towards the rubbish heap of history.

As someone who has had the opportunity to get a formal education in archaeology, the C P Rajendran and Kusala Rajendran papers were the perfect introduction for me to the world of archiving. There I found archaeological as well as archival value in the terracotta figurine. The diversity of the material in the collection can be of value for researchers in archaeology, geology, and seismology, as well as for unearthing interconnections between the fields in praxis.

There is a remote possibility, a mystery for future archive users, that the material related to Gujarat in the collection can give clues to finding the provenance of the horse. Associated with the figurine are the incidents of its conservation. While stored in the climate-controlled storage, the figurine nevertheless developed a layer

K S KRISHNAN PAPERS



Kariamanikkam Srinivasa Krishnan known as K S Krishnan was an Indian physicist and scientific administrator. He was the co-discoverer of Raman-scattering for which his mentor C V Raman received the Nobel prize in Physics in 1930. Krishnan was deeply interested in physics and chemistry, and had conducted experimental studies on scattering of light in liquids and the magnetic and optical properties of crystals. He was the first director of the National Physical Laboratory in Delhi which was one of the earliest national laboratories created under the Council of Industrial and Scientific Research in post-independent India.

He worked as a scientific administrator and advisor to the Government of India. He was a member of the Atomic Energy Commission of India and was an advocate for the peaceful use of atomic energy. Krishnan was also interested in Tamil literature and Vaishnavite philosophy. Krishnan died while still in office in 1961.

Editor's Note: The Archives at NCBS also has the papers of the molecular biologist K S Krishnan (MS-003), this is not to be mistaken for the physicist K S Krishnan (MS-024).



K S Krishnan's portrait taken by D D Kosambi, 1940s, MS-024-5-1-12-21, K S Krishnan Papers, Archives at NCBS.

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K S Krishnan (extreme right) with C V Raman, S N Bose, J C Ghosh, and G H Langley at University of Dhaka, 1930s, MS-024-4-3-12-11, K S Krishnan Papers, Archives at NCBS.

K S Krishnan's material has been arranged into nine series:

SERIES 1: NOTEBOOKS, JOURNALS, AND REGISTERS

SERIES 2: SCIENTIFIC RESEARCH, ADMINISTRATION, AND TRAINING

SERIES 3: TALKS AND WRITING

SERIES 4: PHOTOGRAPHS

SERIES 5: PERSONAL AND EPHEMERA

SERIES 6: CORRESPONDENCE

SERIES 7: MATERIAL RELATED TO KRISHNAN COLLECTED BY KRISHNAN FAMILY

SERIES 8: MATERIAL RELATED TO KRISHNAN COLLECTED BY D C V MALIK

SERIES 9: TAMIL DOCUMENTS - SPIRITUALITY AND LITERATURE

V SERIES 1: NOTEBOOKS, JOURNALS, AND REGISTRARS

V SUB-SERIES 1: RESEARCH NOTEBOOKS

> BOX 1, FOLDER 2: Untitled - Lab Notes related to Scattering of Light, bulk: 4 November 1923 - 27 March 1924 (MS-024-1-1-1-2).

K. Krishnan

4th Nov. 23. filters used.

I Blue filter - transmits indigo blue + slightly green

II Dark green mostly green + some blue

III light green do.

IV orange. orange red + yellow

V red Red.

When seen thro' pocket spectrocope.

Rama 46 new brown red. 24962.

| | | | | | |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 8600 | 8573 | 8695 | 8530 | 8602 | 8660 |
| 7200 | 7146 | 7390 | 7060 | 7600 | 7220 |

anilin - p 80
 glycerin - p 114
 water - p 118

also Vol III p. 23, 24.
 also Vol IV

V SERIES 4: PHOTOGRAPHS

V SUB-SERIES 2: PHOTOGRAPHS OF MEETINGS AND CONFERENCES - FOREIGN COUNTRIES

> BOX 11, FOLDER 25: Krishnan (extreme left) with Rabi, Cacciapuoti, Mando, and Franchetti at 5th Session of the General Conference of UNESCO, 22-17 June 1950 (MS-024-4-2-11-25).



V SERIES 4: PHOTOGRAPHS

V SUB-SERIES 3: K S KRISHNAN WITH COLLEAGUES AND DIGNITARIES

> BOX 12, FOLDER 8: Jawaharlal Nehru and the artist Svetoslav Roerich at Krishnan's 60th Birthday celebration at NPL (MS-024-4-3-12-8).



> BOX 12, FOLDER 7: Krishnan with Lalita Chandrashekar and S Chandrashekar and in Chicago, 1950s (MS-024-4-3-12-7).



> BOX 16, FOLDER 7: Raman, C V, bulk: 28 September 1928 - 8 February 1927 (MS-024-6-2-16-7).

Indian Association for the Cultivation of Science.

210, Bow Bazar Street,
Calcutta.

No. _____

28th Sept, 1928

From
Prof. C. V. RAMAN, M.A., D.Sc., F.R.S.,
Honorary Secretary.

To _____

Mr. K. S. Krishnan was a Research Scholar at this Association in the years 1924 and 1925 during which period I was touring Europe and America. He showed by his work in these years that he possessed a remarkable capacity for independent and original research. The papers written by him during these years have been widely quoted in the current literature and treatises. There are six references to Mr. Krishnan in the Handbuch Der Experimental Physik alone.

During the past few years, Mr. Krishnan has occupied a position which I may describe as a partnership in scientific research of the Bowen-Millikan type. This partnership has been very fruitful, as it has led to the publication of some twenty original communications. Several of these papers embody new physico-mathematical theories, but perhaps the most striking outcome of the partnership has been the experimental discovery of a new radiation effect about which the world of physics is hearing and will hear a great deal.

Mr. Krishnan is in the laboratory an experimenter of rare skill and judgment, and in the library and seminar-room a mathematical physicist with a penetrating insight who can present a topic to his listeners with the utmost lucidity and verve. His real place in life is that of a teacher and researcher in a University, and if he can get such a place he will never stop climbing.

Sd. C. V. Raman,
Honorary Secretary.

Albert Schoenflies.
Landgerichtsrat a.D.

Schoorl NH den 23.März 1939.
Doopegezind Broederschapshuis.

Dear Professor,

On the 19th november 1938 when I was still in Koenigsberg (East- Prussia) I sent you a letter to which you did not yet favour me with an answer. Perhaps these lines did not reach you or the letter written in German during the first excitement after the events of last november has gone astray somehow or the other.

Professor von Laue of Berlin gave me the advice to write to you.

I therefore am taking the liberty of addressing these lines to you. In this connection I beg to refer to my curriculum vitae and the statements enclosed.

Since 26th January 1939 I am in a camp in the Netherlands with my family (wife and three boys) and we are at the present time at a refugee camp where we, of course, cannot stay for an indefinite period. I am, therefore, as you will easely imagine very much interested to leave this camp as soon as possible to immigrate to some other country.

I am in a possession of an Affidavit of Support, but having a very high quota-number this chance of going to America is practically none as it may last several years before I may be called up to appear before the America Consul.

Furthermore I made an Application for a Permit to enter

New Zealand. In the form it was asked which amount of money I undertake to bring to New Zealand and I answered this question stating the amount with 500 £ Sterling hoping at that time that I should be able to transfer tthis money from Germany. But as the laws of transferring money from Germany have become stricter and stricter I cannot bring up the amount in question, a matter which I could not foresee. At present I am living here without any means whatever and I am very sorrowful to imperil my immigration to New Zealand.

As my children aged 6 , 8 and 10 years cannot go to any school here and as I have no opportunity to work or to find any occupation whatsoever I should be greatly indebted to you if you could see your way to help me in my awkward position and I should appreciate your valuable advice.

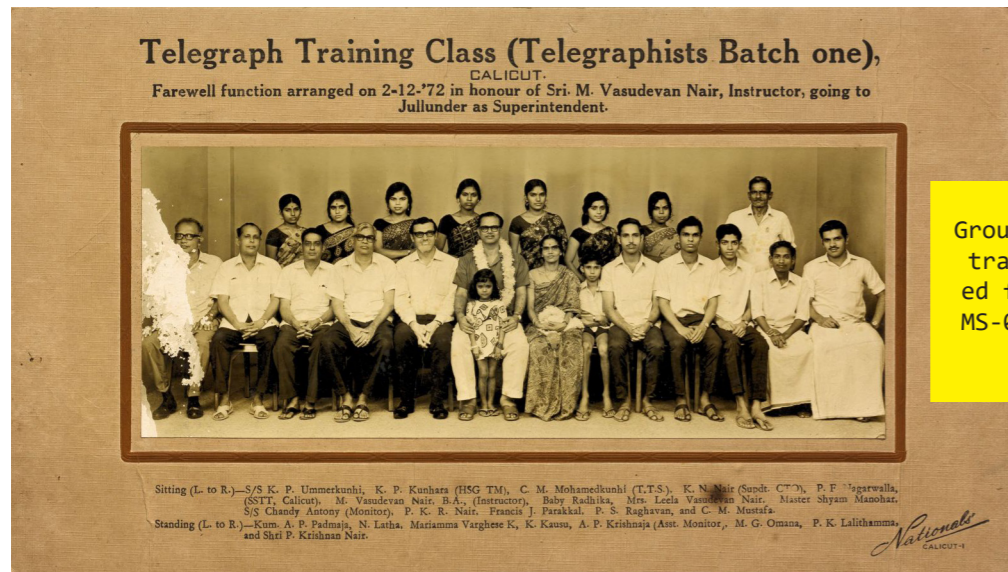
Looking forward to the favour of your reply I beg you with the request whether you can see your way clear to be of any help to me in my difficult and not enviable position. I beg you to excuse the trouble I am putting you to and remain
yours faithfully

Albert Schoenflies.

ARCHIVING A CYTOGENETICIST'S MATERIAL

Anjana T – Archiving Intern

I immensely enjoyed archiving A P Krishnaja's material, primarily because as a Biology graduate with molecular biology research experience, sifting through her laboratory data felt like looking through a window to the past. Various laboratory methods have evolved over time to accommodate the growing needs of the researcher, but certain routines have been preserved from the past, albeit not the most convenient method of data presentation. The cut-and-paste method to present the chromosomes in a grid is one such protocol.



Group/class photo of the telegraph training class Krishnaja attended from Calicut, 2 December 1972, MS-028-3-2-0S11-69, Krishnaja A P Papers, Archives at NCBS.

Born in Calicut, Kerala, in 1951, Krishnaja did her BSc. in Zoology (with chemistry and botany subsidiaries) at Malabar Christian College, Calicut. She worked as a telegraphist in Calicut for almost two years before resuming her academic journey.

She pursued an MSc. in Zoology by research at the Central Institute of Fisheries Education, Mumbai (CIFE) during which period she was the recipient of the Indian Council of Agricultural Science (ICAR) Junior Fellowship. After a stint studying drosophila mutagenicity at Punjab Agricultural University, Ludhiana, she earned a PhD from the Institute of Science in 1980. She worked at the Genetic Clinic and Pediatric Research Laboratory at KEM Hospital before joining

the Bhabha Atomic Research Centre's biomedical group, where she worked from 1982 to 2008. She was part of several landmark research projects at BARC such as a cytogenetic monitoring programme on human newborns carried out from 1983-1987 to find out the incidence of constitutional chromosome anomalies, as well as the international collaboration HUMAN Micro Nucleus Project. She also conducted an in vitro cytogenetic study in human lymphocytes exposed to quinacrine dihydrochloride (QDCL has been used as a crude chemosterilant in developing countries in recent years).

Krishnaja's early research consisted of characterising commonly consumed fish species. She conducted enumeration of the chromosome numbers, along with physiological features of the members of the genus Labeo, which includes Rohu or the rui mach. The methodology adopted to report the chromosome numbers was a routine procedure followed to identify and characterise species - preparing a karyotype.

A karyotype is an array representation of chromosomes of an organism, much like a barcode. It serves to give us an overview of chromosome numbers of an organism, as well as characteristics of individual chromosomes. Giemsa staining, developed in 1902 by Gustav Giemsa, has been the go-to protocol to mark chromosomes in a cell, and works by conferring it unique banding patterns. Once made visible, chromosomes are observed under a microscope and "sorted out", based on its size and the band features, to render a chart, known as a karyotype or an idiogram.

Krishnaja's collection consists of karyotypes of fish, and patients from KEM hospital, where she worked in the latter years of her career.

These karyotypes consist of cut-outs from photographs of metaphase chromosomes, pasted with the chromosomes numbered and labelled. As tedious as this might sound, the manual cut-paste is still a go to method for idiograms because of its simplicity.

With the advent of newer staining and digital sorting techniques, karyotyping has accommodated new developments. Instead of identification by banding patterns of metaphase chromosomes, staining techniques such as fluorescent in-situ hybridization, or FISH, has enabled researchers to target and stain individual chromosomes using complementary nucleic acid strands.

This, combined with modern confocal microscopy, gives much higher precision and resolution to the identification process. The advent of image editing softwares such as Adobe Photoshop enables the researcher to digitally cut and paste the individual chromosomes to make the karyotype.

Computer software, improved protocols and modern microscopes are integral to molecular biology research and communication now; but Krishnaja's karyotypes and photographs of chromosomes give us a glimpse to the fundamental and rigorous methods scientists in the '70s adopted to supplement their paradigm-shifting research work.

View Krishnaja's papers here:





1-16

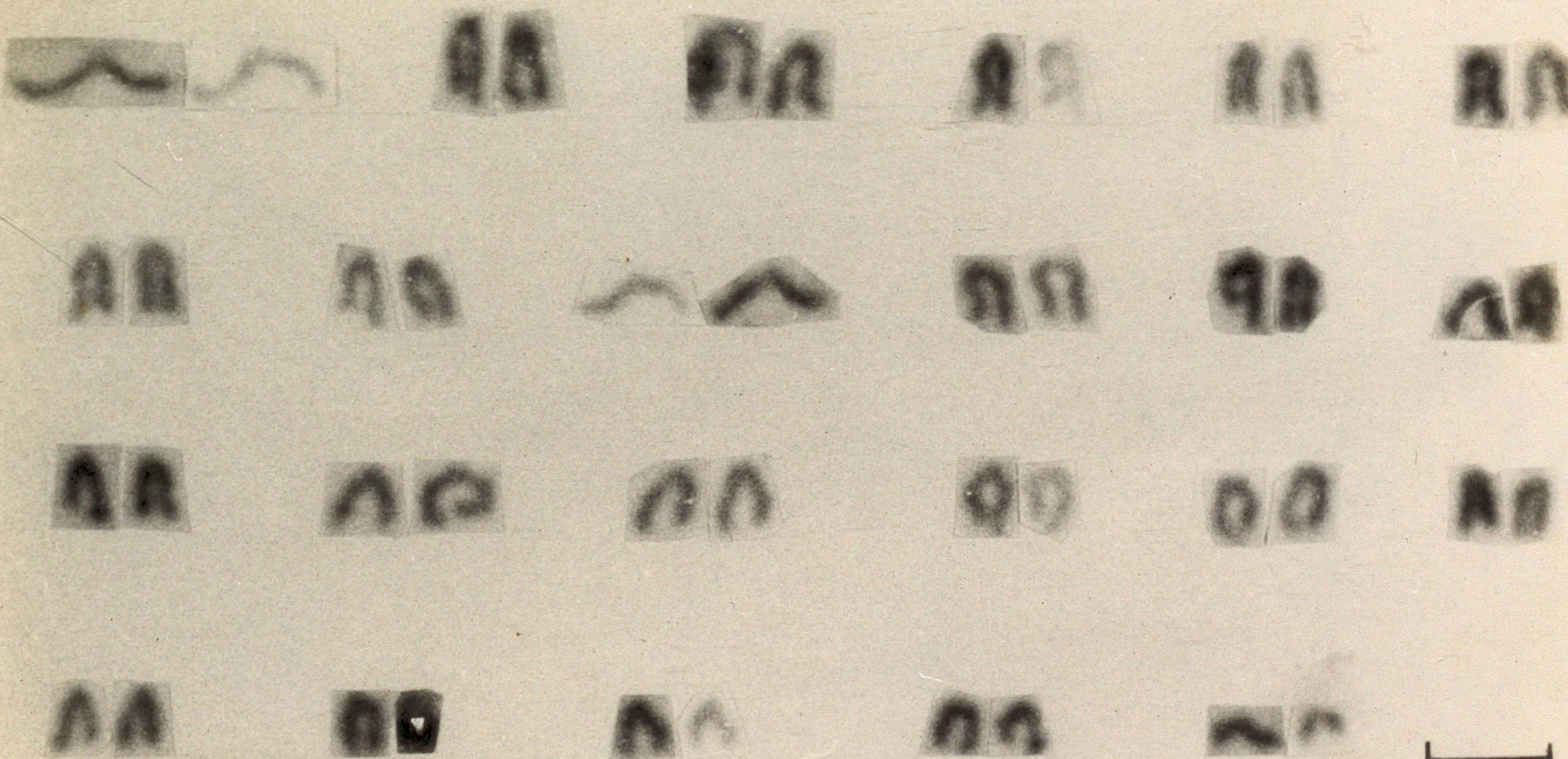
5 μ

17-25

Labeo calbasu male (3)

Karyotypes of Labeo genus, 1976-79,
MS-028-2-2-3-13, Krishnaja A P
Papers, Archives at NCBS.

Karyotypes of *Boleophthalmus dussumieri*, 25 March 1977, 15 July 1979,
MS-028-2-2-3-14, Krishnaja A P Papers,
Archives at NCBS.



5 μ

BOLEOPHTHALMUS DUSSUMIERI - FIN

Archives Public Lecture Series #63

A Century of Watching Indian Birds

Aasheesh Pittie in conversation with Suhel Quader

24 May 2024, 5:00 PM

Lecture Hall 1, Haapus, NCBS



QUILLING TOGETHER A BIRDING LEGACY

Sravya Darbhamulla - Archivist

Aasheesh Pittie and Suhel Quader jointly brought to life birding circles in a post-Salim Ali era. And in his enduring shadow, they spoke of Pittie's ringside view of editorial decisions and change at the *Newsletter for Birdwatchers*, his longtime correspondence with Zafar Futehully, and the challenges and contributions of 'amateur' bird-watching groups.

"A spark bird is the one you see the most clearly". For Pittie that was the red munia, a flashing 'ruby' that flitted into his vision when he was a schoolboy birding in the pitted rocky Rayalseema landscape around Hyderabad. He evoked the serendipitous way he fell into conversation with BNHS, with Zafar Futehally, who he characterised as a brilliant communicator. An audience anecdote also credited Futehally with community-building, and 'proselytising birds', all in their independent geographical circuits. Pittie pointed out that the field began in India with specimen collection - the birds that people worked with were dead. Nevertheless, the culture of observation on the field took shape with British figures such as Hugh Whistler, whose notes supplemented Salim Ali's skilled bagging of specimens. This refrain of Pittie's that to be a birdwatcher is to observe, is an echo of Humayun Abdulali's advice to him

almost 50 years ago, that the field bird-watcher should also be a behavioural observer. Pittie's concern with the act of communication is beautifully illustrated by his rationale for starting up 'Indian Birds', which was to widen the amount of publication venues for amateur birders, and as Quader hazards, perhaps bring scholarly ornithology and the field birder together. After all, ornithology remains a field with outsize contributions of amateurs. He noted happily that future contributions often saw an improvement after the editors gently returned advice - the 'bleeding manuscript', rather than discouraging the budding writer, and promoted scientific writing at a high standard.

The talk turns to the latest developments: Pittie shared his concerns about habitat destruction in the course of what an audience member called 'the bird paparazzi'. He further observed that the level of conversation has advanced and it is no longer benchmarked by what a stalwart has to say - anyone may have an intelligent question or contribution. He noted wryly that even his own records find themselves under questioning from curious young birders, desiring visual proof in the age of the phone camera.



Aasheesh Pittie (L) and Suhel Quader (R) photographed by Ravi Kumar Boyapati.

In response to an audience question on why the study of the insect did not provoke similar enthusiasm as birding, they mulled several hypotheses, from their reduced visibility to a purported lack of cultural capital annexed by, say, the peacock in monsoon. Quader made an aside on how butterflies seem 'alien' while birds remind us of ourselves, which harked back to early naturalist writers' penchant to draw parallels between human and animal and bird behaviour.

The conversation ended on the cautious note that people cannot know what they have not seen for themselves - that the degraded

landscapes of today are now the baseline for the younger generations of nature-watchers.

The collections of birders in our archives - those of Ravi Sankaran, Aasheesh Pittie, Jamal Ara, Prakash Gole, RJ Ranjit Daniels - might offer a key to preserving this biodiversity and heritage. It remains to be seen if these birding histories will one day be seen as fantastic and fablesque, or inspire a roadmap for preservation and conservation. But above all, perhaps they urge upon us keen and alert observation of the natural world and the changes in our midst.



Stories from the Archives - Through another lens

WHEN THERE'S A BULLET WITH A NAME ON IT

Sravya Darbhamulla - Archivist

The gentle souls that populate the archives have been much excited about the arrival of a coterie of bullets in their midst via the collection of wildlife photographer TNA Perumal. While the host of wildlifers preferred to do their shooting with a camera, many interconnections can be observed between the pursuit of game and the province

of the wildlife expert. The greater problem was to figure out their place within the archive in dual terms - firstly, whether they fell into the collection policy of the Archives at NCBS, and secondly, the legal ramifications of hosting a bullet, and, hypothetically, a gun within an Archives, under the framework of Indian laws.



What's scientific about a gun? Nothing, we thought, unless we extrapolate to the romance of the bomb and the construction of destruction; and to the tracker whose folk knowledge arms the hunter. Then Aasheesh Pittie told us in a voice full of conviction, "Salim Ali's gun was very dear to him."

Raza Kazmi, well-acquainted with forest departments nation-wide avowed that a decommissioned gun would cease to be a 'firearm' within the meaning of the Arms Act, 1959; an interesting ontological development if true. But before we fell in with this notion of the demotion of gun to mere firewood, a brief dip into the Arms Act felt pertinent.

The lay archivist is aware that a blanket requirement to obtain a licence operates for possessing a firearm. Subject however, to - the worms of time?

Bullets are more properly, ammunition, but they fall within the terms of the Act, to be precise, 'Section 2(b) (iii) - other articles containing, or designed or adapted to contain, explosive, fulminating or fissionable material or noxious liquid, gas or other such thing, whether capable of use with firearms or not.' Thereby perhaps extending to bullets that were absolutely incapable of use.

Acquiring a gun, per the Act, also covers the acceptance of a gift of a firearm. Thus, even if gifted, we would require the assignment of a valid firearm licence, or deposit it with the nearest police station. Respite appears in the form of section 45, at the very tail-end of the act, that states that the act would not apply to:

'(c) any weapon of an obsolete pattern or of antiquarian value or in disrepair which is not capable of being used as a firearm either with or without repair; and



Obaid Siddiqi at a photo-shooting booth, 1959, MS001-7-4-59-19, Obaid Siddiqi Papers, Archives at NCBS.

(d) the acquisition, possession or carrying by a person of minor parts of arms or ammunition which are not intended to be used along with complementary parts acquired or possessed by that or any other person.'

Thus, in the absence of the firearm to animate the bullets, the necessary Womens rea might be absent and Why hypothetically, Salim Ali's bullets may take up residence in our display case. Yet, even the gentle souls of the archive may find themselves tempted by the line of fire.

Thus was the case of Rakesh Dhawade. An aficionado of arms who claims descent from a line of weaponeries and the men that managed them in saffron-blooded Maratha times, he even received a gWrant for the cataloguing of arms. Matters took a deadly turn when he was accused in the Malegaon blast case. He was later released, but not before he undertook the writing of a book while in prison, for which he specifically delayed his release. We as archivists believe we deal with fascination, deactivated. And yet we interlace with the contemporary in

unexpected ways. Determining the place of the bullet in our archive of contemporary scientific history is an exercise of the grey zone between the ephemera that builds the complete picture of the people whose work we seek to contextualise and the things that are better lost to splintered time.



The Archives at NCBS (<https://archives.ncbs.res.in/>) is a public collecting centre for the history of science in contemporary India. Over 250,000 processed objects across over 30 collections are housed at our 2000-square-foot state-of-the-art physical centre in Bangalore. We opened to the public on Feb 4, 2019.

Our objectives are four-fold:

1. To strengthen research collections and public access in our domain.
2. To push the frontiers of research in archival sciences in India.
3. To build capacity through education.
4. To reimagine the archives as part of the commons through vibrant public engagement.

All collections at the Archives can be viewed on the website:
catalogue.archives.ncbs.res.in

All events at the archives can be viewed on the Archives' events page:
<https://www.ncbs.res.in/events/apls>

The Archives at NCBS is open to visitors between 10am-5:30pm on weekdays, and weekends by appointment. To plan your visit, email us at archives@ncbs.res.in