

Dr Jayant V Narlikar on IUCAA

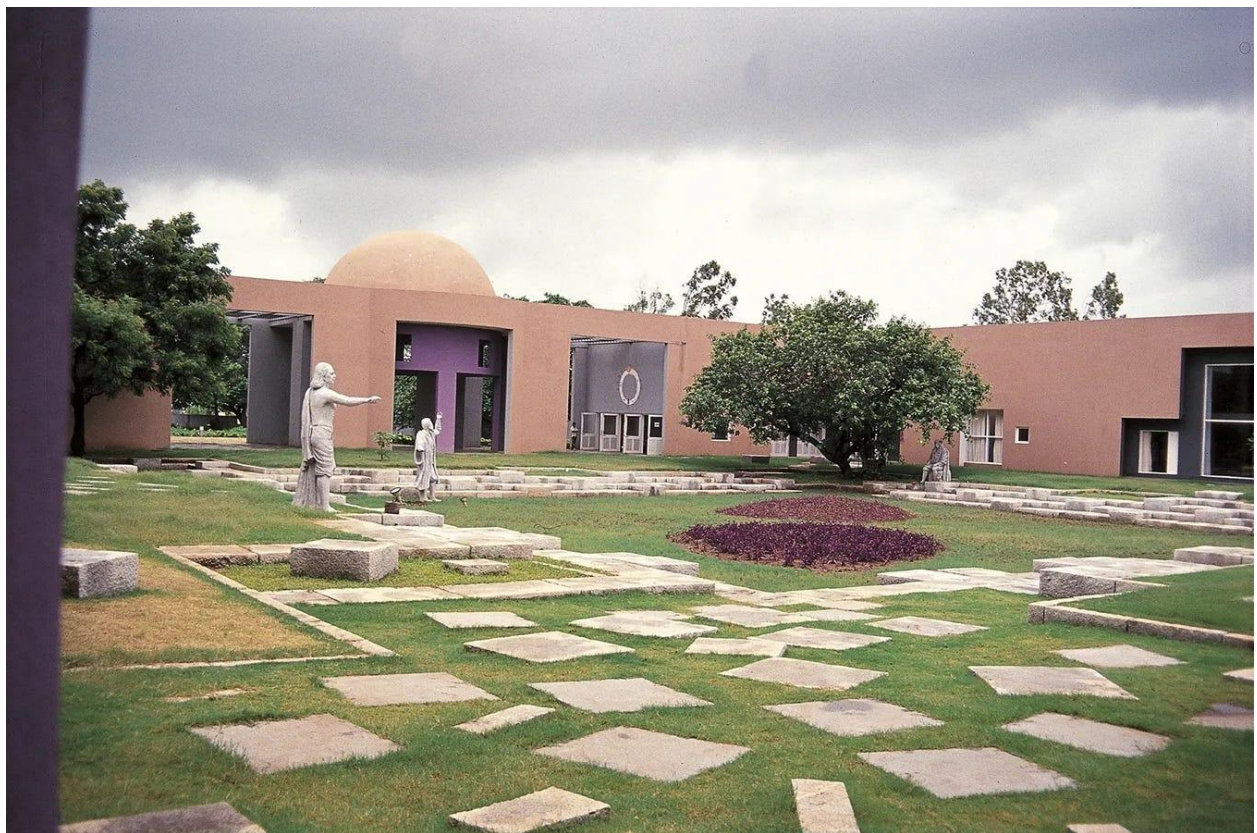
The IUCAA Story: A first-person account of how a unique astronomy institution was created.

Part1: The Background.

Dec 10, 2024

On December 28, 1992, Chairman Ram Reddy of the University Grants Commission dedicated a new institution called the 'Inter-University Centre for Astronomy and Astrophysics' to the Nation. The occasion was marked by a lecture by Nobel Laureate Subrahmanyan Chandrasekhar and the start of a Foucault Pendulum.

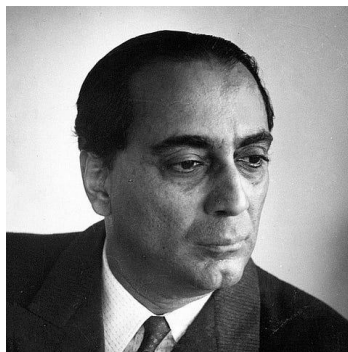
The newly launched institution was a unique one of its kind and would soon be creating waves in the world astronomical community. Not surprisingly, because of its long name, it soon became known by its acronym 'IUCAA.' Its reputation grew rapidly, and soon it became known internationally. As a scientist associated with IUCAA from the beginning, I am often asked how it came about. So here is a detailed account of IUCAA's genesis and early life.



IUCAA is an autonomous institution set up by the University Grants Commission

In the 1940s, it was becoming clear that the British rule of India would end soon, and the new nation would face several challenges. On August 15, 1947, when the British left the country to fend for itself, it was

important that an enlightened leadership took over the task of guiding the new nation. Fortunately, the first Prime Minister, Jawaharlal Nehru, was aware that science and technology would play a key role in the nation's development. So, he took leading scientists and technocrats in confidence while making key decisions that made it possible for the new nation to catch up with the developed nations. Department of Atomic Energy (DAE), Council of Scientific and Industrial Research (CSIR), and University Grants Commission (UGC) are some of the important outcomes of those early days. Homi Bhabha, Shanti Swarup Bhatnagar, C.V. Raman, M.S. Swaminathan, D.S. Kothari, and Vikram Sarabhai were some of the leading lights. The outcome of Nehru's vision was the growth of research institutions and centres of excellence under Government Departments like DAE, CSIR, etc., which led to a boost in scientific research.



Scientists (clockwise from top left): Homi Bhabha, Shanti Swaroop Bhatnagar, C.V.Raman, M.S. Swaminathan, Vikram Sarabhai, and D.S.Kothari

A glance at the history of post-World War II shows that while several countries gained independence from colonial domination, only India created and sustained a dynamic feeling for science and technology (S&T). The S&T infrastructure created in India in the 1940s has helped strengthen advances in various fields, such as space technology, agriculture, medicine, etc.

While creating this infrastructure, it was hoped that the university system in India would also grow and participate in the S&T progress. The universities in advanced countries serve as the main caterers of higher education. Universities like Oxford and Cambridge, Harvard and Princeton have successfully combined the teaching of students with advanced research. Good students are attracted to a research career if they see



good teachers at a university campus. Also, interacting with students helps teachers bring freshness to their research. Many successful universities abroad have managed to create and maintain academic excellence. These universities are centres of excellence not only in technical subjects but also in humanities, arts, classics etc. In fact, Jawaharlal Nehru had hoped that this would happen when S&T launched in India. The headquarters of UGC in New Delhi have on display the following statement by Nehru:

“A university stands for humanism, for tolerance, for reason, for the adventure of ideas and for the search of truth. It stands for the onward march of the human race towards ever higher objectives. If the universities discharge their duties adequately, then it is well within the nation and the people”.



Prime Minister Pt. Jawaharlal Nehru, Sir S.S. Bhatnagar, Dr. Homi Bhabha, Mr. M.C. Chagla, Mr. Morarji Desai, and others viewing the model of the Tata Institute of Fundamental Research (TIFR) Building.

While Nehru was aware of the role of universities in the building of a nation, several reasons, such as shortage of manpower and funds, political interference, compromising with quality, etc., made it difficult to achieve spectacular growth in the university sector. Ironically, the emergence of autonomous centres of excellence in various subjects diverted attention away from universities, creating problems for both. The autonomous centres, being isolated from university students, complained of a shortage of good students coming to them while the typical university student missed the excitement of research in his university department. What was needed and was missing was a close connection between a university and an autonomous centre of excellence.

However, if we try to create such a centre exclusively for a university, we encounter two main problems. Firstly, if such a centre is provided for one particular university, other universities would demand such centres too. It will be prohibitively expensive to satisfy them all! Secondly, a typical university will not have enough users for the facility, which will result in it remaining idle most of the time. Is there a way out of this conundrum?

We now look at an example in the USA that has worked. In astronomy, a sophisticated telescope plays a key role in bringing fresh data on the universe. In the 1970s, a state-of-the-art 4-metre telescope was expected to be launched in an observatory in Tucson, Arizona. While several universities were interested in such a telescope, its basic cost and regular maintenance were too high for a typical university. There was also the issue that if the telescope could function on, say, 200 nights in the year, the users from a single university would not have sufficient observing programs to keep it busy. To address these issues, a concerned group of universities (some twenty of them) formed an “Association for Research in Astronomy” (AURA) to acquire and control the telescope. The costs were shared by members of AURA. Thus, if a university were expected to keep the telescope busy for 20 nights a year, it would contribute 10% of the total budgetary cost. Therefore, the telescope is affordable for each participant university, and they keep it busy on all of its useable nights.



With more than twenty optical and two radio telescopes, The Kitt Peak National Observatory near Tucson, Arizona, USA, is one of the largest gatherings of astronomical instruments in the Earth's northern hemisphere.



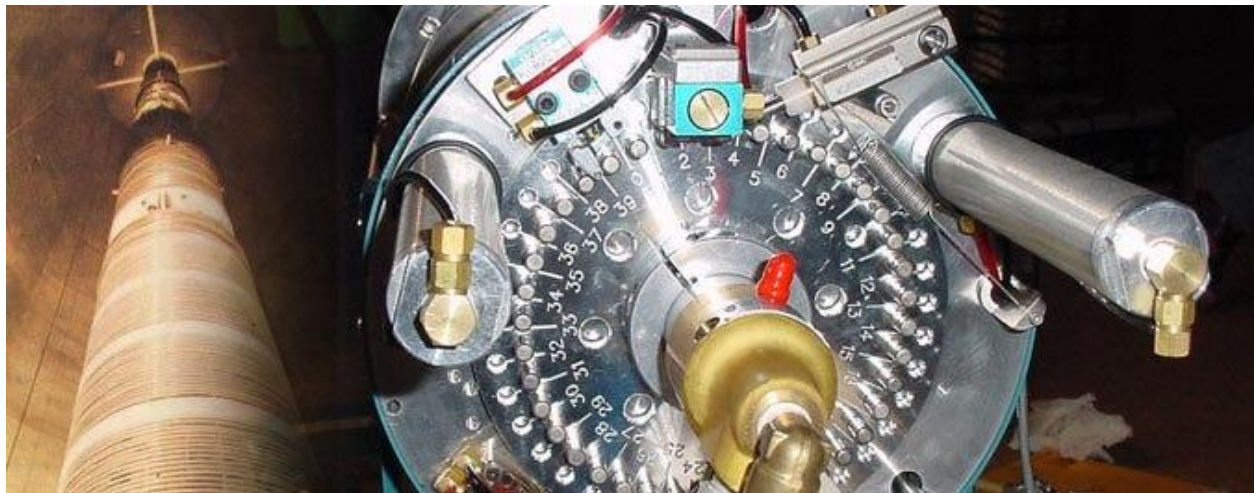
Operation of an advanced but expensive facility on a shared basis has become common in scientific research, not just in astronomy but also in other subjects. For example, the particle accelerator at CERN is used by several nations on a cost-shared basis. The university sector in India has adopted this modus operandi successfully, as we will describe in our next blog.



The Large Hadron Collider at CERN

## Part 2

As mentioned earlier, the growth of science in India was such that the universities felt 'left out' in the usage of advanced facilities. To deal with the problem, the UGC decided to create centres of excellence in various fields, with the users being faculty and advanced students from universities. Through an act of Parliament, the UGC was empowered to create such centres. The Nuclear Science Centre, now renamed the 'Inter-University Centre for Accelerator Sciences,' was the first such centre, created on the campus of Jawaharlal Nehru University. It was centred around the nuclear accelerator *pelletron* with state-of-the-art technology for studies of nuclear structures.



The pelletron accelerator machine installed inside the accelerator tank

A second centre was on the cards, related to astronomy and astrophysics. I was destined to be involved with it!

To briefly describe my background, after a fruitful career as a founder member of the Institute of Astronomy (IOA) in Cambridge, I returned to India in 1972 to join the Tata Institute of Fundamental Research (TIFR). I had joined the institute with a mandate to grow its activities in theoretical astrophysics, and over the sixteen or so years there, I had the satisfaction of seeing that objective accomplished. Although I was happy with my work, other issues were beginning to weigh on my mind, issues that were to take me on an adventurous journey away from TIFR.



The IOA, Cambridge (left), and TIFR, Mumbai

TIFR had been set up by Homi Bhabha to help create and strengthen the base for fundamental research in the country. The expectation was that scientists trained here would contribute to applied research in related fields and to universities by enriching their faculties. The first happened to some extent, e.g., through the setting up of major scientific establishments like the BARC, SAMIR, NCST, etc., by the talent drawn from TIFR. The benefits expected by the university system, however, did not materialize. Although in 1946, when the TIFR was set up, the conditions in a typical university were academically reasonable, these declined sharply in the 1960s. For various reasons, including this circumstance, there was no significant transfer of faculty from TIFR to Universities. Except for the School of Mathematics, there was no significant collaborative venture between the TIFR and Bombay University.

Indeed, in the 1980s, there was a growing realization in my mind that there was a need for centres of excellence exclusively within the university sector. Indeed, the parent body of universities in India, the University Grants Commission (UGC), had appreciated the need and, to address this issue had decided to create its own centres of excellence, the 'Inter-University Centres' (IUCs).

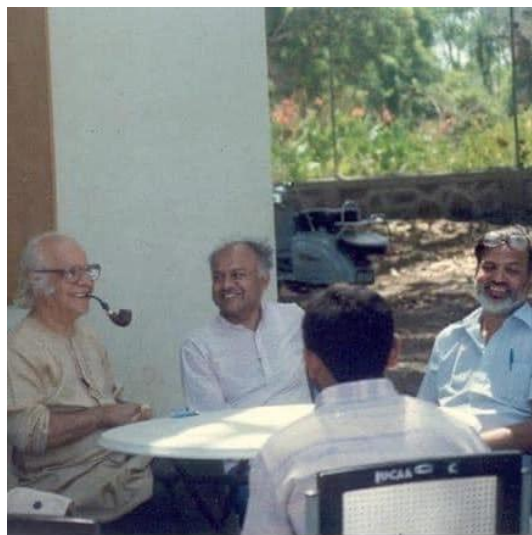
I saw here a fresh opportunity to revive astronomy and astrophysics within the university sector. Could we create a centre that acts as a resource not only for material facilities but also for intellectual stimulation for the faculty and students of universities? Although the projected setting up of the Giant Metrewave Radio Telescope near Pune was one reason for bringing IUCAA into existence, even without it, enough exciting challenges existed. Challenges that I was missing at the TIFR.

My brainstorming discussions with scientific colleagues, starting with Naresh Dadhich, a general relativist at Pune University, were productive enough to interest the UGC in the possibility of creating an IUC in the field of astronomy and astrophysics. As a result, the UGC asked me to submit a proposal for such a centre to initiate any executive action. I did that and hoped that the effort would lead somewhere.



### Part 3

At some stage (around January 1989), when I was asked by Yash Pal, the then Chairman of the UGC, to take on the Founder-Directorship of IUCAA, I agreed immediately. In fact, the way Yash Pal put it, he had my report and would accept it for executive action only if I agreed to be the Founder Director of the proposed centre. I recall receiving Yash's phone call at home while having lunch. I had replied that I would call back within fifteen minutes. During that period, I consulted my wife Mangala about how I should reply. The centre was to be in Pune: shifting there from Mumbai was not a problem, but Mangala pointed out that our second daughter was in 12<sup>th</sup> Standard, and her examination, as well as her preparation for IIT Entrance Examination, should not be disturbed until June. So, I agreed to take on the responsibility offered by Yash with the caveat that I would function from Mumbai until June.

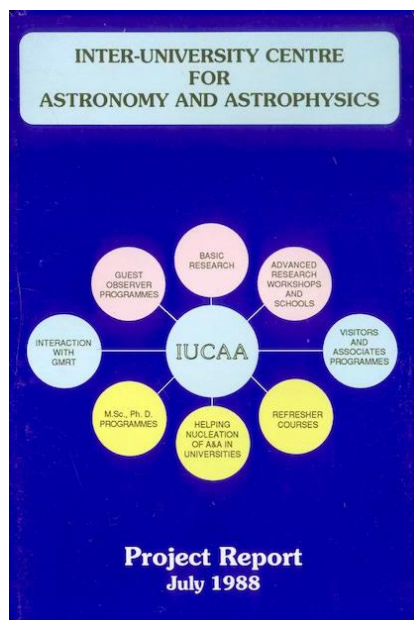


Prof Yash Pal teaching school children (left), and at IUCAA in its early days, with members of the founding team, including Prof Naresh Dadhich and the author.

There was a mixed reaction to my decision to leave TIFR to set up IUCAA. The optimists welcomed it, saying that it was a step in the right direction. The pessimists felt that I was taking a grave risk in leaving a well-run institute to start up something out of nothing—a venture that may fail. I recalled a similar spectrum of opinion in 1972 when I had planned to leave Cambridge to return to India. Similar to that occasion, I decided to take the plunge. In fact, when I had planned to return to India in 1972, some friends had suggested that I should set up an institution with the sponsorship of the Government of India. Having seen at close hands the trials and tribulations of Fred Hoyle while setting up the astronomy institute in Cambridge, as well as hearing the gory tales of government bureaucracy in India, I had balked at the idea then. Nor had I been a believer in applying precious national resources to create institutions to boost one's ego. An institution should be created only if a national need is felt for it. Such a need was being felt in 1987-88, while none had been perceived in 1971-72, at least in my personal recollection. Also, in the earlier period, I was in my early thirties, whereas in the later one, I was moving into the fifties. The priorities of a scientist when he is young and in the high-momentum phase of research are, or at least ought to be, different from those when he is more advanced in age. It was thus a different ball game for me in the late eighties when I chose to leave TIFR.



## Part 4



As a Founder Director, I had many challenges to face.

First and foremost, the setting up of IUCAA required formal approval by the Government of India. A Memorandum of Understanding was to be approved, specifying the objectives of the proposed centre, key guidelines on how it was to be run, how it would be funded, what its organizational structure would be, etc. As the proposed parent body, the UGC had to take the initiative in this matter.

A practical question to be settled was where the Centre would be located. The Project Report approved by the UGC specified that the area needed for the centre's activities was twenty acres. I had to find a suitable location in Pune.

A screenshot of the IUCAA Project Report

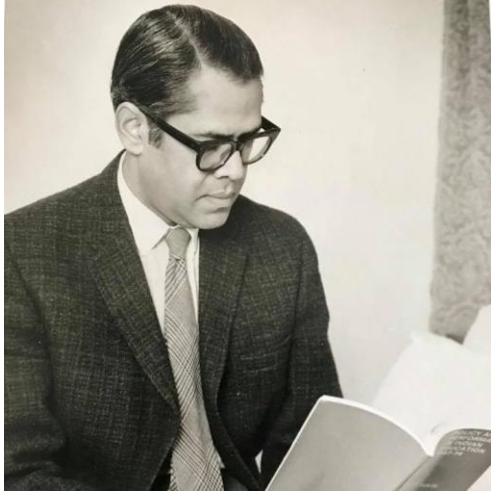
The Project Report had estimated the building requirements—the actual ‘what goes where’ would require a good architect. I had to find one and get the choice approved by the UGC.

IUCAA was to be registered as a ‘Registered Society’ by the Registrar of Societies operating in the region where the Centre would be located.

Last but not least, the Centre's Bye-Laws had to be framed. These would determine how the Centre was to be run.

I had been alerted by the Director of the Nuclear Science Centre that all these ‘hurdles’ took time and might easily take more than a year to cross! I found, however, that personal contacts help, as a few examples will suffice!

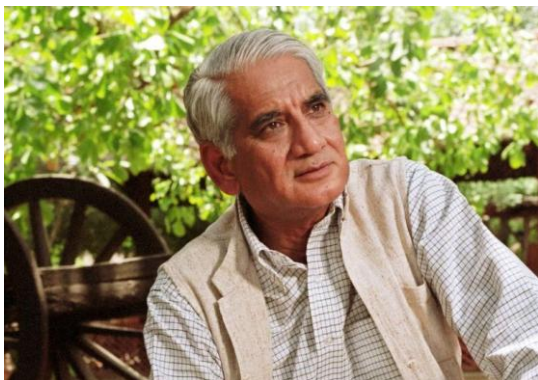
The approval by the GOI was to be given by the Human Resource Development Ministry. The Secretary in charge of the HRD ministry was Anil Bordia, a senior IAS officer from the Rajasthan cadre. By a happy chance, he had become known to my father. In fact, when I mentioned his name to my father, he recalled that when he was the Chairman of the Rajasthan Public Service Commission, he had attended a meeting in Delhi, and at that time, his Liaison Officers were a young couple from Rajasthan—Mr and Mrs Bordia. Anil Bordia was happy to recall that occasion when I conveyed my father's greetings to him. This circumstance helped my interaction with him. As IUCAA's case was under his consideration, I could phone him at home to find out how the case was progressing. In early November 1988, Anil telephoned me to say that the HRD approval had come through.



Mr Anil Bordia, **Secretary of Education, Ministry of HRD, Govt. of India**

GOI approval had to be followed up by registration of the Centre under the Societies Act. For this formality, we had to submit a copy of the GOI approval in writing. Aware that the Nuclear Science Centre had to wait for several months to get the registration from the Registrar of Societies in Delhi, Naresh Dadhich and I called his office and requested him to clear our case fast. The official assured us of prompt attention as he was aware that IUCAA project was of national importance. “I am proud that such a project is coming to Pune! Bring me the written approval by GOI, and I will clear the case in forty-eight hours.” He was true to his word. We had the Registration within two days.

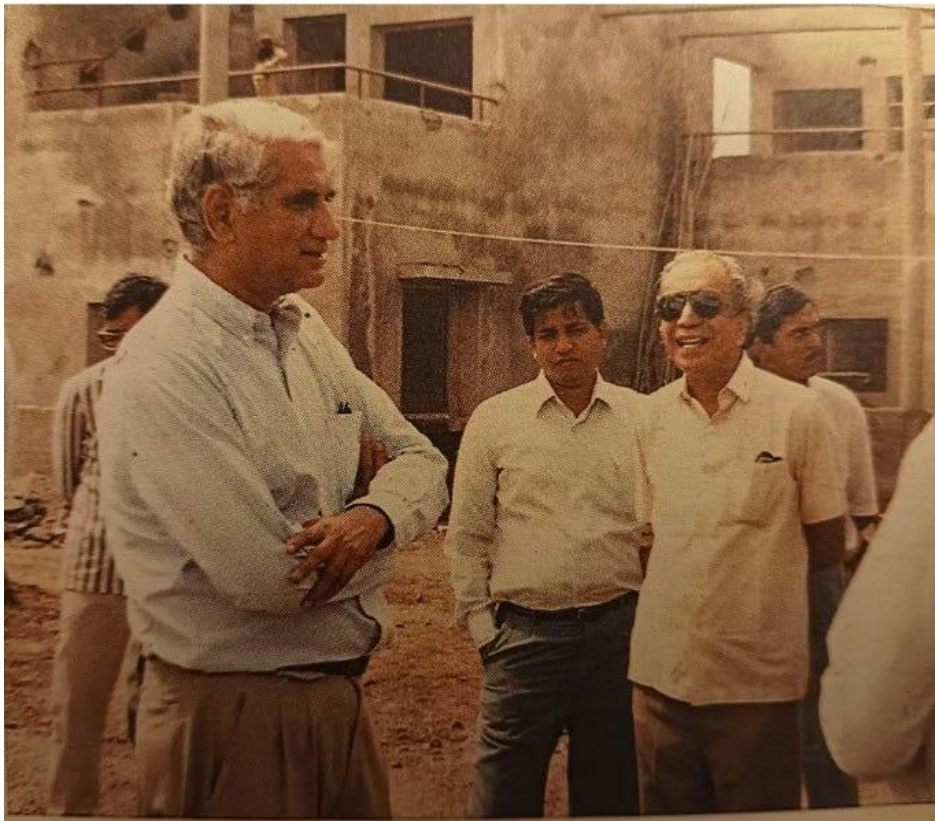
Personal contact proved useful in selecting the architect. I had known the famous architect Charles Correa for about two years. Although he operated from Mumbai and Goa, he had international contacts. He had a building under construction in New York, had been a Nehru Visiting Professor at Cambridge and had received a prestigious award from Japan. We had met and chatted informally on 2 to 3 occasions when I found common interests in astronomy, ancient Indian traditions and history.



Renowned architect and urban planner, Charles Correa (1930-2015)

A person of such wide interests and experience would be an ideal architect for IUCAA. But would he be interested in such a modest enterprise? I discussed this with Naresh at a dinner, and he strongly supported asking Charles. I went to the phone and dialed his number. Fortunately, he was at home. He was thrilled at the proposal. He was just completing a project on ancient Indian astronomy in Jaipur and would be delighted to handle one on modern astronomy. The UGC normally expected a government architect to be chosen. But with Charles being interested, Yash Pal readily agreed. Incidentally, it is believed that private architects are more expensive than Government ones. Charles Correa charged 5% of the project costs as his fee. Additionally, he had professional construction consultants supervise the work, and their fee was 2.5%. Thus, the total was 7.5%. As against that, the Central Public Works Department of GOI charged 13% for similar services!

I should mention that the supervision of construction is a critical job, and it was ably exercised by Mr Kumar Shrikhande, a professional who had earlier worked on DAE projects. He got along well with Charles on our project.



**Correa and Shrikhande at the IUCAA construction site**



## Part 5

The search for a suitable site for IUCAA was proving to be difficult. The GMRT project managed to land on the university campus. This had been possible because there was an agreement between TIFR and Pune University under which the TIFR Physics Faculty had agreed to lecture at the M.Sc. level. Some of us commuted to Pune regularly under this programme. The programme had developed a friendly relationship between TIFR and Pune University. At that time, TIFR requested and received some land to house GMRT laboratories.

However, TIFR later discontinued the programme because very few senior faculty members liked lecturing to students. Some of them looked upon teaching as an indication of failure to do research. Exceptions to this feeling were shared by very few, like Udgaonkar, Jha, Baba, and myself, who argued that teaching improves one's own perspectives on the subject. We gave examples of distinguished scientists like Hoyle, Wheeler, Feynman, and Rees, who enjoyed teaching—but to no avail! After a trial for two years, TIFR unilaterally terminated the arrangement, citing a lack of faculty support. Hence, when I approached Pune University requesting twenty acres of land, the response was negative. There was a reaction that TIFR got our land and then abandoned us! Both Yash Pal (Chairman of the UGC) and I tried to convince the Vice Chancellor that our proposal was sincere and that having IUCAA on the university campus would bring many benefits, but to no avail. Although the VC was friendly to the IUCAA programme, he was under local pressure not to agree to our request.

Having reached an impasse, I sought an extreme way out. Writing to the then Prime Minister Rajiv Gandhi, I appealed to him to help solve our land problem. I did not expect any response and was not surprised when there was none. In the meantime, I prepared myself for a lecture visit to France, which had been arranged long before I got involved with IUCAA matters. I was to spend two months as a Visiting Professor at the College de France in Paris.

The day before I was to leave for Paris, I received an urgent telephone call from the Mantralaya, the seat of the Government of Maharashtra. The Chief Minister wished to meet me: could I come and see him right away? Wondering what it was all about, I turned up at the Chief Minister's office. I knew the CM, Shankar Rao Chavan, was a good administrator. He immediately came to the point. The Prime Minister's office had requested him to help me get a suitable plot of land for IUCAA. How much did I need? Where did I want it to be? I supplied the relevant details, whereupon he smiled and said: "Done!"

He called in his IAS Secretary, Mr DasGupta, and introduced me to him. "Mr DasGupta will pursue the matter until it is complete. He will be in touch with you."

So, the letter to the PM had not been in vain! On July 19, 1988, Mr DasGupta called me to his office and smiled as he handed me a copy of the Government Resolution assigning 20 acres of land on the university campus. I told him that on that date, I had turned 50.

A very welcome birthday present!

I later learned that the primary motivator for the IUCAA project at the Prime Minister's Office was the PM's Principal Secretary, B.G. Deshmukh, who was keen to see meaningful development coming to Pune.



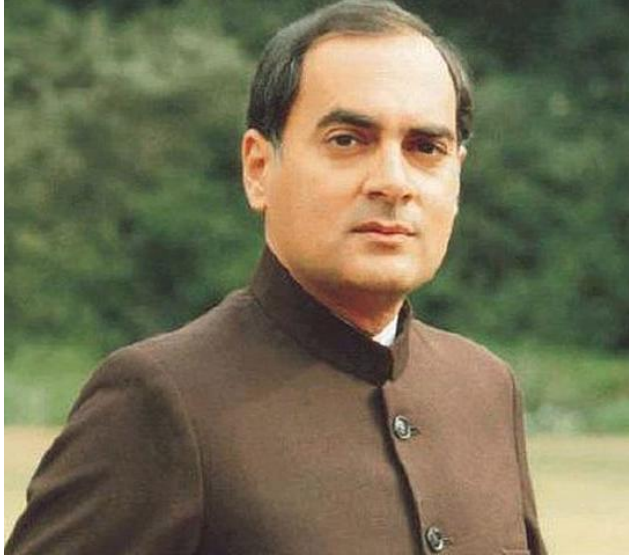
Maharashtra's Chief Minister Shankarrao Chavan (left) and the Prime Minister's Principal Secretary B.G. Deshmukh

Two incidents are worth recording. I received an urgent phone call from Naresh when I was in Paris. Unlike his usual steady humour, I sensed that he was agitated. He had just seen off Charles Correa on the train to Mumbai after a futile visit to the proposed IUCAA site. Charles wanted to have a feel of the site so that he could visualize how the building complex would look. Afterwards, Naresh took Charles on a courtesy call to the VC. When Charles mentioned how much he looked forward to working on such a pleasant site, the VC burst out saying that there was no such possibility and he should look elsewhere! The outburst completely stunned both Naresh and Charles... setting them wondering about CM's commitment. "Let us drown our shock in something hard," said Naresh and entered a good hotel...only to learn that because of a Muslim holiday, no alcohol was to be served that day!

As they say in a Sanskrit shloka, *misfortunes never come alone*.

DasGupta clarified the situation. The University would be informed only after fait accompli.

The fait accompli was televised. Sharad Pawar had succeeded Shankarrao Chavan, in a political reshuffle. To show that he meant business, he had the local TV channel cover the 'event' of the CM handing over documents of IUCAA to its Director. Only the previous day I had attended an informal discussion with a largely hostile university faculty on whether or not IUCAA should be welcomed. A vociferous minority's opinion was against welcoming IUCAA, although the silent majority was for giving it a try. Of the former group, many would assure me that the Government would not allow any 'outsiders.' Although I knew that the government had already made the decision to welcome IUCAA, I did not mention it, as I expected that the announcement would come from the government, as it did the following day.



Prime Minister Rajiv Gandhi (left), and Incoming Chief Minister of Maharashtra, Sharad Pawar



## Part 6

The IUCAA rules and [bye-laws](#) were formulated in 1988, and we were fortunate to have enlightened senior bureaucrats to advise us. Indeed, I have pleasant recollections of discussions with the UGC Secretary Sudarshan Khanna and his junior colleague Mehta. Once, the latter even advised me, “Sir, if you have a procedural query special to your field, please go ahead and take your own decision. It will set the norm. If you ask us, we may not be able to advise you properly”.



### **UGC Secretary Dr Sudarshan Kumar Khanna**

It is here that the senior administrative staff of a scientific institution has the opportunity to show its mettle. The purpose of the administration is not ‘to rule’ but to create an environment in which the scientific pursuits of the institution can be carried out smoothly. The rules and bye-laws are never written in a great deal of detail. Even the clarifying guidelines are often vague enough to allow some flexibility. The administrative staff must see how one can operate within the available flexibility to successfully proceed with the proposed scientific project. Rather than dismiss a proposal by saying, ‘it can’t be done as per allowed guidelines,’ the administrator has to find alternative ways of achieving the desired end within the allowed guidelines. Recall that the dictionary meaning of the word ‘administer’ is ‘to dispense, supply, give, etc..’ Thus, the administrator has to be supportive rather than obstructive.

One important addition I made to the statutes of IUCAA was that of the Scientific Advisory Committee (SAC-IUCAA). This committee comprises distinguished scientists, five from within India and three from abroad. It is supposed to visit IUCAA once every 2-3 years and evaluate its overall scientific performance. It can suggest new programmes, recommend discontinuing old ones, acquire new facilities, etc. This outside evaluation has proved very beneficial to IUCAA in planning its scientific programmes.

However, ultimately, it is the Director, or the Head of the institution, who must practise full autonomy and take the crucial steps to really ‘direct’ the institution along its proposed path. Often, one hears of complaints of lack of autonomy, whereas the real complaint can be traced to an unwillingness *to practise the autonomy that is already available*. Many universities suffer because their VCs have willingly surrendered their powers to the bureaucrats within the university or those in the government. The fact that the university registrar often becomes the centre of power is an ample indication of the misplaced priorities between the academic vs administrative battles. If the university has been created to nurture and disseminate knowledge rather than encourage the growth of political centres of power, then academics must have priority over administration. Homi Bhabha made a great contribution by underlining this premise in the institutions he created.

## Part 7

As I looked back at the year 1988, I realized how incredibly fast project IUCAA had advanced. The Centre was approved by the GOI, it acquired land from the Government of Maharashtra in July, it was registered under the Societies Act on December 29, it had its Foundation Day, it had an eminent architect to create an elegant campus—and now we were looking forward to its dedication to the Nation. Having discussed this with Yash, I fixed the dedication date to December 28, 1992.

In deciding on this date, I took into consideration the inputs provided by the architect and the construction managers. Allowing margins for delays, they felt that they could get the work completed by early December 1992. We wanted the Nobel Laureate [Prof. Subrahmanyan Chandrasekhar](#) to give the Dedication Lecture. After some correspondence, he agreed, and the date of 28 December 1992 was confirmed for the ceremony. Again, I felt incredibly lucky that the whole project had moved so fast.

Perhaps I should mention that before we had any space of our own, we had use of one room in the Golay Bungalow, the house where the Pune University Registrar used to stay. All our administrative and academic activities were confined to the 100-odd square feet of that room with overflow on the steps outside. However, within six months, we built a temporary ‘cottage’ that we named ADITI (mother of the Hindu gods). Now we had the luxury of 2000 square feet. But my colleagues and I were anxious to work on a full-fledged campus.



The temporary cottage “Aditi” where IUCAA was initially housed.

How did we fare with its construction? Before coming to this question, I wish to make a comment. A typical government-supported institution requires funds for its various academic activities as well as for the housing of its staff. Of these, the former is given priority. When the academic needs are met, the funding agency runs out of cash, and the stock response is: ‘We will build staff housing when GOI makes funds available.’ In the case of TIFR, the institute started receiving funds by the mid-1940s, but staff housing had to wait until the mid-1960s.

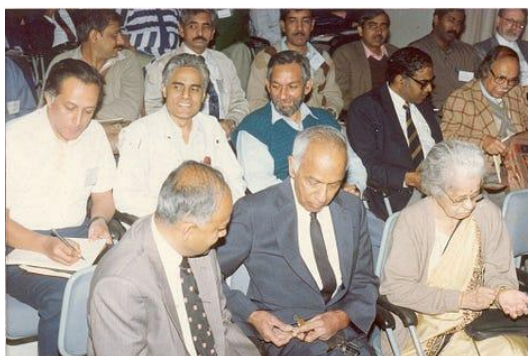
To avoid getting IUCAA in that situation, I adopted a different policy. I had housing built first and academic activities next. My request to UGC for modest funds to initiate staff housing was accepted, and the so-called phase I was completed in about 20 months. The Director’s residence, ten Type-V and ten Type-IV houses (quarters) were built. At that stage, there was hardly any staff, and I was asked: building staff quarters when there was no staff—was it not a waste of money? My reply was that the empty quarters were to be temporarily used for academic activities. Thus, one quarter was used for the IUCAA library, one for housing IUCAA’s first computer, one for instrumentation, etc. Some quarters were used for housing students and associates—so there was no empty quarter.

Thus, the building programme proceeded as planned. Charles was expecting to complete Phase II by early December. There had been minor hiccoughs but they were sorted out without any difficulty.

But the “unexpected” lurked around the corner. On December 6 came the news that the [Babri Mosque](#) was demolished. This event soon led to nationwide disturbances. In Mumbai, they were particularly severe. Even after they subsided, some areas were considered “dangerous” for movement. It so happened that some Muslim artisans, who were needed to put finishing touches on the IUCAA main building, dared not stir out of their residence. Charles and I sent messages to them guaranteeing safety. Finally, they agreed to come—but by then, the calendar had moved to December 26. Having taken stock of the work needed from them, they promised to complete it, even if they had no sleep.

Nor had Charles any sleep on the night of December 27. He wanted to ensure that the decorative stone plating at the entrance was completed to his satisfaction. On my last inspection tour of the campus, I saw him standing at the entrance, checking the work being done.

While we were breathing a sigh of relief, we were in for another possible problem. Two VIPs of our function, Professor Chandrasekhar and Professor Ram Reddy (who had succeeded Yash Pal as Chairman of the UGC), were to travel by air. A lightning strike of pilots of Indian Airlines put a question mark on their participation. However, the resourcefulness shown by IUCAA’s budding travel section made the impossible possible. They arranged for our guests to arrive on an alternate, still-functioning route.



Images from the dedication ceremony. Charles Correa, S. Chandrasekhar, and the author (left); at the dedication ceremony (centre); S. Chandrasekhar, Kembhavi and the author (below)



The dedication ceremony went off smoothly, and all of us felt immensely relieved. There were other important events like the annual Foundation Day Lecture, a meeting of the SAC-IUCAA, the establishment of the IUCAA Library, the Computer Centre and the Instrumentation Centre. All concerned staff members were working at a 200% level. I thanked them all and felt confident that the same ‘frontier level’ spirit would drive them to future achievements.



## Part 8

The Project Report of IUCAA, which I had submitted to the UGC, was centred around an “Eightfold Way” of what the Centre should do. Apart from being a Centre for Excellence in basic research to help academics from universities upgrade their work, IUCAA was expected to conduct several pedagogical activities like schools and workshops, guiding Ph.D. students, etc. Additionally, IUCAA was to guide university users in using national and international facilities in observational astronomy. The SAC-IUCAA was to play an important role in this programme. Last but not least, I also initiated a science popularization programme for school children and the general public.

After Phase II of IUCAA’s building programme was completed, we continued with Correa as our architect for Phases III and IV, involving a 500-seat Auditorium and a Recreation Centre. All along, I felt that instead of a formal structure with long corridors of monotony, the IUCAA buildings should be architecturally pleasing and carry scientific information for the casual view. The idea resonated with Charles, and many such items were identified. For example, having seen the original pendulum installed by scientist Foucault in the Pantheon building in Paris, my wife Mangala suggested installing a Foucault Pendulum in a central place in IUCAA. This was done, and the dedication of IUCAA started symbolically with the pendulum. (See brief intro video [here](#)).

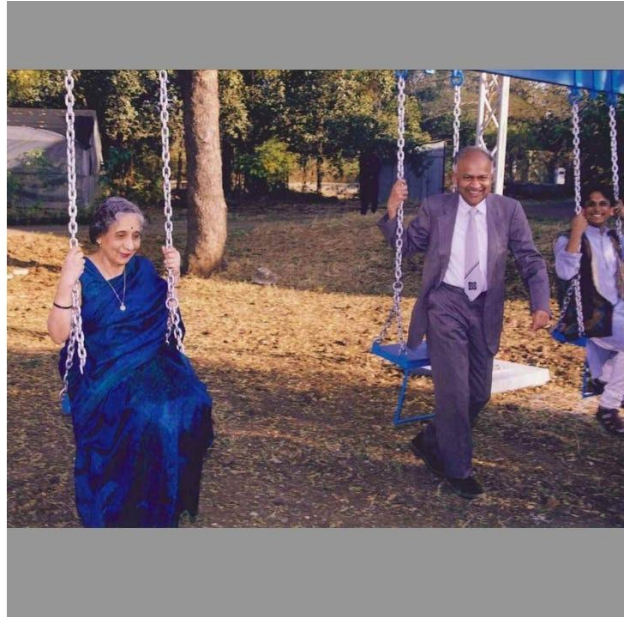


The Foucault Pendulum at IUCAA

To bridge the gap between science and society, exhibits like these have a role. Some of them may be mentioned: larger than life size statues of four scientists (Aryabhata, Galileo, Newton and Einstein), An authorized descendent of Newton’s apple tree, Sierpinski’s gasket as an example of fractals, a small scale replica of the maze in the grounds of Hampton Court Palace near London, Penrose’s design of flooring with irregular shaped tiles and, of course, several models in IUCAA’s Science Park.



The fractal garden (left), Prof Richard Ellis planting the apple tree (center), and the Penrose tiling at the Chandrasekhar Auditorium (right)



Prof Dadhich showing the Science Park to a visitor, and (right) the author demonstrating the "sympathetic swings" to the UGC chairperson Dr Armaity Desai

The public-oriented activities of IUCAA have established a reputation that prompted the literary couple, the late P.L. Deshpande and Sunita Deshpande, to donate funds that UGC or other government grants cannot support.



The author with P.L.Deshpande at IUCAA (left), the Pulastya building that houses science related activities (centre), and Mrs Sunita Deshpande planting a tree after the inauguration of the Muktagan Vidnyan Shodhika complex (right)



This is where the IUCAA story is supposed to end. However, describing how the Centre has performed since its dedication to the Nation, will make the story too long! So here I conclude with a few comments.

I have heard many people complain that the administration or management of an institution takes up so much time that one cannot do anything creative. My own experience has been otherwise: I discovered that by letting your colleagues share the burden through delegation of responsibilities, you can find more time for your cherished activities—in my case, for research, teaching and writing. Even so, it becomes important how one manages the twenty-four hours that all of us are allotted every day and night. In this instance, I heard an excellent anecdote that I wish to share with you, as it reflects the strategy I have been following in this regard.

Once a teacher brought a jar to the class, along with stones, pebbles, sand and water. He proceeded to fill the jar with big stone pieces. When he could put no more in, he asked if the jar was full. “Yes”, said the class. “Wrong” replied the teacher as he proceeded to put in small pebbles, which went into the many interstices. When he could put no more pebbles, he repeated his question. “No” roared the class, this time aware that there was still some space left for the grains of sand. After filling as much sand as he could, the teacher asked again: Is the jar full? Again the class answered, “No”. “Correct,” said the teacher as he filled the remaining space with water. “What do you learn about time management, from this experiment?” The teacher asked. The class answered: “In between your major tasks there is always time available to carry out your many minor duties.” “Excellent!”, said the teacher. “But there is more to it”, he said and proceeded to perform another experiment. This time he started filling the jar in the reverse order, first with sand and then pebbles. However, when he came to the stones, there was no room left for them! The moral? “If you spend more time on your smaller tasks, you may find that you have none left for your big and important activities!” So it all boils down to getting your priorities right and then fitting all things big and small in the right order!

Before the IUCAA adventure, I had close experience of two famous institutions: the Institute of Astronomy at Cambridge, founded by the famous astronomer Fred Hoyle and the Tata Institute of Fundamental Research, founded by Homi Bhabha.



Homi Bhabha describing the TIFR plans to JRD Tata (left), and Fred Hoyle with the initial members of the IAC. Both images are from the 1960s.

Fred Hoyle resigned and left Cambridge when the first six years of his institute were over. The institute, combined with the optical observatory next door, reemerged in a larger form. Homi Bhabha had two decades at the helm of the TIFR, during which time the institute grew in strength and moved to its present premises on the shores of the Arabian Sea. I am sure both these founders had a sense of satisfaction at achieving something of lasting value, something which generations of scientists and students can benefit from. A Founder Director of a successful institution has this enviable sense of satisfaction.

There is always a feeling of insecurity when the Founder Director of a successfully run institution moves away from the scene. The Founder may have contributed enormously to the institution, from its genesis to its state of glory. However, the real test of their achievement lies in how the institution performed after the founder was gone from the scene. This is when its inherent strength would be tested. The best of scientific institutions, like the Cavendish Laboratory in Cambridge, College-de-France in Paris, or the Institute in Gottingen, have had their ups and downs, as science itself goes through wave-crests of high excitement and activity interspersed with relatively fallow and dull periods of modest productivity.

These ups and downs should not be judged in the same way as the profits and losses of an industrial unit. The essential feature to look for is whether the institution has an inherent strength, a group of first-class research scientists, state-of-the-art facilities, and a competent support staff, all covered by rules and bye-laws that are intelligently designed to help fulfill the basic aims and objectives of the institution. Given these fundamental

strengths, the organization will ride through the fallow periods and once more attain peaks of glory. Though people who have been fortunate enough to create successful institutions enjoy being at their helm, they are even more fortunate if they wisely relinquish the responsibility to others when the time is ripe, and watch the progress of their creation from a distance in a detached mood. The Karmayoga advocated by the Bhagavadgita shows the way for a graceful exit.



Three of the founder members and ex-directors of IUCAA, Pune, from L to R: [Prof. Naresh Dadhich](#), [Prof. Jayant Narlikar](#), and [Prof. Ajit Kembhavi](#)