

Formal Rule by Informal Code

Codes of Conduct and Prestige in the Indian Academies of Science (1970–2000)

▼ **SPECIAL ISSUE** in *Scholarly Codes of Conduct in the Twentieth Century*

▼ **ABSTRACT** This paper examines the role of codes of conduct in relation to participation and scientific prestige in India's three academies of science between 1970 and 2000. This period was one of increasing political and structural change for the Indian scientific state and the academies. Through archival material from the three academies, and interviews with its fellows, this paper argues that science academies were mainly organized and run through informal codes of conduct regarding who could become fellows/members of the science academies, and how. The careful utilization of informal codes was done to build and maintain the scientific prestige of these academies and the small cluster of individuals who ran them. By examining three elements of participation in the academies—fellowship, membership, and the removal of fellowship—the paper shows that engagement in them by individuals in the scientific community was tempered by the utilization of informal codes, rather than formal ones, with the intention of cultivating and maintaining scientific prestige.

▼ **KEYWORDS** Codes of conduct, science academies, Indian science, scientific prestige, global history of science

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George Bailey • KU Leuven, Belgium, george.bailey@kuleuven.be

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In 1994, Pushpa Mittra Bhargava, founder-director of the Centre for Cellular and Molecular Biology in Hyderabad resigned from India's three national academies of science, claiming, "One can predict who will be and who will never be the president or a member of the council."¹ Bhargava painted a picture of the science academies as small, insular networks of scientists perpetuating power and prestige among their own. Bhargava was an outspoken critic of the Indian scientific community and society as a whole, but was a council member and knew first-hand the realities of the functioning of the academies.² The Indian science academies, at their conception in the 1930s, were created as "a corporate body for the sake of cultivation and promotion of science," but the context of the academies had drastically shifted by the end of the twentieth century.³ Through examination of the codes of conduct relating to participation between 1970 and 2000, this paper aims to identify how and why certain rules and codes came about to facilitate the functioning of the national academies of science in India.

This paper will examine formal and informal codes of conduct related to participation in the Indian National Science Academy (INSA), the Indian Academy of Sciences (IAS), and the National Academy of Sciences, India (NASI). Through three case studies, this paper hopes to highlight how it was informal codes of conduct, rather than formal ones, that shaped the processes of participation in the academies. Due to the centrality of the term throughout this analysis, it will be essential to define "codes of conduct." Codes of conduct relate to a set of behaviors that could be either formal (written and legally enforceable) or informal (non-written and culturally enforceable) for individuals involved in organizations—in this case, science academies in India. In addition, the introduction of this special issue states, "We therefore consider scholarly codes of conduct to encompass a vast array of shared rules, norms, principles, and guidelines adhered to by scholars and regulating their behavior."⁴ The historiography about rules in science has been well documented, and this piece hopes to contribute to it.⁵ Yet there is a co-dependence between rules and codes of conduct, both of the formal and informal variety, that will also be explored. This paper argues that the functioning of Indian science academies relied on a series of elite networks that were underpinned and reinforced by the development of informal codes of conduct, rather than formal codes of conduct.⁶

¹ DTE Staff, "Indian Science."

² NASI Council, "Minutes, March 22, 1991," 7.

³ NASI, "Business Matters," 1.

⁴ Cabanel, Vandendriessche and Wils, "Scholarly Codes of Conduct," 3.

⁵ Daston, "Moral Economy of Science"; Daston, *Rules*; Hughes, "'Divine Right' or Democracy?"; Shapin, *The Scientific Life*.

⁶ For specific individual examples of Indian scientific elites, see: Krishna, *The Indian Science Community*, 244–71.

These codes of conduct were not formed in a vacuum, and one factor that shaped them was scientific prestige. Prestige has historically been a significant component of science, and science academies are no exception.⁷ This prestige formed in a co-dependent structure. Science academies developed it by counting prominent scientists among their ranks and as their leaders, while scientists themselves obtained it from association with the academy. Honorary fellowships exemplify this well, as all three academies actively sought out highly regarded international scientists for these honorary positions.⁸ Therefore, science academies function as conduits and amplifiers of the scientific prestige of the fellows of their organizations.⁹ Prestige, however, is not an amorphous concept, but socially constructed by the scientists, science academies, and society that they exist in.

In the Indian context, to understand scientific prestige, one has to acknowledge the position of science in India. Science held a special place in the political apparatus of independent India, and was particularly championed by Prime Minister Nehru as the solution to the socioeconomic problems that India faced. This set of policies was known as “Nehruvian Science” and focused on large-scale engineering projects and the founding of state-run research laboratories across the country.¹⁰ As such, science and scientists were valorized in the new Indian state by politicians and the public at large, with scientific prestige determined by association with state-run labs, governmental positions, and proximity to Nehru himself. Nehru’s death in 1964, coupled with the unrealized promises of scientific modernization, affected the prestige and social authority of science.¹¹ Due to the decline in the primacy of science as a tool for acquiring public and political prestige, there was renewed interest in the academies as a source of scientific prestige from 1970 onward.

The Indian science academies have been the subject of very few works of historical research. Some of the institutions have their own published histories, which, while useful, remain relatively uninterested in and uncritical of the institutions’ cultures and workings.¹² The science academies are briefly mentioned in histories of science in India by Anderson, who highlights their role in the legacy-building of Saha; Venkataraman, who focuses on Raman’s role; Phalkey, who uses them to identify a North–South divide; Krishna, who links them to the creation of a scientific elite; and Sur, who emphasizes the role of gender in science.¹³ Yet all references are tangential and do not delve critically into

7 Hansson et al., “Attributing Excellence”; Hansson and Maas, *Nobel Genius*; Henig, “NAS at the Crossroads”; Bukodi et al., “Pathways into a Scientific Elite”; Rigney, *The Matthew Effect*.

8 Bailey, “Imperialism in the Academy,” 11.

9 Similar discussions of these broad values appear in other work on science academies. See: Fyfe et al., “Managing the Growth”; Fyfe et al., *History of Scientific Journals*.

10 Anderson, *Nucleus and Nation*, 149–67.

11 Arnold, “Nehruvian Science,” 368–69.

12 Sahni and Tandon, *Inspirational Journey*; Dhawan and Kumar, *Journey of NASI*.

13 Venkataraman, *Journey into Light*; Sur, *Dispersed Radiance*; Anderson, *Nucleus and Nation*; Phalkey, *Atomic State*; Krishna, *The Indian Science Community*.

the science academies as the central focus of study, with the exception of some limited research.¹⁴

The bulk of the sources analyzed here are annual reports and yearbooks of the three academies of science. These annual reports provide the formal regulations and codes of conduct, but also discussions of the broader context of becoming a member/fellow. Additionally, the council minutes—sensitive documents recently rediscovered through fieldwork—detail internal discussions of the executive council on a range of topics. Finally, several interviews with fellows of these science academies provide context for the practical realities of the academies and executive councils, further elucidating underexplored informal codes of conduct. Inequality exists within the quality of these different sources, with NASI being the most accessible regarding documentation, while the IAS and the INSA were spoken about more in the interviews.

This article is divided into four sections. The first will briefly discuss the context of the academies' founding and their purpose. The second section looks at the election of scientists as fellows of all three science academies, and how broader concerns interacted with codes of conduct in the 1970s and 1980s. The third section examines membership, a unique category of participation in NASI, separate from fellowship, and how prestige pressures led to changing perspectives and codes on membership. The final section investigates codes of conduct related to unethical conduct and the removal of scientists from the science academies in the mid-1990s.

Three Academies: The Science Academies of India

India has three national science academies, all founded in the 1930s. First was NASI, originally the United Provinces of Agra & Oudh Academy of Sciences (UP Academy of Sciences).¹⁵ The academy was founded in Allahabad by Meghnad Saha, a prominent Indian scientist who recognized the need for a science academy in India.¹⁶ Three years later, as president of the Indian Science Congress Association (ISCA), he created a committee comprised of prominent Indian scientists, to organize the creation of a national academy of sciences.¹⁷ One of these scientists, C. V. Raman, the 1930 Nobel Prize Laureate in Physics, grew upset during the process and left the committee in 1934 to found his own organization, the Indian Academy of Sciences in Bengaluru.¹⁸ After negotiations, the committee managed to reach an agreement with Raman, resulting in the National Institute of Sciences India (NISI) in

¹⁴ Singh, "Tale of Three"; Bailey, "Imperialism in the Academy."

¹⁵ Ghatak and Pathak, *Meghnad Saha*, 8.

¹⁶ Ibid.

¹⁷ Sahni and Tandon, *Inspirational Journey*, 26.

¹⁸ Bailey, "Imperialism in the Academy," 7–8.

Table 1: Information regarding the founding of the three science academies of India.

NAME	NATIONAL ACADEMY OF SCIENCES, INDIA (NASI)	INDIAN NATIONAL SCIENCE ACADEMY (INSA)	INDIAN ACADEMY OF SCIENCES (IAS)
Founding Year	1930	1935	1934
Location	Prayagraj (formerly Allahabad)	Kolkata (until 1951) New Delhi (present)	Bengaluru
Founding Figure	Meghnad Saha	Meghnad Saha, Lewis Leigh Fermor, and the Indian Science Congress Association	C. V. Raman
Former Name	United Provinces of Agra & Oudh Academy of Sciences (UP Academy of Sciences)	National Institute of Sciences India (NISI)	N/A

1935.¹⁹ Attempts to reconcile the organizations and create an official “national” science academy of India were planned.²⁰ They failed due to the intractability of the IAS and the NISI to relinquish their authority, among other concerns regarding a North–South divide—a constant point of contention in the late colonial period.²¹

Due to the influence of the British imperial state on their founding, the Indian science academies replicated the Royal Society’s organization and regulations.²² The academies were (nominally) democratic, consisting of an executive council and a group of elected participants known as fellows. The activities of the science academies and their fellows centered around publication of scientific journals, which was the main reason for founding the academies in the first place. Indian scientists struggled to publish work in European journals due to the backlog of articles after the First World War.²³ Academy fellows submitted their work directly for publication, but non-fellows’ work had to be supported by a fellow for publication in the academy’s journal, thus developing a need for a network of scientists to get published. Additionally, INSA held another responsibility due to its unique position as the state-recognized national science academy, thus represented India internationally.²⁴ 1970 served as an inflection point for the academies: INSA changed its name, while the death of

¹⁹ Sahni and Tandon, *Inspirational Journey*, 34.

²⁰ Singh, “Tale of Three,” 306.

²¹ Bailey, “Imperialism in the Academy,” 8–10.

²² Sahni and Tandon, *Inspirational Journey*, 26.

²³ Ghatak and Pathak, *Meghnad Saha*, 9.

²⁴ Ranganath, Interview.

founder-president C. V. Raman prompted changes in the running of the IAS. In both cases, changes also instigated rewriting and reconsideration of their codes, regulations, and official texts.²⁵

Fellowship Regulations and Codes of Conduct

For all academies, individual election to the fellowship required a fellow to propose a candidate, a second fellow to second the candidate, and then two to four other fellows to show support for the candidacy.²⁶ The fellowship application would then be considered by a subcommittee for the scientific field their research fell into, before being rejected or recommended to the academy's council, which then made the final approval before a general fellowship vote.²⁷ Finally, new fellows of the science academy are required to sign an obligation relating to their conduct. INSA's obligation is as follows:

“As a Fellow of the Indian National Science Academy I shall follow the code of scientific ethics, maintain integrity in research and publications, uphold the cause of science and the dignity of the Academy, endeavour to be objective in my judgement, and strive for the enrichment of human values and thoughts.”²⁸

A similar sentiment is expressed by the IAS in its obligation, which remained unchanged from 1949:

“I who have hereunto subscribed do hereby promise for myself that I will endeavour to promote the cause, the aims and objects of the Indian Academy of Sciences for which it is founded; that I will be present at the meetings of the Academy as often as I can, especially at the Annual General Meetings and at Emergency Meetings; and that I will observe the statutes, rules and standing order of the said Academy.”²⁹

Aside from these obligations, there exists only one other example of a formal code of conduct in the regulations of the academies—in the section detailing the removal of fellows. Here, the formal codes of conduct generally state that repeated and consistent behavior that breaches the academy's rules, and may bring disrepute to the academy, is subject to removal from the fellowship by a majority vote of the council and a supermajority of the fellowship attending annual meetings.³⁰

25 IAS, *Year Book 1970*, 35–43; IAS, *Year Book 1977*, 1–17. There were a number of changes in the Year Book texts between these two years.

26 IAS, *Year Book 1977*, 8; “Sisir Kumar Sen,” 1–26.

27 IAS, *Year Book 1977*, 8–9.

28 INSA, *Year Book 1985*, 251.

29 IAS, *Year Book 1949*; IAS, *Year Book 1983*, 11. NASI has no such obligation for its fellows.

30 INSA, *Year Book 1985*, 254–56; IAS, *Year Book 1985*, 16.

When examined together, these formal codes of conduct highlight several things. First, impermissible conduct was very loosely defined and almost exclusively limited to doing reputational damage to the academies. While INSA's obligation also makes reference to a "code of scientific ethics," there was no shared understanding of what this meant in India or internationally. In fact, the academies did not even begin to discuss formal codification of scientific ethics until the early 2000s.³¹ Second, the procedure saw the council placed in the premier position of deciding whether someone was in breach of regulations. The result was a process that drew more inspiration from the trust in the "gentlemanly" scientific behavior of the Royal Society, which the academies were based on, rather than a late-twentieth-century body of professional scientists.

Yet the election process was beginning to receive criticism by the 1970s. In his 1969 presidential speech to INSA, T. R. Seshadri, confronted concerns that scientific men of quality were not being promoted to the fellowship, stating such claims were "without basis" and that the INSA had "taken steps to remedy possible lapses."³² Seshadri added, "Every scientist in this country who has scientific achievements and good standing to his credit is eligible for election," but caveated this saying "The application of rigorous standards endows prestige to the Fellowship."³³ The number of fellows was capped according to the regulations of the science academies, but the academies bowed to demands for wider participation and raised the caps from 1970 onward, with the IAS electing 104 new fellows that year alone.³⁴

Part of this frustration was that the fellowship nomination process was subject to a number of informal codes, at all levels, and often placed heavy reliance on personal connections. One such informal code was that prospective fellows could not actively canvass or ask for nomination to the academy, although for NASI this was a formal code.³⁵ Dr. Nanjundiah discussed that requesting a fellowship nomination became more common in the latter half of the twentieth century. Nanjundiah, however, mainly discussed how it breached the scientific and intellectual spirit of the science academies, and in doing so instead emphasized the moral component to the conduct.³⁶ The code of conduct against canvassing for a nomination continued even into the late 2000s, as displayed by an email from M. G. K. Menon, former president of all three academies, to a scientist in 2009, where he replied to a request for nomination to NASI: "I do not think it is proper for anyone to request for help for becoming a Fellow of an Academy as that is regarded as canvassing."³⁷ The specific use of the word "proper" reinforces this subjective moral notion

³¹ Menon to Tandon, February 28, 2003.

³² Seshadri, "Government and Science Academies," 332.

³³ Ibid.

³⁴ Bailey, "Fellowship List (IAS & INSA)."

³⁵ NASI, "Regulations Regarding Election," 480.

³⁶ Nanjundiah, Interview.

³⁷ Menon to Bhoraskar, August 3, 2009.

and suggests that directly asking for support was considered an informal code of conduct. In all interviewee cases, a prominent scientist approached them with an offer to support them for fellowship, and they were accepted.³⁸ In one interviewee's case, they were informed that they had been elected before even sending the necessary documentation to be considered.³⁹

Here we see why the frustrations over fellowship that Seshadri alluded to in his speech existed in the first place. Fellowship was a frustrating trap. The informal codes of conduct meant that prospective applicants had to advocate without directly advocating for themselves. This placed greater emphasis on what Seshadri identifies as the prestige of the candidates, but in practice, prestige was determined by the networks of scientific patronage. Being well connected to individuals who were already considered prestigious (and fellows) improved a scientist's chances of becoming a fellow. In many ways, this was a replication of the social networks of the Royal Society that particularly prejudiced scientists from the imperial periphery.⁴⁰ While the basis of such networks in India were influenced by other factors such as caste and geographical identities, ultimately the impetus for creating and utilizing such networks came from the incentive structure of the Indian scientific state and the science academies. These incentive structures were directly inherited from the legacy of British imperialism on the teaching and practice of science in India. All this highlights how the use of the informal codes of conduct was not only necessary but went hand in hand with the joint conceptualization of prestige by the academies and their fellows.

Similar codes relating to prestige were also prevalent at the council level. Informally, the council members of the science academies could and did circumvent the formal nomination rules in order to place their own preferred candidates on the list for consideration as fellows.⁴¹ According to one interviewee, who served as Vice President of a science academy, this was common practice and even a preferable situation: "Let's say if you are going to let twenty people [into the academy]. Keep at least two or three [...] where you, the council, decide 'no, this is a very worthwhile person.'"⁴² The interviewee also mentioned that in this process of suggesting names, "the council would discuss this with all members, and if you [did] not had an extraordinary idea, you kept your mouth shut and let the people who know the candidate talk."⁴³ Ergo, criticizing the choices of the council members outside of your field was seen as a breach of the informal codes—a criticism of the fellows' ability to identify and promote quality scientists. Here we see once again the centrality of networks of patronage, as well as an informal code of elite respect for such

38 Interviews with Nanjundiah; Ranganath; Interviewee 3; and Raghunathan.

39 Interviewee 3, Interview.

40 Home, "The Royal Society," 50–51.

41 Nanjundiah, Interview.

42 Interviewee 3, Interview.

43 Ibid.

networks, thereby defending and reinforcing a collective creation of prestige perpetuated by the science academies.

These networks and informal codes relating to council members remaining in their own field-specific lane did have consequences, as can be seen in the case of mathematicians. While holding a historically important place in the history of Indian science, mathematics found itself being replaced in prestige by physics, chemistry, and plant sciences in the twentieth century. This shift had an impact on the academies too. Dr. Madabusi Raghunathan spoke of his own experiences as a mathematician in the science academies and mentioned that “election to the academies for mathematicians was much more difficult than in other disciplines.”⁴⁴ He pointed out that no mathematician had ever been elected president of one of the science academies and mentioned that his own run for president of the IAS was aimed at changing this.⁴⁵ Analysis of fellowship of the IAS and INSA does support this claim. In the IAS, there were only 75 fellows who had been elected from the field of mathematics (8.3% of the fellowship between 1934 and 1990), and in INSA, there were 89 fellows (8.4% over the same period).⁴⁶ While not the field with the lowest numbers, it ranked toward the bottom, and the trend continued at council level as well. As Raghunathan correctly pointed out, not only had no mathematician been elected president, but mathematicians also made up a lower proportion of council members, especially in more prestigious positions such as vice president.⁴⁷ In the IAS, mathematicians made up only 14 council members over the period, the joint second lowest with medicine (the lowest was biology), but mathematics had the lowest number of high-ranking positions, with only four vice presidents.⁴⁸ A similar story occurred in the INSA, with only four vice presidents out of 22 mathematicians who held a council position over the same 30-year period.⁴⁹ The conclusion from all of this was that informal codes of conduct directly affected the ways that fellows were elected to the science academies, thus depriving disadvantaged scientists—in this case, mathematicians—of the prestige of being a fellow of a science academy.

Membership: Future Fellowship or Prestige-less Position?

While fellowship was the only official category for involvement in INSA and the IAS, NASI had a secondary category called membership. According to NASI’s founding principles, membership was a way to allow “every scientific

⁴⁴ Raghunathan, Interview.

⁴⁵ Ibid.

⁴⁶ Bailey, “Fellowship List (IAS & INSA).”

⁴⁷ Ibid. P. C. Mahalanobis was elected president of INSA. While known as a statistician, he came to the field from physics and anthropology.

⁴⁸ Bailey, “Fellowship List (IAS & INSA).”

⁴⁹ Ibid.

worker and lover of science” to engage with the academy, and was consciously introduced, by the original council, as a necessity to make the rules and regulations ideologically “extremely liberal and democratic.”⁵⁰ As such, members only required one person to nominate them and another to second, with no other requirements needed such as proof of scientific achievement or position. In practice, the vast majority of members were scientists or students in scientific fields, but there were occasionally individuals who were members of the courts, scientific instrument manufacturers, or non-affiliated individuals who became members of NASI.⁵¹

Being a member provided some of the benefits of fellowship, such as the ability to publish in the NASI journal, having one’s name published in the annual report (until 1970), and the ability to partake in regional committee meetings and events.⁵² It was also required if one wanted to become a fellow, thus creating an organized pool of scientists from which NASI could draw its new fellows.⁵³ Furthermore, these numbers were not regulated by any sort of cap, thus allowing as many members as applied.⁵⁴ The tradeoff was that membership was considered less prestigious than fellowship, shown by the fact that scientists used FNA, FASc, or FNASc after their name to indicate fellowship to INSA, the IAS, and NASI, respectively, replicating the practice of fellows of the Royal Society using FRS.⁵⁵ This practice was not used by NASI members, thus showing that the position was not prestigious enough to be displayed.

While anybody could become a member of NASI, becoming a member was still subject to the approval of the council.⁵⁶ Examining the executive council meeting minutes from between 1970 and 1990, membership applications were approved at every meeting, with no single mention or discussion of an application being rejected. This implies an informal code of conduct at the council level to accept every application for membership.⁵⁷ Additionally, in March 1971, there were no applications to even consider, suggesting that, unlike the fierce competition for fellowship, membership applications were not a contested affair.⁵⁸ This combination of formal regulations and informal codes of conduct for the council created a uniquely egalitarian space for members who struggled to break into pre-existing scientific circles, by allowing them to build their own networks through NASI. This was recognized in a council review of NASI’s membership status in 1996, which found that it “serves as a ground

⁵⁰ NASI, “Business Matters,” 3.

⁵¹ *Ibid.*, 13.

⁵² NASI, “Appendix III,” 175–222.

⁵³ NASI, “Business Matters,” 3.

⁵⁴ NASI, “Rules,” 470.

⁵⁵ IAS, “IAS Fellows’ Portal.”

⁵⁶ NASI, “Regulations Regarding Election,” 470.

⁵⁷ NASI Council, “Executive Council Meeting Minutes.” Examination of these documents between 1970–1990.

⁵⁸ NASI Council, “Minutes, March 22, 1971,” 3.

for interaction between promising, particularly young, scientists [...] with scientists who are acknowledged leaders in their respective fields.”⁵⁹ As seen with the case of fellowship, patronage networks were the bedrock of scientific access and prestige; thanks to informal codes that prohibited self-promotion relating to the academies, breaking into those networks was difficult. Interestingly, the fact that NASI was the only academy to have formalized the code of conduct regarding self-promotion while also being the only organization to offer an alternative to membership indicates that it took its “extremely liberal and democratic” roots seriously. One group that benefited from this environment were female scientists.

Historically, female scientists experienced great difficulty accessing all levels of education during British rule, and then later in independent India. This, in turn, severely restricted the number of female scientists with the level of education and position to join a science academy in the first place. Nevertheless, the first inclusion of a female scientist (Edavaleth Kakkat Janaki Ammal) in the IAS in 1935 (INSA in 1957) was earlier than some of their global science academy counterparts, including the Royal Society.⁶⁰ Numbers of female fellows remained low across the period, but female representation among the membership of NASI was higher in comparison to the other academies. Taking 1971 as a reference point, NASI had a total of 23 female ordinary members (2.7% of all members), compared to two female fellows in INSA (0.5%) and three in the IAS (0.7%). By the following decade, the numbers had increased to 71 female members (3.8%) for NASI, five for INSA (0.7%), and seven for the IAS (1%).⁶¹ While these numbers are low overall, they do highlight a noticeable divide in the fellowship/membership of the academies. NASI also had more female scientists on its council much earlier than the other two science academies, and it elected the first female president of an Indian science academy, Manju Sharma, in 1999.

In turn, NASI’s inclusion and promotion of female scientists placed it in a leading role in the 1980s and 1990s as the promotion of female scientists was encouraged both domestically and internationally. The high-profile role of Manju Sharma made her an important voice in the empowerment of female scientists in the Third World Academy of Science (TWAS), attending a conference on the topic in October 1988.⁶² As such, Sharma, and by extension NASI, became an avenue for coordinating female scientists both within India and internationally. An example is a letter from Sindhi V. Joshin, the ex-president of the Indian Woman Scientists Association, who in 1989 sent a letter to NASI, on behalf of the Third World Organizations for Women in Science (TWOWIS), asking them to “send this circular to women scientists

59 NASI Council, “Guidelines for Electing ‘Members.’”

60 Mason, “Admission of First Women”; Damodaran, “Gender, Race and Science”; Noordenbos, “Women in Academies.”

61 Bailey, “Fellowship List (IAS & INSA)”; NASI, “Fellows and Members,” 368–465.

62 Joshin to Menon, August 8, 1989.

and fellows of the academy for information [... to ...] help me to collect data on women scientists in India and also to get names of those wishing to become members of TWOWIS.”⁶³ Joshin contacted NASI specifically after personally meeting with Sharma, making it clear that NASI’s unique position in relation to female scientists was a relevant connection.

Still, for NASI, the prestige of the society needed to be increased, and these informal codes were identified as a point of change. During the 1990s, steps were taken to change the fellowship and membership election processes and reform them to resemble the other two academies of science. In 1995, a sub-committee sought to investigate “the matter of induction of new members of the Academy and developing criteria to ensure quality membership,” alongside the history of the membership process.⁶⁴ The result was the development of guidelines in 1996 so that membership would be given so long as the member “has the potential to become a ‘Fellow’ in due course.”⁶⁵ The final change from older codes was completed with the formation of a membership scrutiny committee in 2000.⁶⁶ The reason for these changes was later discussed at the NASI Council Meeting in 2011: “In mid-1990s, it was felt to review the existing regulations so as to make these more merit-based rather than open.”⁶⁷ Here we still see that the solution for NASI was not to formalize the process of membership, but rather, through the adoption of more informal standards of scientific behavior, to bolster the prestige value of membership.

Houdini of the Himalayas vs. the Science Academies

Vishwa Jit (V. J.) Gupta was an Indian paleontologist, recognized internationally for his work finding fossils in the Himalayas.⁶⁸ However, after an investigation by Australian paleontologist John Talent, in combination with work from both Indian and international paleontologists, much of Gupta’s work was allegedly falsified.⁶⁹ Gupta denied the charges, and the international paleontological community split. Some of Gupta’s co-authors supported him, while many others disavowed his findings and called for him to be punished for his misconduct and intentional fraud.⁷⁰ The controversy spread further when Talent published an article in *Nature* detailing his findings in 1989.⁷¹

The case generated questions on scientific ethics in India and how the Indian scientific community should respond to such unethical conduct. Debates

63 Joshin to Menon, August 8, 1989.

64 NASI Council, “Follow Up Actions,” 455.

65 NASI Council, “Guidelines for Electing ‘Members.’”

66 NASI Council, “Membership Scrutiny Committee.”

67 Tandon, “Note for NASI Council.”

68 Waterhouse, “The Peripatetic Fossils,” 305–7.

69 Talent, “Case of Peripatetic Fossils,” 613–15.

70 “Scandal upon Scandal,” 396.

71 Talent, “Case of Peripatetic Fossils,” 613–15.

over scientific ethics started to take root globally in the 1980s and 1990s, due to a number of high-profile cases, most notably in the USA.⁷² In India, the rise of unethical scientific behavior has been seen to be a more recent phenomenon.⁷³ This is disputed by Sharare and Roberts, historians who argue that a longer trend of scientific misconduct in India, with roots in the colonial period, is more accurate, but who also emphasized that India was earlier than its global counterparts in creating systems to respond to such allegations.⁷⁴ The Gupta case, however, became a rallying cry for better enforcement of scientific ethics because, while Panjab University did temporarily remove him, Gupta was reinstated a year later and ultimately never saw further disciplinary action.⁷⁵ This result drew widespread condemnation from the Indian and international scientific community and became a focal point for the criticism of scientific ethics in India.

INSA took an active role in investigating the claims against Gupta. In 1989, it sent scientists to assess whether an investigation into Gupta's work had merit, concluding that an expedition into the Himalayas was necessary to prove the allegations of falsification.⁷⁶ However, as historian S. K. Shah points out, an expedition was not strictly necessary, as some of the allegations against him (plagiarism and recycling) could be proven without one.⁷⁷ INSA organized this expedition in the summer of 1990, headed by Dr. A. S. Paintal, alongside other INSA members.⁷⁸ While not a geologist or paleontologist, Dr. Paintal was a former INSA president and one of the founders for the Society of Scientific Values, an organization created to combat unethical scientific conduct in India.⁷⁹ The findings of the expedition, while suppressed by Panjab University, were alleged to have found Gupta guilty of fraudulent behavior.⁸⁰ The conclusions were rejected by Gupta, as he had not participated in the expedition due to alleged health conditions, and he claimed the expedition had not visited the right sites.⁸¹

Yet the role the INSA played in investigating Gupta's alleged transgression is peculiar when considered in tandem with the academy's codes of conduct. Formally, as laid out earlier, a fellow of INSA "shall follow the code of scientific ethics, maintain integrity in research and publications, uphold the cause of science and the dignity of the Academy."⁸² However, since there was no formal codification of ethical conduct, what INSA considered unethical scientific

72 Huistra and Paul, "Systemic Explanations"; Kevles, "The Baltimore Case."

73 S. Jayaraman, "Growing Scientific Misconduct"; Neelakantan, "Plagiarism on the Rise."

74 Shahare and Roberts, "Historicizing the Crisis."

75 Shah, *Himalayan Fossil Fraud*, 74.

76 Ibid., 61.

77 Ibid.

78 Ibid., 68.

79 Anand, "Adventures in Physiology," 513–24.

80 Shah, *Himalayan Fossil Fraud*, 74.

81 Ibid., 69.

82 INSA, *Year Book 1985*, 251.

practice could be considered an informal code of conduct that depended on the perspective of the council.

This line of argument can be seen when examining the regulations for the removal of a fellow. The code that justified removal was limited to “willfully disobey Rules or Orders of the Academy,” “willful breach of order at any of the General Meetings,” or “for any other reasons.”⁸³ That final line—“for any other reason”—granted the council significant informal leeway in determining what the correct conduct was and when it was broken, thus highlighting the importance of informality in maintaining proper behavior through codes of conduct.

Yet what is even stranger is the fact that Gupta’s name does not appear in the INSA Year Books either prior to or after the allegations of misconduct were made, meaning he was not an INSA fellow.⁸⁴ This suggests that although INSA did not have an active responsibility to investigate or respond to the Gupta case, it still intervened. Arguably, this was due to the level of international criticism directed at India for its inability to enforce ethical scientific conduct. INSA, as the international representative body for Indian sciences, thus saw it as its responsibility to intervene to counter these criticisms. The expedition provides insight into the accuracy of this argument. The choice of Paintal as leader, an individual seen as ethically unimpeachable, despite not being an expert in the specific field, showed that the true motivations of the expedition were about appearing to be ethical, rather than finding a scientific answer.

INSA’s response to the Gupta case further highlighted two things. First, INSA felt it was in a position to informally enforce certain kinds of codes of conduct regarding scientific ethics for the entirety of the Indian scientific community, not just its own fellows. Second, the prestige of fellowship could be damaged, by the actions of external forces, as well as by inaction by the small network of elite fellows themselves. As the prestige of Indian science grew on the international stage over the later twentieth century, alongside the general connectivity of global scientific communities more broadly, it became more difficult for these former patronage networks to maintain central prestige control in India.

INSA’s response contrasts wildly with NASI’s response. Gupta was a fellow of NASI when the allegations came out. According to the minutes of its executive council, the question of NASI’s response to the Gupta case began in January 1993 with “Prof. [Redacted], Chandigarh, requesting removal of a certain Fellow from the list of Fellows.”⁸⁵ The initial obfuscation of Gupta’s identity, even in the private executive council minutes, is a telling decision and was arguably done as an initial reaction to protect Gupta’s reputation in

⁸³ Ibid., 255–56.

⁸⁴ INSA, *Year Book 1985*; INSA, *Year Book 1994*. Examination of Year Books between these years.

⁸⁵ NASI Council, “Minutes, January 14, 1993,” 3. The redaction of the name was made at the request of NASI.

NASI. The subsequent decision to identify Gupta in the minutes also signals that there was no formalized code of conduct related to how these sorts of accusations should be discussed, even at executive council level. This letter initiated a subcommittee to examine and suggest changes to NASI's formal regulations regarding the removal of a fellow from the society.⁸⁶

At the next executive council meeting, the subcommittee recommended two small changes to the practical regulations for removing NASI fellows.⁸⁷ This focus on the process rather than the justification is surprising, as NASI, unlike INSA or the IAS, had no formal codes of conduct for fellows to even justify the removal. The only thing close are the regulations regarding the cessation of a fellowship, which, much like INSA's, stated that "if for any other reason it appears to the Council that the name of the Fellow or Member should not remain on the rolls, he shall be liable to be removed."⁸⁸ Here we see again that informal decision-making by the council regarding the conduct of fellows was a consistent thread through all the academies.

The council organized a subcommittee by July 1993 to look into the specific allegations against Gupta, even though the majority of the reporting was publicly known.⁸⁹ By January 1994, the report for NASI's president read as follows:

"It was decided that on the basis of material on record made available to the Academy so far, Dr. V. J. Gupta will be asked to reply to specific charges arising from these records. Prof. V. J. Gupta may be given a reasonable time limit within which his reply must reach the Academy. His reply will be placed before the Council in its next meeting for consideration."⁹⁰

Gupta did not provide a defense to NASI, and, at the September 1994 meeting, "The Council unanimously resolved to remove the name of Prof. V. J. Gupta, CAS, in Geology, Panjab University, Chandigarh for the Fellowship of the Academy in view of gross scientific misconduct on his part."⁹¹ By listing the justification as "gross scientific misconduct," NASI is showing that it recognizes a code of conduct relating to scientific ethics and best practice, but that it is informally known and enforced, rather than a formally recognized code of conduct.

In April 1995, NASI received a letter from the Society for Scientific Values (SSV), the organization founded by Paintal, who had led INSA's expedition. The letter discussed the SSV's serious concerns "with the standards of ethical values in scientific research adopted by our scientists."⁹² Citing cases of

86 NASI Council, "Minutes, January 14, 1993," 3.

87 NASI Council, "Minutes, July 16, 1993," 5-6.

88 NASI, *Year Book 1990*, 11.

89 NASI Council, "Minutes, July 16, 1993," 5-6.

90 NASI Council, "Minutes, January 22, 1994," 7.

91 NASI Council, "Minutes, September 30, 1994," 3.

92 Srivastava to NASI President, April 27, 1995.

unethical conduct that had taken place in the Indian scientific community, including Gupta's, the SSV letter encouraged NASI to both reject the cited individuals and incorporate the SSV's policy suggestions into NASI's constitution.⁹³ They included three statements: one about plagiarism, another regarding ethical representation of authorship, and a final one stating that "if any of the above mentioned unethical practices is proved against a fellow/member, he/she shall cease to be a fellow/member of the academy."⁹⁴ NASI responded to this letter in September 1995, stating that it was the "[u]nanimous view that the Academy is already conscious of the suggestions made in the letters," referring to its code for the removal of fellows, and claiming that NASI would resolve any ethical breaches internally and based on its own investigation.⁹⁵ Here we see that NASI believed it had codes of conduct aimed at enforcing ethical scientific standards and practices, possibly from the precedent set by the Gupta case, but that it refused to formally codify them.

The Gupta case is interesting because the academies' response to scientific misconduct was arguably almost entirely driven by the international furor and blatancy of the misconduct committed. As such, it was relatively easy for INSA and NASI to take a stand on Gupta and proclaim a commitment to scientific ethics. However, other accusations of scientific misconduct have been leveled at a number of senior scientists (including former presidents) of NASI and INSA.⁹⁶ Investigations or punishments of these individuals were not undertaken, arguably for two reasons: The allegations were not damaging to India's international scientific prestige, and the individuals themselves were prestigious and well situated in the patronage network of the societies to avoid scrutiny. Ultimately, the fact that the SSV was founded in 1986 demonstrates that the informal codes of conduct of the science academies were not doing enough to safeguard scientific ethics and conduct at a time when such concerns were growing domestically and internationally. Instead, the academies chose to rebuff the calls for formal codification of ethical scientific conduct, preferring to maintain their practice of relying on informal codes.

Conclusion

At the same time as the Gupta affair, P. M. Bhargava tendered his resignation to the three academies of science in India. In the interview in which he complained about the structures of the academies, he discussed the unethical behavior of scientists, and specifically mentioned V. J. Gupta and his lack of punishment.⁹⁷ For Bhargava, the way the councils controlled the science

⁹³ Ibid.

⁹⁴ Ibid.

⁹⁵ NASI Council to Srivastava, September 8, 1995.

⁹⁶ Shahare and Roberts, "Historicizing the Crisis," 494–97.

⁹⁷ DTE Staff, "Indian Science is Run."

academies, and their informal behaviors, went hand in hand with an unwillingness to challenge the unethical scientific behavior related to Gupta (and others). Bhargava, however, minimized the requirement to maintain an element of prestige within the science academies themselves and the necessity of informal codes of conduct to ensure it.

Science academies are selective bodies, designed to identify and signify the best scientists of a national community. This, in turn, builds the individual scientists' and academies' prestige. The councils used informal codes of conduct to exert a certain amount of control over their fellows. With the expansion of fellowship regulations in the 1970s, formal regulations created an admissions structure that allowed for more Indian scientists to become fellows. But this was tempered by informal codes of conduct, for both prospective fellows and council members. These codes drew inspiration from the colonial structuring of the academies, in order to support and maintain the networks of patronage and prestige that underwrote the academies. NASI's membership and the informal code of conduct of accepting all individuals for membership allowed for marginalized female scientists to develop their own networks through participation and obtain a form of scientific prestige for themselves. Yet the 1980s and 1990s saw additional informal codes of conduct regarding the expectation of members to have the potential to become fellows—a move explicitly tied to bolstering NASI's institutional prestige. Finally, the Gupta case saw academies grappling with wider concerns and developments regarding scientific ethics and the globalization of science that was occurring in the late 1980s and 1990s. Here, the preference of science academies for informal codes over formal ones resulted in weaker punishment of broader unethical conduct. This protected the existing power structures of the academies (and the elite networks that benefited from them), at the expense of a loss of prestige by the Indian scientific community at large. The link between all these cases is that informal codes of conduct were ultimately essential for the running of the science academies in order to protect pre-existing scientific networks and systems of scientific prestige.

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About the Author

George Bailey is a PhD researcher in the Cultural History Since 1750 Research Group at KU Leuven, Belgium. He is part of GLOBAL ACADEMIES, an ERC Project that looks at the global history of science academies in the twentieth century, with his own research topic focused on India's science academies.

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