

Struggle and Success in Education of a Student who Wished to be a School Teacher in Mathematics

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Introduction: When I read life of many legends like Ishwar Chandra Vidyasagar (<https://www.culturalindia.net/reformers/ishwar-chandra-vidyasagar.html>) and Albert Einstein (<https://www.britannica.com/biography/Albert-Einstein>),

I am humbled and feel that there is no need for me to write about the education of common folk like me. It is worth reading the enormous difficulty these legends faced in their early education and to learn that dedicated passion for achieving the goal were the forces behind their great achievements. There are also many lesser known men and women, who have achieved a great deal and created a better world for ordinary persons like me.

This article is not a part of my autobiography. Autobiographies are not written by persons like me but by persons with extraordinary achievements like the Nobel Laureate S. Chandrasekhar, who has written “A Scientific Autobiography: S Chandrasekhar, 2011” edited by Kameshwar C. Wali. Wali has also written “Chandra: A Biography of S. Chandrasekhar”. I write about my education only for my students and younger members of my family, to give an idea of my education in very difficult circumstances. Many of them have been privileged to study in a secure and comfortable environment provided by their parents and cannot imagine the difficulties I faced. To understand the circumstances of my education better, it is necessary to read some parts of Sunita’s book Udan (by Sunita Sristi, Sad Publication, Delhi, 2017, link: https://phoolanprasad.files.wordpress.com/2019/03/sunita_udan-6.10.2017.pdf).

Three points, which played important role in my education, are (i) an utmost care taken by my guardian (eldest brother, Chandan Prasad - to whom I dedicated my first book, 1984) without any interference in the choice of the subject of my study, (ii) my teachers who took interest in my education and guided me and (iii) my own determination to learn the subjects of my study deeply - without thinking of the difficulties I may face in getting a job. In this article, I shall refer to my eldest brother simply as “Brother”. In this write up, I shall also describe a bit of living conditions in two villages (one in UP and another in WB) and Calcutta (now known as Kolkata).

Nursery and Primary School, 1947 - 1952: I vaguely remember that I first started going to a school at Lohapur, a small village in Birbhum district in WB in the later half of 1947. The year is clear because I remember the day when Mahatma Gandhi was assassinated and there was gloom at home and in the village. Soon I returned to Khejuri, a village in Ballia district in UP, and was admitted in class “Ka” equivalent of first nursery class. After a few months I was in class “Kha” and after a year in class 1.

Walking alone to the school: When I joined the primary school, we had two houses, a very old house (a big 2 storied mud house with two and a half feet thick walls) and having 3 angans (for ‘angan’ see: <http://squareone.blog/aangan-a-vanishing-element-in-indian-architecture/>) in the middle of Khejuri and a new house (with one big angan) - built as a sugar mill at the main road outside the village. The whole family lived in the old house and all business was conducted from the new house. I used to walk alone from the old house to the school with a jhola (a cotton bag) containing a patary (wooden plank), white chalk ink and wooden pen (kalam). For a boy, of about five years, the distance of one and a half km. seemed very long. I vividly remember those long walks alone on a wide mud road (main road of Khejuri). I used to pass through many mud and brick houses, a masjid surrounded by houses

of friendly Muslim community, a large tank, a post office, trees and a long water tank with a bridge, a garden etc. and then finally reaching the school. Later the sugar mill was closed and all members of our family moved to the new house (probably in 1952) barely 250 meters away from the school.

Completed home work of 100 problems in 4 days: In the summer vacation after class “Kha”, the class teacher asked us to solve self created problems (i) 25 on addition of 5 digits numbers, (ii) 25 on subtraction of 5 digits numbers, (iii) 25 on multiplication of 4 digits numbers and (iv) 25 on division of 5 digits numbers by 3 digit numbers. I was quick to complete this home work in the first four days and then spent the rest of the holidays playing.

Father asked the class-teacher to beat me in his presence: Our father, Lalu Prasad Bhagat, was well respected person in Khejuri with a population of about 4,000 persons. He used to dress very elegantly. He expanded the ancestral business of Lohapur to Khejuri with branches in Ballia and Sikanderpur and also purchased quite bit of land both in Lohapur and Khejuri.

One day, he found me playing marbles games with my friends in school time. He caught hold of me, took me to the school and asked the class teacher to beat me in his presence. It was quite painful.

Father used to say that wealth can be stolen or destroyed but not knowledge. He was very proud of his son Chandan (Brother in this article) and desired to educate him in England and then return to India to play an important role in the country. I had an older sister, who was “tetar” (a girl child born after three sons and was considered to be very lucky). She passed away within a year of her birth. I was the fifth child and Kamalesh (he was named Jhulan by my great grandfather Tota Bhagat and later Brother changed his name in the school register) was 6th child. Thus, there were three elder bothers to me: Chandan, Kapil and Bhriugu.

But the father became mentally unbalanced after his second son, equally promising in education, died in 1952. He lost control of his business and landed property. Brother soon took full responsibility of looking after the whole family. Father became completely dependent on his sons and passed away in 1980 at the age of 64.

Double promotion in class 2: My teachers appreciated my learning capacity of mathematics. Therefore, when I completed class 1 in 1950, they kept me in class 2 only for a few months and promoted me to class 4. I clearly remember that I found it hard to cope with my studies in class 4 and I managed to just pass the final examination. But I did not give up and worked hard and so I did well in class 5 and completed my education in a government primary school in 1952.

This was recovery No. 1 from poor performance in study in class 4.

A book known as “Chakravarti”: From class 4, I started solving problems from the classical book Ankganit (Arithmetic) by: Jadav Chandra Chakravarti. The book was first published in 1890 in Bengali.

Comment: The teachers were highly respected in the village, not for their salary of about Rs. 50 per month or even less, but for their moral values. They were dedicated teachers and took care of bright students. Three students, including myself, were kept in the forefront in all activities. But one of them, who also got two promotions in two years (he was with me in class 1 and joined me in class 5), lost interest in studies and could not recover.

Reading additional material: In his room on the first floor of the new house, Brother had built a library, containing his old text books, novels and magazines. The first book I read from his collection was the novel “Shashank”. For a 7 years old boy, it was very thrilling to read the personal life of an ancient king of Bengal. When I was in class 4 and 5, I took out many text books of Brother, the most interesting were the geography books. When my mother used to wake me up to study in the early morning under the illumination of an oil lamp, I

used to read them instead of my own textbooks. Those books gave an excellent idea of the geography of the whole world: from Arctic to Antarctica and from Rocky mountains in two Americas to Kilimanjaro and Nile and further east to Japan and New Zealand. I read about the life of Eskimos and of people living in deserts. I vividly remember the description of the landscapes full of wilderness and the magical effects they had on me.

Phases of Moon: The angan of the new house was big enough to get a very good view of the sky. We usually slept in this angan in summer and it was a great experience to see the sky full of stars. The view of the Milky Way packed with stars was beautiful beyond description and I remember many constellations that moved across the sky at different times of the night. When I was in class 6, I only knew that the moon goes around the earth in about 28 days and the earth around the sun in a year, that the earth's orbit was very big compared to that of the moon and that the moon shines because it reflects the sun's light. From this much information, I was able to find on my own an explanation the various phases of the moon.

Middle School, 1952 - 1955: There was a middle school also in my village about 1/2 km from the primary school and our new house was half way between these two schools. I was proud to be in class 6 of the middle school. Unfortunately, our family moved to a very kind and supporting relative in a town called Sikandarpur - 10 km north of Khejuri, where I went to another middle school spending parts of my 6 and 7 classes. There was no congenial atmosphere to study and when I returned to Khejuri in the middle of class 7, I was almost at the bottom of my class in the half yearly examination. I again worked hard and did reasonably well in the final examination. In class 8, I was one of the good students and my mathematics teacher loved me very much.

This was recovery No. 2 from poor performance in study.

One day, my teacher asked me to draw on the board the geometrical figure required for a proof of Pythagoras' Theorem. When the figure was complete, he asked me to look at it carefully and then asked to turn back and face the students in the class and complete the proof of the theorem. When I completed it, he patted me on my back - it was a moment of great pride for me. In 1955 I passed class 8 missing first division by a few marks.

Note 1: In those days, getting first division in examinations in UP and West Bengal was very difficult (from school to university examinations up to M.Sc.).

Note 2: Till class 5, English was not a subject of study. I started learning English from middle school. There was no chance of hearing any word of English in my village (that has changed - people use a few English words today, even if they converse in their mother tongue). I have been a poor learner of English language and hence, unlike Brother, I did not have proficiency in English. But my Hindi, speaking and writing (especially the literary aspect) was good.

Note 3: In the middle school, our Sanskrit teacher arranged Prathama and Dwitiya Sanskrit examinations from some organisation in Varanasi. He used to take special classes free of cost for 4 to 5 students after all classes were over. I passed these two examinations.

Schooling in Calcutta, 1956 - 1957: My class 8 result was declared in June 1955. Since there was no high school in Khejuri, Brother arranged for me to travel to Calcutta, where he and my second brother Bhrigu Muni had joined LLB and I.Sc. respectively. But the class 9 in West Bengal used to start from January. Hence, I got 6 months extra time to study on my own. I learnt a little English and cooking but spent most of my time learning mathematics. I used to do shopping and cooking also. I appeared in admission test of class 9 of a very good Hindi medium school - Saraswat Kshatriya Vidyalaya, in Burrabazar. In the entrance test I stood first and I had roll No. 1 in section A of the class. But I had bad luck - both my brothers

discontinued their studies and went to regain control over our property in Lohapur (captured by a relative). Due to our poor financial condition, we had moved to a very small room near Neemtalla burial ghat and after that I lived in a room with a friend of Brother. Then when the financial condition of the family became worse, I lived in a very small shop of a distant relative and ate in hotels for about 6 months. With no opportunity to study, I did very badly in the final examination of class 9 and I was transferred to section B of class 10.

Transported to the World of Dance and Music: In 1952, as a B.Com. student, Brother was the President of Students' Union at Benaras Hindu University. He also used to organise volley ball and football games in Khejuri and inter-village competitions in these games. When he was a student of LLB at Calcutta University from 1954, he was quite active in many student activities. There was a dance drama in Star Theatre by LLB students and he took his two younger brothers to the theatre. For a young boy who had just arrived from a village, it was an unforgettable experience of being transported to a new world of dance and music.

Visiting Iconic Buildings and Places in Calcutta: I went to see many places in Calcutta. I walked (either alone or with a classmate) from Burrabazar to Indian Museum, Victoria Memorial, Dalhousie Square, Rajbhavan, Eden Garden, Calcutta Maidan, Botanical Garden (in Howrah, I used to go by tram), some Jain temples, Belur Math (by bus), Zoological Garden etc. One of the most attractive item was a huge full skeleton of a dinosaur in the Indian Museum (the largest and oldest museum in India). Walks on the Howrah bridge were very refreshing. I visited these places many times. Calcutta is nicknamed "city of palaces" because of the British Raj buildings in the 19th century.

Private Schooling in Lohapur and Nalhati, 1957 - 1958: My two elder brothers gave up their studies and started living in Lohapur. Brother realised that I also could not continue my study alone in Calcutta and tried to admit me to a school in the village (where I first began my schooling in 1947). Since the medium of instructions was Bengali, it was clear that I would have to study on my own and school would keep my name on the school rolls just to make me a regular student. The principal of the school was afraid that if one more student should fail, the government aid might stop and hence he refused to admit me. Brother met the principal of the Hari Prasad High School at Nalhati (8 km away). Since it was a big and very good school, the principal took pity on me and admitted me as a regular student in the school in the summer of 1957. I used to study Hindi under the guidance of Brother; English, Mathematics and Sanskrit privately with a teacher, Surya Kant Chakraborti (Surya Babu) of Lohapur school, and I used to travel twice a week to the Nalhati school by train only to attend the additional mathematics classes. I studied History and Geography on my own. When it did not rain, a wooden platform in the big Khamhar (a private garden with a wall all around) provided me an ideal peaceful place to study.

Some 10 to 15 students used to sit on the grass and Surya Babu (a very dedicated teacher) conducted his private classes in the open. One day I went with tears in my eyes to Surya Babu and complained "Sir! When other students come to you, you solve their mathematics problems but you do not do that for me". He consoled me very affectionately "Phoolan! I do this because I know that you can solve even difficult problems on your own". In November 1957, he called me and advised me that I should drop the 1958 school final examination, and prepare well for the 1959 examination, in which I would surely pass with a First Division. When he saw how sad this suggestion made me, he said "Go ahead and appear in the 1958 examination". He took special interest in my studies.

This was the beginning of my recovery, No. 3, from poor performance, due to lack of facility for study in Calcutta.

Surya Babu told me to practice writing the solutions of mathematical problems in English, because he wished that my mathematics paper should be evaluated by the same examiner, who evaluated the papers of others who had written in Bengali.

My additional mathematics teacher in Nalhati school also showed interest in my study. When the school closed for about 3 months for preparation of class 10 examination, Brother decided to put me in the hostel of the Nalhati school. Under the watchful eyes of a saintly teacher-warden, the monthly expenses in the hostel with food was kept very low - Rs. 12. It was here that I made friendship with Atul Krishna Datta (who retired as Director General, National Test House, Govt. of India) and Krishna Kinkar Mandal (Kesto) (who retired as Professor of Mathematics, Burdwan University). These friendships still continue and we have shared many happy and sad moments together. We used to discuss all topics of study and quite often we used to climb the hillock behind the school and try to practise solving problems in mathematics in a very quiet place. It was a strange combination of two students studying in Bengali medium and myself in Hindi medium but all three working towards the same goal together.

My room mate in the hostel was Murmu, a Santal - an ethnic community. He used to bring live chickens from his village. We (Murmu, Atul, Keshto and me) used to clean, cut and cook. Thus in the hostel, where only rice, dal and very little vegetables were served, we used to eat rice and chicken curry!

The venue of my class 10 final examination (secondary school examination) was Siuri, the headquarters of the Birbhum district. Many hundred (may be even thousands, there were about 100 from the Nalhati school itself) students were brought by school representative teachers and the examination went on for 4 or 5 days. It is the superb management of the secondary school examination board (SSEB) of West Bengal that all papers in Hindi for one student were brought to the examination centre, answer books were properly dispatched and, I think were correctly evaluated. A little mistake would have ruined the academic life of a student, may be forever. I am grateful to WB and its SSEB. While returning from Siuri after the examination, a friend of mine told a mathematics teacher that Phoolan has solved 60 marks problems in additional mathematics paper. The teacher could not believe that and said “impossible”, then another mathematics teacher who used to teach the topic said “If any student can solve 60 mark problems, it will be only Phoolan”. I was right in my claim, I got 60 marks in additional mathematics - a great boon for me since the mark in excess of 30 was added to my total. I missed first division in matriculation by 12 marks - Surya Babu had evaluated me correctly. But, I think missing one academic year would have had a demoralizing effect on me.

Some Attempt in Hindi Literature, summer 1958: I always had an interest in Hindi literature - both reading and writing. At Lohapur, Brother had subscribed to the weekly edition of the premier Hindi newspaper “AAJ” from Varanasi. My letter to AAJ for a membership of the children’s section of the paper, was so much liked by the editor that it was published in the children section under the title “Paschim Bangal Ke EK Sadasy Ka Patr” in 1957. I wrote a story in Hindi, which was published in a magazine from Calcutta. In 1958 summer vacation, a friend of Brother, who lived in Nalhati asked me to translate a Bengali novel “Chandini”, which I did and it was staged in Nalhati. Brother’s friend suggested that I should join Intermediate Arts (IA) stream and specialise in Hindi literature. Again in April, 1965 I wrote a short story “Prakash Punj ki Or”, see “Completion of My Basic Education” later in this article.

I.Sc. Course at Krishnath College 1958: Atul and Keshto also did quite

well and they took admission in Siuri college, near their villages. Brother had a higher dream for my education. I applied for admission to Krishnath College, Berhampore, WB. It was the most reputed college in W.B. outside Calcutta with an imposing building on the bank of River Ganga and was established in 1853 (4 years before the first Universities were established in India in Calcutta, Bombay and Madras). I was selected just by chance, my name was the last name of 150 selected students in Intermediate Science (I.Sc.) stream (of Calcutta University and not a course of higher secondary board as taught in schools today). Brother admitted me in the best of the three hostels of the college. This was Kumar hostel which was expensive but very close to the college. My education at K. N. College was the beginning of a very serious and full time involvement in learning with some difficulties and advantages, I would like to highlight them one by one.

1. Every student in I.Sc. had to select a compulsory English course, a vernacular (which could be English also), three science subjects and an elective additional subject. I took Hindi as my vernacular and biology as the additional subject. The teaching in the college was very intensive, 52 hours a week, all teachers were first rate, some of them had Ph.D. degree. Unlike my study in Lohapur and Nalhati, I was attending regular classes with other students, except in my vernacular Hindi for which there were no classes in the college. There was one more student (who had come from Ballia) with vernacular Hindi and another with vernacular English.
2. Knowing my interest, Bhritu brother (an exceptionally brilliant student in mathematics, who helped me to learn mathematics during the 6 month period at home in the second half of 1955 but he himself could not complete his I.Sc. course in Bangabasi College, Calcutta due to a dispute of property in the family) told me that it was possible to choose an additional mathematics course in I.Sc. also. For three months I neglected the study of Biology in the hope of taking additional mathematics. But after sometime I realised that additional mathematics was not included in the options. It was too late and I dropped my fourth subject Biology and continued only with three science subjects.
3. In the final examination of 1st year I.Sc. course, I got highest mark in mathematics, which I maintained in a few more college examinations.
4. Financial problems at home became quite bad and so I decided to move to the list expensive Wheeler Hostel which was quite far from the college. The warden was a mathematics teacher, Prof. N. C. Bolar. He examined my mathematics paper in the sent up examination in December 1959 and was so overjoyed with it that he went to each room of the hostel and told the students "Phoolan has scored 96% mark". Scoring even more than 60% was quite difficult in Calcutta University examinations.
5. It was a struggle for me to follow the lectures in English. The Professor and HOD of English did not use a single Bengali word in the class - he explained everything in his very loud eloquent voice. Like many other students I found it difficult to understand. A student Nitya Gopal Choudhuri, younger brother of a peon in a Jungipur school, and I became good friends. Since he could not afford hostel expenses, he used to travel daily to Berhampore by train and used to spend some time in my room in Kumar hostel. He was a brilliant student, excellent in English and general knowledge too. He used to help me to learn the material taught in the English class. After graduation, he joined WB Electricity Board. When I wrote that I have come to Bangalore for Ph.D., he responded "So, you have joined the Institute of Science", referring to the Indian Institute of Science (IISc). In Wheeler hostel, there was a brilliant student of B.A. Economic Honours, Nabhari Ghosh

(Nab-da) proficient both in English and Bengali literature. He took special interest in teaching me English. He finally became Principal of a school and much later visited my home in Bangalore. Once he wrote a literary letter in Bengali to me, all my Bengali friends failed to understand it but it was easy for our son-in-law Somdipta.

6. I had given an open invitation to students in the Wheeler hostel to come to me for my help in mathematics. Many students used to ask me to solve problems which they could not. This increased my problem solving capacity. When given any problem in I.Sc. books and old question papers, I used to solve it within minutes.
7. There was a physics professor, who used to stammer a lot. He could not speak much in the class, hence he used to use only a few words to explain the concepts and descriptions of physical phenomena. We used to love this great teacher, since we could understand physics very well in a few words. He also wrote a beautiful book on Physics for I.Sc. students. He became my model (see the next item). The HOD of Mathematics, Prof. Kridant Basu, had a very impressive personality, taught very well and had written a beautiful book on Coordinate Geometry. The HOD of Chemistry was equally impressive with a Ph.D. degree and he used to give his own opinion on many physical phenomena. One day he said "I think the sweet smell of air on the bank of a river is due to the presence of ozone molecules". Another chemistry professor wished to show "mixing of oxygen and hydrogen is explosive". He did the experiment in the class and the explosion was so strong that he was taken aback. We enjoyed each and every moment of classes in the college.
8. **I was about to miss passing I.Sc. examination:** We had about two and half months preparation vacation before the final I.Sc. examination. I had to study Hindi on my own, as there were no classes in Hindi. I did not read my Hindi text books. I spoke and read only Bengali, ate Bengali food and learnt Bengali culture. To my horror, I discovered that I could write only one page of Hindi in three hours. I had completely lost touch with Hindi. It made me very nervous as I realised that if I did not pass in Hindi, I would not get an I.Sc. certificate and that would be the end of my education with just a matriculation certificate! I started reading my Hindi text book and practiced writing for three hours daily. In the examination, I wrote 6 pages in my answer book, and following my stammering physics teacher, I used only a few chosen words and proper sentences.
This was my recovery, No. 4, I could pass I.Sc. examination in spite of poor preparation in Hindi initially.
9. **Mother sold her last ornament:** Our mother, Mangali Devi, sold her last ornament, (a small piece left with her) to pay for the fee for my I.Sc. final examination in January, 1960. Before that also, she sold quite a few times, I remember the one in 1954 when she sold many of her ornaments to open a shop in Calcutta (with a relative under supervision of Brother) and for Brother to study LLB course in Calcutta University.
10. A very interesting thing happened in the physics paper of I.Sc. final examination. There were two questions on the motion of a particle. Such problems in the text book and also in my class, were worked out geometrically. I could solve them using calculus, but I was not convinced that the use of calculus was rigorous (Newton must have feared that scientists of his time would not understand and appreciate the method of calculus discovered by him, so he used geometrical methods instead of differential equations in Principia) and hence I asked the invigilator, who was my mathematics teacher, my doubt

and he convincingly said it was very rigorous. I completed answering the paper in a very short time and had more than enough time to revise it.

11. **Re-examination is quite bad:** As it happens quite frequently now, even in those days the physics paper of I.Sc. had leaked. After I returned home and felt free from the heavy burden of study and examination, there was a report in a newspaper that there will be re-examination in physics paper. Again after some study (a very boring work), I went to K. N. college and appeared at the re-examination. I felt that I did not do so well.
12. I secured 60% mark in Hindi, probably one of the highest in the university. The student from Ballia procured only about 40% mark in Hindi. I secured 45% mark in English (not supposed to be a poor performance in those days). It is sad that my brilliant friend Nitya secured a little less than mine in English because, I think, he could not get much time to study due to commuting between his home town and Berhampore and lack of proper atmosphere at home but he was one of about 50 students who secured first division in the college.
13. When I.Sc. results were announced, I secured the first rank in the K. N. College even without the fourth science subject, biology. Suddenly, the student whose name was last in the selection list two years back, became the hero. My brother's choice to admit me in K. N. College changed my life for ever - I also loved the college atmosphere and its teachers.

Now I was sure to fulfill my ambition, to become a school teacher and teach additional mathematics like magic to bright students.

14. But without the fourth science subject, my total mark was too low to get automatic admission in one of the finest colleges in India - namely Presidency College, Calcutta. Almost all students with good performance in I.A. and I.Sc. examinations of W.B. desired to study in Presidency College. None of these students thought of joining an IIT. See the next part of my education.

Returned to Calcutta but in Presidency College: I did not have much idea of higher education and research but with his experience in B.Com. course at the Benaras Hindu University (where he was the President of Student's Union for one term) and L.L.B. course at the Calcutta University during his student days, Brother was quite knowledgeable. He and one of his younger brothers, Bhriku (a brilliant student of mathematics and physics) missed getting higher education. Kapil, another younger brother, who died in 1952 just before his class 10 result was announced, had passed in first division. He was the only one in the family and in Khejuri and Lohapur to have such an honour. So now, Brother put in a lot of effort on my education. In early 1960, he moved to Calcutta in search of a job and brought me with him. Two of the very good colleges, Scottish Church College (established in 1834) and St. Xavier's College (established in 1860) gave me admission letters immediately but Brother waited for the admission result of the Presidency College (formerly Hindu College, established in 1817 and renamed as Presidency College of Bengal in 1855, now, since 2010 it is Presidency University) in Mathematics Honours course. Once again, I was lucky - my name of the last one of in the list of 250 students selected for B.A. and B.Sc. courses in 1960. It was only the Presidency College in W.B. in which every undergraduate student had to take an honours course.

So started my serious education in Mathematics - in a two year course at the Presidency College - B.Sc. with Honours in Mathematics. Madras university had already adopted to 3 years duration for B.A. / B.Sc. courses.

Based on my I.Sc. result, I got a scholarship of Rs. 25 per month, which was of some help but it was paid only once in a year, a total of Rs. 300. Brother also admitted me to the Eden Hindu Hostel (next to the college).

Many of my classmates were rank holders in I.A. and I.Sc. of the Calcutta University. There were only 24 students in mathematics honours course (8 girls and 16 boys). The class room, next to the room of Prof. N. L. Ghosh (FNA), Head of the Department of Mathematics, was very small and had two benches at right angles to the board. We used to try to get a place on the first bench parallel to the board (my long distance vision was affected, which I did not know), so boys and girls used to sit together. One day Prof. Ghosh said "Boys and girls do not sit on the same bench in my class". Since then we did not sit together in his class.

1. We had 4 four hours of lectures in mathematics per day. Lectures were intensive and delivered by excellent teachers - Prof. Ghosh was outstanding. In such an atmosphere of "smart" students in the college and the hostel, I started losing my confidence, especially because some of my friends (particularly, Samaresh Mukherjee) used to say that they have studied so much from so and so books. My family had great financial difficulty. Brother managed the big family with the money he earned from private tuitions. He asked Bhrigu brother to send Rs.80 per month to me. He was getting a stipend of Rs. 85 + free living and food while doing the training course for sailors in Indian Navy. I was so depressed that I thought of returning to K. N. College, Berhampore and I also applied for a post of an assistant in the physics laboratory in a college. This went on for about 3 months. One day sitting in my hostel room, I decided that I would face the situation bravely and work very hard.

Soon after that, probably in January, 1961, I copied on additional sheets "differentials" from E. G. Phillips' 'A Course of Analysis' and then I wrote "One must read mathematics quietly and with a calm mind, never jumping from this point to that point and thinking that one's progress is slow" and pasted those sheets in my book on calculus. I have disposed almost all books of my mathematics honours course but carefully preserved that book on analysis.

2. My result in the half yearly examination was just ordinary but in yearly examination of the first year I topped the class of 24 students in Maths (Hon) course and also in physics pass course in the college. I used to use calculus to derive the results in physics paper, thus I was able to complete it in just 1 and 1/2 hours (half of the allotted time).
3. Prof. Biren Bose taught us mathematical analysis (his rigorous treatment of analysis appeared mysterious because this was my first and sudden exposure to this essential aspect of mathematical analysis) and Prof. Ghosh taught calculus in all its beauty. One day, he taught the method of Lagrange multiplier - not the full proof but mainly its algorithm - so convincingly that I took it as a proof. I went to the hostel, thought a lot and wrote it like a proof. Biren babu set the paper on calculus, one of the problem was on Lagrange multiplier. I answered the problem with my own proof. My friend Amar Basu Mallick one day met Biren Babu, who told him "Amar! I spent the whole night thinking about the proof of Lagrange multiplier, written by Phoolan but finally gave him zero for that answer".
4. My first year B. Sc. result made me, a student from a village wearing dhoti and kurta, quite popular with my science teachers and students. It also raised a hope in my mind "If I can secure the first rank in my class in the Presidency College, I am also likely to secure first rank in mathematics honours in Calcutta University with all W.B. colleges

affiliated to it". I was quite aware of the fact that it was an almost impossible dream and I could not imagine that such a dream might become reality. But the very thought, kept only to myself, used to thrill me.

5. The only student, who started getting very good mark, was Utpal Samatdar, son of a refugee from East Pakistan (now liberated as Bangladesh). He used to commute from a slum in Jadavpur. He became my close friend and we used to discuss mathematics. I made a few visits to his residence, almost a hut and used to eat simple but very tasty food of East Bengal. Like me he was also not sure of getting first class in honours but unlike me he dropped the 1962 examination and got first class in 1963 examination. I tried to get him to IISc for Ph.D. but afraid of his poor health, he did not agree. I felt very sad to miss his companionship again.
6. There were two more classmates in B.Sc. Mathematics Hons: Sunanda Roychoudhuri and Indira Roy (Indira Datta after marriage), with whom I have been in constant touch. Indira was the 10th rank holder in I.A. in 1960. Once Sunanda arranged a meeting in her flat in which my wife Mandra, daughter Deepika and son Amritanshu met Indira and her two daughters.
7. I continued working at my normal pace, even though I was made Prefect of the Wing 2 of the Hindu hostel. I did not take part in sports, though my very close friend Amar was the champion in running and the finest football player in the university. I went with him to watch some important games in the Calcutta maidan and Eden Gardens stadium. I also made friends with some very popular hostel mates of the Hindu hostel - most prominent being Balai Chakraborti who lived in one half of a big partitioned room - two students shared one half, the second half was occupied by me and another student. Balai is a very good friend to this day.
8. In the summer vacation of 1961, Brother found a job for me, a private tuition with an honorarium of Rs. 150 per month for teaching two days a week. I used to teach two students, who were preparing for IIT entrance test. One of them got admission in an IIT.
9. In our sent-up examination in December 1961, Prof. N. L. Ghosh set the dynamics paper. It was a very difficult paper and I could not answer more than 45%. Feeling very sad, I went to Prof. Ghosh's office. When I peeped in, I saw two of my classmates crying inside. I just closed the door of his office and walked away.
10. One of our well-wishers and a relative almost forced me to fill in the IIT entrance examination form for 1962. The center of examination was in the Presidency College itself - next to my hostel. Amar (who had also filled in the form) came the previous day and invited me to go with him to his sister's home some 30 km from Calcutta. We had a very nice time in the village, where his sister had a thatched house with a pond with fish in it. We ate fresh fish curry and rice and missed the IIT entrance examination!.
11. I fell sick just before the final B.Sc. (Honours) examination. Brother met the Principal of the Presidency college and I was allotted a room for writing the examination with a bed, a table with a chair and an invigilator. I wrote the first 3 papers with a fever of about 100 degree. On the second day there was the examination of the three dimensional coordinate geometry paper, the subject was taught beautifully by Prof. Murari Roychoudhuri. I marked 6 questions to answer one by one starting from the simplest. But I made a

mistake in the first problem and could not correct it even after spending 45 minutes. I gave up and took the other problems but luckily I solved the remaining 5 in about 1 hour 45 minutes and had enough time to solve the first one. I could also revise the answers. The paper was set and examined by Fr. Frans Goreux of St. Xavier's College. When I met him after my result was announced, he hugged me and told me that mine was the best answer book that he had evaluated in the last 20 years.

12. After my final examination, I started teaching in the Salkia branch of Vikram Vidyalaya, a Hindi medium school in Howrah. When I used to enter the school in my usual dress of Kurta and Dhoti, students used to whisper "the Bengali teacher has come". During my stay in hostels at Nalhati, Berhanpore and Calcutta, my accent had also changed - due to Bengali influence. One day when I was in teaching class 10 students, the principal called me and handed over the office phone and some one (I do not remember who) told me "You have secured first rank in first class in B.Sc. (Honours)". I took some time to recover and soon after that I resigned from the school and returned home to my brother's residence at 12, M. C. Ghosh Lane, Howrah.
13. Next day I travelled standing in a crowded bus from home to Presidency College. There was a very strange feeling - I felt that all passengers were looking at me - the person who had secured first place in the university. When I reached college, I met many of my classmates who had come to find their results. Balai met me at the gate and in his humorous way, he touched my feet and congratulated me. He was one of the "smart" students of the college and had passed I.A. examination from Presidency itself. These students were very intelligent and knew what they wanted to do in life. Like many others, Balai, who ended up as an IAS officer, retired as the head of the vigilance department of W.B.. He is one of my very close friends till today.
14. In 1962, about 800 students appeared in mathematics honours examination in Calcutta university, only 40 got honours degree and only one secured first class with just 65% mark in mathematics honours - most others got a simple B.Sc. degree. Only one student passed economics honours in first class, while in the same year 19 students secured first class in a much smaller university in Orissa. I found that the honours courses of Calcutta university turned out to be the end of the dream of a successful academic career for some students. Yet, Presidency College produced the largest number of very successful professionals in every field in India till 1965, when naxalites captured the College and the state government started transferring the good teachers to other colleges.
15. Government of India (or may be the UGC) announced a National Merit Scholarship Programme of Rs. 110 per month for post-graduate students. Names of 10 students of Calcutta University appeared in news papers for this scholarship and my name was first on the list. Nitya (Nitya Gopal Choudhuri, my classmate at the Berhampore, K. N. College) wrote a letter to me congratulating me for that. My photo also appeared in the Bengali news paper 'Jugantor' with the caption "Kriti Chhatro". A neighbour in the village Lohapur took the paper and showed it to my mother and asked her "Do you recognise the person in this photo?"
16. The Special Theory of Relativity (STR) fascinated me and I was keen to learn STR without spending much time. Therefore, in summer of 1961 I read a popular book "The ABC of Relativity" by Bertrand Russell carefully and tried very hard to understand it but could not comprehend STR, even though this classic book is rated today more than 4 stars. Russell did not use equations and used only words to explain. Finally, I



Figure 1: 1962 photo in Jugantor

learnt SRT from “Relativity: The Special Theory” by J. L. Synge during the third year (1968) of stay in IISc. I learnt an important lesson **“in order to teach some topics in mathematics and physics, we should always use some equations essential for understanding precisely”**. In my lectures to INSPIRE students of 11th and 12th standard, I convey the essence of STR by using some algebraic expressions.

Continued M.Sc. in Presidency College:

1. My desire for becoming school teacher was replaced by a desire to learn mathematics as much I could. Calcutta University is the only university in India having two departments of mathematics: 1. Department of Pure Mathematics (established in 1912) and 2. Department of Applied Mathematics (established in 1914). Both have very rich past history. Department of Mathematics of Madras University, which has produced a galaxy of very good mathematician, was started in 1927, much later after Srinivasa Ramanujan died in 1920. Ramanujan is not a product of any educational institution but a “phenomenon”, which is beyond any explanation.
2. For many reasons, it was certain that I shall join the Department of Applied Mathematics (Appl Math) in the Science College of the Calcutta University. I could do that also by taking admission in Presidency College, which had many advantages, (i) no admission and tuition fees for students passing honours courses in first class from the college, (ii) availability of the Presidency College Swarnamoyee P. G. Hostel (only about 1 km away from Presidency and Science colleges) and (iii) availability of the rich college library (in addition to university library) containing very old books. I borrowed about 30 books, which I was allowed to keep till my M.Sc. examination was over. I also used to look into some books of 18th century, where all sciences including mathematics formed just one subject.
3. Soon after B.Sc. results were announced, I discussed with Brother and he suggested that I should meet the warden of the P. G. hostel. The warden, a professor, was very kind and



Figure 2: On the top floor of the Swarnamoyee P. G. Hostel, there were two rooms. One of them was allotted to me. I could study outside my room.

allowed me to stay in the college hostel for about a month even before I was admitted to the college. Thus the learning of mathematics started even before the classes started in Science College.

4. After admission in M.Sc. in Presidency College, I stated attending classes in Appl Math department in Science College of the university. There was intensive teaching by outstanding teachers. For some reason, the course duration in those days turned out to be for two and half years, officially it should have been 2 years.
5. The financial condition of Brother was still not good but he did not have to worry about my hostel and book expenses. Firstly I was awarded 2 Gold Medals, 2 Silver Medals and 3 Prizes from Calcutta University based on my B.Sc. results. The prizes allowed me to buy a large number of books (I bought a few books even when I was doing Ph.D.). National Merit Scholarship was more than what was required for the hostel expenses. But it was paid only once in a year. Brother arranged with a businessman to give me Rs.100 per month and he returned this loan after I received the scholarship money. I also did some tuition 2 hours a week.
6. Let me describe very briefly my study and training in M.Sc., which was quite smooth.

I had a good formal training in ordinary differential equations (ODE): It started quite well at Presidency College in 1960 and continued later extensively in M.Sc. at Science College both for a system of ODE for $\mathbf{Y} \in \mathbb{R}^n$ as a function of real variable x and for $w \in \mathbb{C}$ as function of a complex variable z , with a very good coverage of convergence of series solution and special functions.

I did not have a formal training in partial differential equations (PDE): But I got a very good feel for the subject through 3 intensive courses in fluid dynamics over a period of 2 years 6 months (equivalent to a 8 to 9 semester courses today) in M.Sc. In the first basic course dealing with incompressible inviscid fluid mechanics, I learnt properties of the Laplace equation. In an intensive course on viscous flows taught by Prof. D. D. Mallick, I learnt derivation and properties of Navier-Stokes equations and about diffusion and turbulence. He used to come to the class without any notes in his hand and wrote every word that he taught on the board. He would say "Please check. I may make mistakes". But there were no mistakes. Finally in a course on compressible flows, I learnt about the wave equation, quasilinear hyperbolic PDEs and shocks. A course on "Theory of Potential" taught me more about the properties of the Laplace equation.

Note: In one lecture Prof. Mallick derived the vector conservation form of a four vector with components: momentum and energy. Then, in humorous words, he said “This is the equation of stress-energy tensor of relativity”.

Some other important intensive courses: (i) Functional Analysis and Lebesgue integration by Prof. P. K. Ghosh, (ii) Probability and Statistics by Prof. A. Gupta (iii) Complex Variable by Prof. B. S. Roy and (iii) Numerical Analysis by Prof. A. Gupta.

Teacher satisfied even when only two students out of 35 studied a special course: On the first day of the class on Lebesgue integration, Prof. P. K. Ghosh mentioned that this topic was not in our course and it would not be included in the examination. After one month, he asked “How many of you have tried to learn it?” Only two students raised their hands, then he said “I am more than satisfied”. I used to go to his house to meet him at Serampore. Once he gave a popular lecture on two-dimensional Laplace equation in Bengali. Starting from an axiom “the value of a function at the centre of an arbitrary square is equal to mean of the values at the corners”, he deduced many properties of the solutions of the Laplace equation without using any equation. I vaguely remember the lecture, and posed this problem to my colleagues at IISc in 2016. I invited Prof. Ghosh to IISc twice and he gave very nice seminars and also stayed in our house. Once on his way back, he took care of my mother who travelled with him to Kolkata Airport. When I was in ICU in Bellevue Hospital in 1967, Prof. Ghosh used to visit the hospital but never used to go to see me in ICU. He told my wife Mandra “Phoolan will visit me after he recovers”. He visited me at my Brother’s residence before I left for Bangalore - I was still quite weak.

Real Analysis was not taught formally: Real analysis was a part of a paper. The topic was covered so well in B.Sc. (Hons) that it was not taught formally in M.Sc.. I went to the examination with some preparation. I did not remember many formulae needed for answering some questions. I deduced them on rough sheets and then used them. The paper was examined by Prof. A. Gupta and I secured very high mark. When Prof. Gupta came to know that I was visiting the Appl Math Department on 1 August, 2018 for a seminar, he (was quite old) came to meet me and said in presence of other teachers “The Department is proud of Phoolan.”

Two important topics I missed: (i) Linear Algebra and (iii) abstract algebra. I learnt the first one very well after submitting my thesis in 1967 and second one while teaching a course later.

7. I shall now write a little more about my study of two special papers in Fluid Dynamics, which decided the area of my research. Prof. N.L. Ghosh used to teach the 8th paper “Compressible Fluid Dynamics”. Amar, Samresh and I were attracted by Prof. Ghosh’s fascinating teaching in B.Sc. so much that we (along with Mihir Baran Banerjee) chose Fluid Dynamics as our specialisation. But this was not a suitable choice for securing good marks, as Prof. Ghosh and Prof. Mallick (who taught the 7th paper on Incompressible Fluid Dynamics and Navier Stokes Equations) were meticulous and very strict in marking. Mihir and I used to have discussion on the very basic aspects of fluid dynamics. Mihir was awarded S. S. Bhatnagar prize in 1988. It is rare, I do not know any other example, that two classmates of an university in India got this prize in mathematical sciences.
8. I secured second position in first class in M.Sc. in spite of the fact that I had the highest marks in seven of the eight papers. The total marks of the student, who got first position, was 8 marks more than my total but he secured the first rank by securing 35 marks more in two special papers in Elasticity.

9. I received one silver medal and one prize. From the prize I could buy many books.
10. **Brother's Concern:** There was a Hindu-Muslim riot and curfew was imposed. In spite of the fact the Swarnamoyee Hostel was surrounded by some Muslim areas, we were quite safe. Brother was so concerned about me that he came from Howrah to see me in the hostel, without bothering about his own safety. This was his nature - he cared for every member of the family.
11. When I learnt about my M.Sc. result, I was not unhappy but there was no exciting feeling as I had, after my B.Sc. result. I walked about two and a half km from Science College to Brother's office to give him the news. He never used to show his happiness or sadness. We took some tea and then walked to catch a bus to Howrah.

Method of Study and Preparation for Examinations: I did not isolate myself from my hostel mates, I used to join them in activities briefly (Balai's room was a great center of Bengali "Addaa") and return to my room to study - they knew about it. I used to borrow Bengali novels from them, as I could read Bengali quite well. I read many classic novels also, including those of Sarat Chandra. I used to go with my friends to see a movie once a week (especially with Manoj K. Nandi, who became head of West Bengal Forest Development Corporation, etc. I am still in contact with him).

The interactions with my friends described above did not distract me from my seriousness in preparing the lectures taught everyday - I never went to the next class without full preparation (mostly writing all the material in my note book of that topic in my own words after consulting books). We used to get about two months time before the final examination to revise all that was taught over 2 years or more. I used to make a time table to revise the topics mainly from the notes I had written (except for my class 10 examination). My revision used to be over at least two days before the first day of the examination. Then I just relaxed and hardly looked at the books and notes. This was the reason that my performance in my B.Sc. examination was not affected by my falling sick a few days before the examination started (see the point 11 in section "Returned to Calcutta but in Presidency College". In semester system today, preparation is much easier as one has to revise only material taught in the last 3 to 4 months.

Note 1: I have referred to Prof. Mallick's lectures. He used to cover so much material in a two hour lecture of the special paper, that I used to take about four days to read and write his notes in my own words. The picture in the Figure 2 shows preparing one of his lectures.

Note 2: In my study, it was not just listening to the lectures in the class but it was trying to learn deeply on my own and then write my notes. This is reflected today in guiding my students in teaching them "[how to learn on their own](#)", which once learnt takes them to a changed academic life.

Note 3: I shall like to comment on the attitude of parents/guardians today with that of Brother. Children and students are highly protected today and most of them are not allowed to do anything other than preparation for examinations, specially for admission tests. There is very little learning and mostly mechanical study. Brother did take very great care for my education but he involved me in shopping and cooking when I was 11 to 12 years old, in translating a Bengali novel, asked me (when I was just 15 years old) to go on to a small hill alone near Tinpahar about 100 km away to bring our father and later asked me do tuitions and teaching in a school.

Admission to a Research Institute Unknown to Me: My two special papers in fluid mechanics decided my area of research but in 1980 itself, I realised that my interest is more suited in an abstract area of mathematics like differential geometry. Anyway, in

December 1964 after the final M.Sc. examination was over, my teachers suggested that I write to the heads of the departments of mathematics of IIT Kanpur, Madras and Karagpur and Indian Institute of Science (IISc, about which I had not even heard of). From the first three, I received replies saying that “Please apply for admission after the advertisement appears”, but Prof. P. L. Bhatnagar (head of the Appl Math Department of IISc) wrote “Please let me know when your result is declared”.

Our result was declared in the last week of March, 1965. Soon the head of the Appl Math department of Calcutta University called me, gave me an application form for a Research Fellowship of Rs. 300 per month and asked me to fill it in. He also said “If you do not accept this, I shall not allow you to enter the department”.

I wrote a letter to Prof. Bhatnagar (PLB) on a post card informing him of my examination results and within a few days on 3rd April, I received a cover with application form for a Fellowship with a comment “You will be interviewed on the day you arrive in IISc”. I booked my ticket on the earliest available day (6th April) by the slowest moving train, Janata Express and reached Bangalore on 9th April 5:30 am. I was given a bed in the hostel and then I went to the Dept. of Appl Math.

I was waiting in the office of the department, when at 9:30 am, a tall, handsome man went past the office swiftly. The secretary whispered that he was the Professor. After about half an hour, I was called in to the discussion room (with a big black board) of PLB and was interviewed for about 2 hours by Prof. C. Devanathan. PLB did not ask any question but carefully listened to my answers. After the interview, PLB gave me a letter and asked me meet the Registrar of IISc and said “You are my student from today”. Thus, I joined IISc on 9th April, 1965 (an institute I came to know for the first time) as a Research Fellow in a project from the Ministry of Defence with Fellowship amount of Rs. 250 per month.

Only after joining the department, I came to know that PLB’s joint research work “BGK model” was one of the most celebrated works in Plasma Physics. It is a model to solve approximately the formidable Boltzmann equation with a very sound mathematical basis. It is now a text book material and it continues to make waves even today due to its many ramifications; see [http : //math.iisc.ernet.in/ prasad/prasad/plbhatnagar.pdf](http://math.iisc.ernet.in/prasad/prasad/plbhatnagar.pdf). PLB is also well known for his work in astrophysics and many areas of fluid dynamics. It was my good luck that I joined IISc and not the IITs mentioned above, since PLB gave me full freedom in the choice of research problems and mostly left me alone to do research. I usually met him once a month and he used to advise me if the research problem I wish to work was suitable or not, correct my method of solution (if necessary), and correct every word of the drafts of my research papers. This is another story, which I hope to write in another article.

Angry bright student mellowed: This does not form a part of my basic education but is related to my writing only 6 pages in 3 hours in the answer book of the Hindi paper in I.Sc. examination. In 1968, I was teaching M.Tech. students in electrical engineering at IISc. After I had distributed the evaluated answer books to the students, one student “A” was very angry, approached me and said “Sir! I have answered all questions in 15 pages correctly but you have given me much less marks than what I expected. In all other papers I have scored highest mark in the class but not in yours.” I did not give any answer but asked him to compare his answer book with that (in 5 pages) of the student “B”, who had scored the highest mark. “A” was a very bright student and quickly learnt art of precise and to the point presentation. This happened to another student much later who appeared in RMO of Indian National Mathematics Olympiad (as a Convenor of the School Committee of NBHM, I was incharge). This time, the father (a professor in IISc) of the student complained to me and I showed him the answered book of another student.

Completion of my Basic Education: This completes my basic education up to M.Sc. and how the young boy, who desired to be a school teacher teaching additional mathematics to bright students, started his research career in IISc. I shall write a few more incidents before concluding.

1. **Prakash Punj ki Or (Journey Towards a Heap of Light Sources):** Finding myself in a beautiful and serene environment of IISc, in April, 1965 I wrote a short story “Prakash Punj ki Or” and sent it to my eldest sister-in-law. It described the journey of a “Dhumketu” (comet), who broke away from solar system and started moving towards a collection of light sources bundled together at the centre of “Akash Ganga” (Milky Way Galaxy). Knowing very well that reaching the Prakash Punj was almost impossible - he continued his journey undeterred.
2. In second year of B.Sc. we were taught astronomy using the full mathematical power of spherical geometry by the youngest professor, Sujit Kumar Bose, who had just passed M.Sc. (Appl Math) securing first rank in both honours and M.Sc. courses. He got D.Sc. degree later and I still keep in touch with him. After my M.Sc. course was completed, Prof. Bose advised me to work under supervision Prof. P. L. Bhatnagar for Ph.D..
3. In early 1967, I went to Calcutta airport to receive PLB. While entering the airport, I met my highly revered teacher, Prof. N. L. Ghosh. He offered me the position of a lecturer in Burdwan University. I could not say ‘yes’ or ‘no’. Prof. Ghosh was very hurt because I did not accept the offer. Lecturer’s position was valuable to a young man aged 23 years, not yet Ph.D. and having only a senior research fellowship. After that Prof. Ghosh stopped writing letters to me.
4. Brother asked me to invite PLB for dinner at No. 12, M. C. Ghosh Lane, Howrah. PLB very kindly accepted and visited our house in the evening after his official meeting.
5. In 1975 I was sitting in the office of PLB in Mehta Research Institute (now renamed as Harish-Chandra Research Institute), Allahabad. I asked PLB, “Sir! why did you write the special interview letter to me in 1965?”. He reply was quick “Phoolan! I have known Calcutta University for a very long time and could not have rejected a student from Presidency College with such a result”. What a great compliment from PLB to my alma maters, Presidency College and Calcutta University! I once began a lecture to students and teachers of Appl Math Department of Calcutta University citing the comment made by PLB and said that I was proud of being a student of these two institutions. There was saying in mathematics circle of Calcutta “If you wish to learn pure mathematics, go and join the Dept of Appl Math”. Indeed, I was better prepared in basic mathematics compared to all other students who joined to work with PLB in August, 1965. They were very good students but the training in my college and university was far better in those days.
6. On 9th February, 1987, I collapsed in the Appl Maths Dept. of Calcutta University after a committee meeting of UGC to review the Centre of Applied Mathematics in the University. I had had a massive heart attack. My teachers (most of my former teachers were still in the department) admitted me to Bellevue Hospital. I was in the ICU for 2 weeks and in a private room of the hospital for one month. All teachers of the department used to visit me in the hospital. When they came to know about my financial position, they assured my wife Mandra that they (30 members in the Department) would meet all the medical expenses. This showed a special kindness of the teachers to their former

student. Finally UGC met all expenses. Prof. S. K. Bose came from REC Durgapur to see me. Sunanda Roychoudhuri, my class mate in B.Sc. and M.Sc. visited the hospital and took Mandra for lunch to her house. After my release from the hospital, Mandra and I lived in the house of Keshto as guests for some time and his family took utmost care for my recovery.

I have received unconstrained help and affection from my teachers and classmates. As far as I know, no one showed any envious resentment towards me nor I had any such feeling towards my friends. I feel sad that I lost contact with Nitya after 1965 and with Utpal after 1967.

Meeting hostel expenses at IISc for the first four months: After receiving the interview letter from PLB, I had left Calcutta with almost no money. When PLB arranged admission in IISc on 9th April, I informed him that I did not have money to pay the caution deposit for admission in the hostel. PLB immediately wrote a letter to the warden of the hostel, requesting him not to charge me any money till I get the Fellowship. I received the first payment of Rs. 1000 of the Fellowship amount after four months and after that regularly Rs. 250 every month. I could save Rs. 100 per month, which I used to send to a merchant in Lohapur, where our father had purchased essential items for running the house hold. I went Howrah and Lohapur after 10 months of stay at IISc and met all members of the family.

My Last Few Days with Brother: This article will remain incomplete if I do not say a few words about Brother's concern till 1983 for my academic progress and his visit to see me in ICU in 1987. He was not satisfied that I became Associate Professor in IISc at age of 33 (in those days the first faculty position was that of a lecturer and second one assistant professor) and a full Professor at the age of 38. In 1982, while writing a very affectionate letter to our son Popik (Amritanshu), he expressed his unhappiness about my academic achievements. A scanned copy of the letter is available in Sunita's book mentioned in the beginning of this article. But when he heard the news on all India Radio on 27 September, 1983 stating that I had been awarded the S. S. Bhatnagar Prize in Mathematical Sciences, he immediately sent me a telegram. I had also received a telegram from CSIR about it on 26th but I was supposed to keep the information confidential. Brother's congratulatory message was the first to reach me, when I was working in my garden. When I went to Howrah soon after that, he said "Phoolan! I am sorry, I was wrong to write that letter".

Brother was not keeping well for more than 10 years and though he was quite weak, he came to see me in the hospital on 10th February, 1987. While standing next to my bed with Mandra in ICU and looking at me, he appeared very miserable but did not speak a single word. While recovering, I spent about one month at Brother's residence and then returned to Bangalore at the end of April. Brother passed away on 7 November, 1989 at the young age of 54 and I attended his last rites.

If there is a heaven (Swarga), he must be looking down at us and must be satisfied that his and his younger brothers' families with children and grandchildren are doing well in the fields they chose to work in. He had taken care of the whole family, consisting of his parents, a grand mother and three younger brothers, almost alone since 1953 after his father lost his flourishing business and landed properties.

A chance visit to Khejuri after 40 years: After I left Khejuri in 1955, I used to visit my parents in Khejuri (where they returned from Lohapur in 1966) almost every year alone and with my wife and then with my Children till 1978, when our son fell seriously ill in Khejuri and my mother asked me not to bring the children to Khejuri again. Then, I

visited Khejuri 1980 alone when my father passed away.

My friend Shri. Rajiv Kumar Sinha, with a deep interest in education, spotted me about 8 years back on the internet. Since then he has been planning to visit Ballia with me. R K Sinha is General Manager of NPTC in Noida. Shri. Sinha belongs to the family of Ganesh Prasad (born in 1876, 10 years before S. Ramnujan), who is treated as the father of research in mathematics in India. Here is a report of the visit from 13-17 November, 2019 arriving Varanasi on 12 and then travelling to Ballia town in a taxi.

- On 14th we saw Dadari Mela, temples and bazar in Ballia (including the most important Bhargu Ashram), S. C. College and Murali Manohar Town PG College. In the evening we had dinner, hosted by Shri. Om Prakash Sinha, an elder brother of Shri. R. K. Sinha.
- The birth anniversary of Ganesh Prasad was held on 15th November, 2019 in an excellent institution Gyan Kunj Academy, arranged by Dr. Akhilesh Kumar Sinha, another elder brother of Shri. R. K. Sinha. It was a grand function reported in Amar Ujala newspaper. At each institution (including three at Khejuri next day), Shri Sinha spoke about life and importance of the work of Ganesh Prasad and I gave small and simple lectures on a few topics in mathematics.
- On 15th, on our way to Gyan Kunj, we stopped at Khejuri, where Shri Mannan Singh organized a brief reception at a Jewellery shop built in a small part of the land of our Karkhana. Mandra stayed in Khejuri and spent about 5 hours in the house of Ashok (son of the business man late Shri Basavan) and had a great time - treated like a great mother-in-law by three ladies.
- On 16th, we reached Khejuri early, first we were received by some people at the Nathji Mandir. Then there was a reception at the Govt. Primary School, where all important people of Khejuri were gathered for about 1 and $\frac{1}{2}$ hours. The reception was quite emotional with tears in the eyes of Shri Ganshyam Singh, classmate of my nephew Ashok. It was a special meeting not because I visited my birth place but because of my father Lalu Prasad, who is still remembered with great respect (like a “Raja” of the village) and the villagers missing his family, which would have selflessly served the village. They also recounted the 4 sons by names in the meeting. I think, there was no one old enough to remember Kapil bhaiya. The “Khejuri Prashasti Patra” is reproduced here.
- Mandra and I interacted with the children of the Primary School. She also took part in the question answer session with children at D.N. Adarsh Gyanpeethika. There was a stronger applause when she answered a question. The reception was grand and we had lunch there.
- From the Primary school, we went to the Middle School, the Headmaster Hriday Narayan Singh had got two beautiful garlands of roses brought specially from Sikanderpur. The flowers had a special colour and fragrance, that reminded me of my stay in the house of Kamata phupha (phupha in Hindi refers to the husband of a sister of father) in Sikanderpur with my bed covered with petals of roses every evening.
- Though it is very difficult, both Shri Sinha and I plan to improve students’ education and also set up a public (sarvajanic) library in Khejuri.

Acknowledgement:

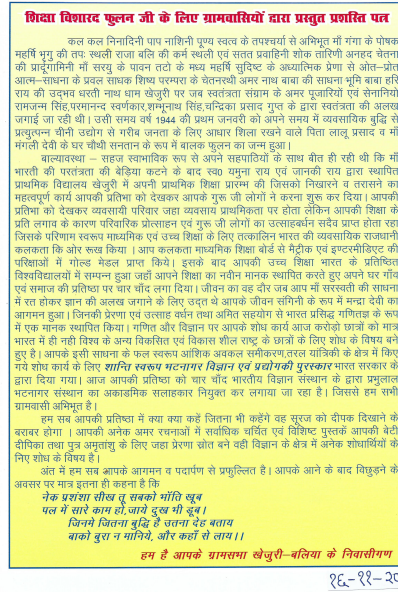


Figure 3: Please enlarge the PDF file to read it

I sincerely thank Dr. Vasanti Kumar, MBBS (CMC, Vellore), DGO for carefully editing this article. I am happy that it has been looked over by a perfectionist in all walks of life. She is the mother-in-law of our son Amritanshu.

I sincerely thank Sri Balai Chandra Chakrabarti IAS (ret'd.), my friend since 1960, for making many corrections to the article. His family and my extended family, which includes my brothers and nephews, have been very close ever since he visited our house in Bangalore in 1996. At that time he was the head of the vigilance department of West Bengal. Mandra and I went to his residence in Salt Lake sometime later and found to our surprise that, unlike an apartment of such an important official, his was very simply furnished with a black and white TV. We were overwhelmed by the spontaneous welcome of his wife Chhabi and him. He used to travel to our house in Salt Lake either on his bicycle or by bus. He mixed freely with younger members of our family and helped them to settle in our new house in Salt Lake and get the children of my nephew Asok admitted in a good school. He has been always a leader in his group, keeps close contact with his friends and it appears that his circle of friends keeps on increasing with the inclusion of younger people. I cannot resist reproducing an epilogue that he has written for this article.

An epilogue by Balai Chandra Chakrabarti To “My Education” by Phoolan Prasad

I first met Phoolan at Eden Hindu Hostel of Presidency College when we were in the 3rd year (i.e., after passing the then 2 year Intermediate Course). From day one he was an enigma to us for two divergent reasons - for one part he was a cherubic little boy in simple attire with his Hindi-accented Bengali conversation and for the other which we knew from his classmates in Mathematics Department that he was brilliant in his subject. We had become hard nuts by then after spending two years in Presidency College and Hindu Hostel whereas Phoolan was fresh from a mofussil background – that too a mixture of distant West Bengal and U.P. For my

part there were two separate reasons that led to my intimacy with Phoolan - I was the General Secretary of the Hostel Association with the responsibility of looking after boarders' interests and, more importantly, Mathematics had always been my boggie subject in school where my teacher used to beat me up daily (even sometimes twice in one class period) because I fared poorly in Maths although managed top marks in all other subjects. I failed to score even pass marks in some examinations. Phoolan became popular in the hostel due to his simplicity and smiling demeanour coupled with the Presidency tradition of earmarking a special space for exceptionally brilliant students.

But all that did not deter us from poking fun at Phoolan, all in good humour, of course. He was the 'Prefect' of the ward (only saintly boys used to be chosen for that post by the Superintendent). One of the Prefect's duties was to enquire about the health conditions of boarders suffering from any illness and to arrange for his sick diet for the day. One boy gave him a slip in Bengali "Aami aaj ekti baachhur khaibo (I shall take a calf today)". Perplexed, Phoolan came to me with that prescription and wanted to know what that really meant.

At Swarnamoyee P.G. Hostel we developed a library of interesting Bengali booklets bought from the footpath of Dharmatala St. and used to make some money in the process of lending those to other students, Phoolan being one of the most avid reader-members. Serious students attended our 'adda' for a while and Phoolan was a regular visitor and I suspect he refers to those interesting books while remembering borrowing Bengali novels from us.

I lost touch with Phoolan after we passed out. Our interaction began afresh only some time in 1996 when I visited Bangalore where my son, a designer/artist was working at that time. I knew that Phoolan was then a somebody in IISc. I rang up his Institute and was informed that he was at home then, his residential telephone number was, however, provided. I called up and his wife Mandra took the call, because by then the Professor had left for the Institute. I knew that his wife was from Bihar and, therefore, began in my 'fluent' Hindi. To my utter surprise, Mandra responded in almost fluent Bengali, "Aare Balaida, I have heard of you from Phoolan. My Bengali is better than your Hindi". The second part of our relation started thereafter and has continued till date. The most surprising facet of Phoolan's character is that even after reaching the great height in the international academic world he has strangely remained the old mofussil man looking around in glee to enjoy life up to the hilt.

I shall like to conclude this narrative with a few words about his son Popik (Amritanshu). He was then in the Institute of Mathematical Sciences, Chennai, after doing his Ph.D. from The University of Chicago. Phoolan sent him to Calcutta for spending a few days with us, the main reason being visiting the families of a few of his prospective brides. I remember one incident. The girl's family bungalow was swanky. After talking to the father of the prospective bride I learnt that he was a retired middle level Central Govt. official. In my administrative knowledge, I understood that the fellow had been doing something below his office desk. Popik did not seem to dislike the girl. But her father asked Popik, "when would you become the Director of your Institute"? Popik, as cherubic as his father, shot a return question, "why should I ever be the Director? I want to be an academic and not an administrator". The father was relentless, "the Director's salary is much higher than that of a Professor". Popik only smiled in reply. We left after a sumptuous treat. Coming out, I enquired about his impression and Popik replied in his typically soft voice "uncle, the girl is all right, but her father is bizarre".