

BIRBAL SAHNI: A BIOGRAPHICAL SKETCH OF HIS PERSONAL LIFE

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INTRODUCTION

THROUGH the span of a century, men have arisen now and again who, by their ability, their dint of application and inspiration, have sifted facts of science amidst a maze of confusing evidence, and who have thus left an indelible impress upon the sands of time. Such men have not merely unveiled scientific truths, not only contributed their iota to the sum total of scientific knowledge, but have also added dignity and lustre to the science they have pursued. Birbal Sahni was one among such men. To me, his brother, and one who learnt the first principles of science from him when scarcely of school-going age, his passing away has meant a break, a snapped link with the memories of a cherished past. If this fraternal tribute goes beyond the pale of ordinary biographical sketches, it is because I wish his numerous friends to share certain aspects of his life which even those who were most intimately associated with him could scarcely know of. And it is to these little incidents and details of his personal life that I propose, mainly, to confine myself, for his scientific work will be reviewed by others.

PARENTAL BACKGROUND

Birbal was the third child of our parents, the late Prof. Ruchi Ram Sahni and Shrimati Ishwar Devi. He was born on the 14th of November 1891, at Bhera, a small town in the Shahpur district, now a part of the West Punjab, and once a flourishing centre of trade, which had the distinction of an invasion by the iconoclast, Mahmud of Ghazni. The immediate interest that centres round Bhera is enhanced by the fact that this little town is situated not far from the Salt Range which may be described as a veritable "Museum of Geology". Excursions to these barren ranges, where lie unmasked some of the most interesting episodes and landmarks of Indian geology, were often co-ordinated with visits to Bhera during our

childhood, particularly to Khewra. Here occur certain plant-bearing formations concerning the geological age of which Birbal made important contributions in later years.

Although Bhera became our ancestral home, our parents were at one time settled much farther afield, in fact at the riverine port of Dehra Ismail Khan on the Indus, and later migrated to Lahore.

I learn from his autobiography that father, still at school, was obliged to leave Dehra Ismail Khan owing to reverses of fortune and the death of our grandfather who was a leading citizen of the town. With the change of fortune, life became different and difficult. Undeterred, father walked with a bundle of books on his back all the way from Dehra Ismail Khan to Jhang, a distance of over 150 miles, to join school. Later at Bhera and at Lahore, he distinguished himself as a scholar. He educated himself entirely on scholarships that he won. He was thus brought up in a hard school of life, and was entirely a self-made man.

Father was a person of liberal views, and during his career he became one of the leaders of the Brahmo Samaj movement in the Punjab, a progressive religious and social upsurge which had then freshly taken root. Undoubtedly father imbibed these ideas during his sojourn in Calcutta in his early days. He gave practical effect to his views by breaking away completely from caste. And when the call came, father, then a man of advanced years, stood knee-deep in the sacred mud of the tank of the Golden Temple and removed basket-loads of it upon his frail shoulders to assist in clearing the accumulated silt. His religion knew no boundaries. Always a patriot, he threw himself heart and soul into the struggle for independence and even tasted the severity of the bureaucratic baton at the *Guru ka Bagh*. He fought valiantly for the rights of his countrymen, and was more than once on the verge of arrest.

About 1922, when he returned the insignia of the title conferred upon him by the then government, he was threatened with the termination of his pension, but his only answer was that he had thought out and foreseen all possible consequences of his action. He retained his pension!

It was inevitable that these events left their impress upon the family and were also imbibed by my sensitive brother. Therefore, if Birbal became a staunch supporter of the Congress movement, it was due in no small measure to father's living example. To this may be added the inspiration we derived, even if on rare occasions, from the presence of political figures like Motilal Nehru, Gokhale, Srinivasa Shastri, Sarojini Naidu, Madan Mohan Malaviya and others who were guests at our Lahore house, situated near the Bradlaugh Hall which was then the hub of political activity in the Punjab.

Our mother was a pious lady of more conservative views, whose one aim in life was to see that the children received the best possible education. Hers was a brave sacrifice, and together they managed to send five sons to British and European universities. Nor was the education of the daughters neglected in spite of opposition from orthodox relations, and my elder sister was one of the first women to graduate from the Punjab University.

Such then was the family and parental background which influenced Birbal throughout life. In later years he prided in calling himself a "chip of the old block" which he was in every sense of the term. It can be truly said that he inherited from father his intense patriotism, his love of science and outdoor life and the sterling qualities which made him stand unswervingly in the cause of the country, while he imbibed his generosity and his deep attachments from our unassuming and self-sacrificing mother.

EDUCATIONAL CAREER — ADMISSION TO CAMBRIDGE UNIVERSITY

Birbal received his entire education in India at Lahore, first at the Mission and Central Model Schools and then at the Government College, where father held one of the chairs in chemistry. He gained many academic distinctions, standing first in Sanskrit at the Matriculation examination of the Punjab University and attaining a province position in Intermediate Science.

His partiality for Sanskrit endured till the very end, and indeed, in later years he became much devoted to it.

He graduated in 1911 from Lahore, and in the same year joined Emmanuel College, Cambridge. During those days Indian students obtained admission to Cambridge University through a representative of the Government who sometimes became also their "guardian". When my eldest brother Bikrama Jit took Birbal for admission, Mr. Arnold, who was then looking after the Indian students, said that this was impossible. Disappointed, the two brothers returned to their rooms. Later, however, they personally went to Cambridge and, taking a chance, called on the Master of Emmanuel College, Dr. Peter Giles, an exceedingly kind and sympathetic personality, who was still in charge when I joined the same college in 1919. To their surprise, Birbal was admitted. But within a few days of his arrival his thoughts turned homewards. Life at home had centred mainly around our affectionate mother, and the children were deeply attached to her. Birbal began to miss keenly the family surroundings and associations. Within three days of his arrival at Cambridge, he was back in London, and when our elder brother, who was then studying medicine there, returned from college, he was astonished to find him in his room, looking quite disconsolate.

"I am feeling homesick," said Birbal, almost on the verge of tears. Our elder brother was in a predicament and he tells me that it was no easy task to console Birbal and to make him understand the full implication of his action. Birbal spent that night in London with his brother. It was with much difficulty that his brother was able to persuade him to return to Cambridge. After that Birbal took to Cambridge and his work there so much that he spent the best part of nine years at the Botany School. I have no doubt that the affectionate attitude of his tutor, Dr. Alexander Wood, whom I recall with a sense of deep respect and devotion, was in no small measure responsible for this. Cambridge has many great traditions but I think one of the greatest is the close personal contacts one has there with one's tutors.

Birbal graduated from Cambridge in 1914, and soon settled down to research. Indeed, he had already commenced to take keen interest in research under the inspiring

leadership and guidance of one of the most distinguished botanists of the day, Prof. A. C. Seward. I myself had the good fortune, as a student of botany, to attend Prof. Seward's lectures at the Botany School, Cambridge, and it was not only an inspiration to listen to his discourses on living and fossil plants, but a source of added pride when the name of Birbal, one of his favourite students, was mentioned in connection with the study of the Gondwana and other floras. Prof. and Mrs. Seward had a soft corner for him and always wrote to him in affectionate terms. It was a relationship deeper and more beautiful than between a teacher and his pupil and which, I know, Birbal cherished more than many other things. Birbal's interest and knowledge of Indian living plants was recognized early, for, yet a student at Cambridge, he was asked to revise Lowson's text-book of botany, now one of the widely used books on the subject in Indian schools and colleges.

For his researches on fossil plants he was awarded the D.Sc. degree of London University in 1919. Returning home in the same year he not only continued his investigations, but collected around him a group of devoted students, from all parts of the country, raising high the status of Palaeobotany in India. Early during his career in India, Birbal was paid a great compliment by Prof. Seward when the latter declined to undertake the study of certain fossil collections from India saying that the first right lay with his young pupil. The material ultimately came to Birbal. This paved the way for his future field of research, and thus commenced a long and enduring association with the Geological Survey of India. Times have been numerous when Birbal has gratefully acknowledged this fine gesture on the part of his teacher whom he esteemed and loved beyond measure. And the Geological Survey of India have commemorated him by erecting a bust in his honour. In addition to the numerous palaeobotanical researches that he published, he made important contributions to the problems connected with the age of the Saline Series of the Punjab Salt Range and the age of the Deccan Traps. Even though the controversies relating to these problems are not yet at rest, there is little doubt that his conclusion — that both the Saline Series and the Deccan Traps are of Tertiary age — is widely accepted today.

In 1921 he took charge of the newly opened Botany Department of Lucknow University, as its first Professor. He immediately threw himself heart and soul into the work of organizing. Despite his other preoccupations, he was often seen grinding and making thin sections of fossil plants with his own hands. By hard work and persuasive charm, he built up a reputation for the University which soon became the first centre of botanical and palaeobotanical investigations in India. In 1928 when I returned from Cambridge and stayed with him for a few weeks, I found him as busy as ever with the study of fossil palms and other fossil plants. Even then we sat till late at night — sometimes into the early hours of morning — taking photographs and developing prints, etc., or discussing matters of geological or palaeobotanical interest, interspersed, now and again, with a game of chess, when all else was still in the house!

The University of Cambridge recognized his researches by the award of the degree of Sc.D. in 1929, the first perhaps to be awarded to an Indian scientist. The highest British scientific honour came to him in 1936, when he was elected a Fellow of the Royal Society of London. He was elected Vice-President, Palaeobotany Section, 5th and 6th International Botanical Congresses, 1930 and 1935, respectively; General President of the Indian Science Congress for 1940; President, National Academy of Sciences, India, 1937-39 and 1943-44. In 1948 he was elected a Foreign Honorary Member of the American Academy of Arts and Sciences. Another high honour which came to him was his election as an Honorary President of the International Botanical Congress, Stockholm, 1950, but one with which, alas, he was not destined to be actively associated. As the object of this sketch is mainly to give the more personal details of his life, I need not enumerate here the many other distinctions that were showered upon him from time to time.

GENERAL INTERESTS: ATTITUDE TOWARDS LIFE

Before concluding this brief sketch of his educational and later career, I would mention that, in spite of his academic interests, Birbal was by no means a recluse and he enjoyed in full measure the lighter side of life, though in his own way. When some of the

Indian students at Cambridge staged a fancy dress celebration, he turned up as a *sadhu* (an ascetic), which was not altogether un-symbolic of his inner self. He was extremely fond of games and retained his interest in sports for a long time. He not only represented his school and college hockey XIs but was also very keen on tennis at the Government College, Lahore. At Cambridge he represented the victorious Cambridge Indian Majlis at tennis against the Oxford Majlis. I cannot easily forget the defeat I suffered at his hands soon after my return from England in spite of the fact that I had gained tennis colours at the Imperial College of Science and Technology, London! He sportingly put it down to changed conditions and the grass court! Very few of his friends know what a keen player he was of chess. Whenever we were together, we invariably played chess after dinner, sometimes late into night. And the scores were remembered and carried over for months, till the next game.

INCIDENTS OF YOUTH: EARLY QUEST FOR SCIENCE AND ADVENTURE

There was one incident which has left a lasting impress upon my mind and which shows how early he had acquired his curiosity for the unknown and love of adventure. In 1905 the entire family moved to Murree for the summer. I was then about six years of age and Birbal eight years older. One fine morning he collected a few handkerchiefs and one or two small empty tins and asked my elder sister (two years my senior) and myself to accompany him. Little did we realize what we were in for. We left home quietly, without a soul knowing, and descended into the ravine on the north side of the town. We descended further and further till we reached the stream. The downward journey did not seem too difficult though occasions were numerous when Birbal had to help us across ditches and boulders. In the excitement of the chase all count of time was lost, except when the pangs of hunger made things unbearable. And when we started on the return journey, it was already nearing dark. It became more and more difficult to climb and our brother was faced with the task of first helping one and then the other over the huge boulders which even today appear as mountains in retrospect. Night had already fallen and meanwhile the entire

household was in a state of turmoil. The servants had been sent out with lanterns to look for the young explorers, little knowing where to find them, since no one imagined for a moment that we could have gone beyond the environs of the town. We reached home late at night tired, hungry and with bleeding feet, not to speak of the unrestrained stream of tears rolling down our cheeks, with the best prospect of receiving, in addition, a good talking to, to say the least. But our young brother was quite composed, and when father asked him what he meant by leaving home without permission and taking the youngsters, too, with him, he merely answered that he wanted to collect crabs. This unusual reason almost spelt tragedy for us though ultimately it also proved our saving. "Crabs, indeed!" was father's first outburst and with it he took a step forward. For a moment we thought all was over and our backs began to itch with a queer feeling of expectancy! But such was his own love of adventure and for search after things new, that he immediately checked himself and said nothing more. And as I have mentioned elsewhere, in after-years we accompanied father on many excursions much more difficult and dangerous. The most notable and exciting of these was our crossing of the Machoi glacier not far from the Zoji la Pass in 1911, with little more equipment than rope-made *chappals* for footwear and a local guide. It was here that looking down, we saw in a gaping chasm a horse standing upright, frozen and preserved in its icy grave. As we bent down to peep into the dark, awe-inspiring fissure, it gave us a shudder and a premonition of consequences, unprepared as we were for such an adventure. It was here that Birbal found and collected red snow (a rare snow alga) during the summer of 1911, just before his departure for England. A part of the sample collected was examined by Prof. Seward and is perhaps still preserved at the Botany School, Cambridge. This was a good introduction for the young botanist at Cambridge, for this alga had not been found, if I remember correctly, for a long time past in India.

Besides his spirit of adventure he had in him a liberal measure of mischief in his early days. I remember one summer (prior to about 1908) we stayed at Simla in the house which adjoins the Brahma Samaj and which we shared with another family. In the small plot that lay between our residence

and the Samaj building we had jointly reared a vegetable garden. Somehow our own holiday was cut short, and we had to leave the cool heights of Simla — and of course with it the cucumbers and the half-ripened maize cobs as well. This was too much of a blow, and Birbal conceived the plan to remove all the edible fruit. As if that were not enough, the night prior to our departure, we cut off, under his leadership, the roots of the plants just below the stems with a large pair of scissors. After we left, the plants naturally began to wither slowly, steadily, mysteriously. Was it a fell disease, our erstwhile neighbours thought? They had watered the plants hard enough. Indeed the more they had been watered, the faster they had withered. But our neighbours never knew of the secret till they returned to Lahore! and well remember it even now.

In later years the bent for mischief took a turn for playfulness. Many will remember his favourite toy monkey which toured with him over many continents and with which he often used to amuse children. This monkey was bought in Munich from a pavement vendor. Birbal had seen some children playing with a similar monkey and was himself much amused at it. After ransacking many shops he was able to purchase an exact replica and often went to the garden where he had erstwhile seen the children at play to 'perform' during the lunch interval to the great pleasure of the little ones.

Birbal was of a rather sensitive nature. He formed deep attachments from his early days, which may be illustrated by an incident during his college career. I distinctly recall the occasion when the results of the Intermediate examination, at which one of his close and inseparable friends had appeared, were announced. By an inexplicable stroke of misfortune his classfellow was declared unsuccessful. This created not only a storm in the house, but almost spelt tragedy, because for at least two days Birbal wept like a child and refused to eat. For a number of days his movements caused us anxiety, and it was only very gradually that he reconciled himself to the idea that a friend of his was left one year behind him at college.

I can recall many traits of his early manhood days, but the most outstanding was his desire for equity and fair-play. Partly by virtue of being the eldest brother at Lahore (the eldest was then in England) and partly because of his affectionate

temperament, the younger brothers and sisters recognized him as an impartial arbitrator in the family. Whether it was a dispute about the ownership of a pencil or a book, or as to who should last switch off the light in the cold winter nights, we all looked to him for a decision, and what is more important, everybody abided by it.

TRAVERSES IN THE HIMALAYAS

I have said earlier that although he worked hard as a student and, indeed, throughout life, this was not particularly for achieving university honours. He invariably struck the more difficult and, what might appear to many, the less profitable path so far as immediate results were concerned. Even as a student he made one of the biggest collections of Himalayan plants at considerable sacrifice of his routine studies and examination work. He made numerous excursions to the Himalayas during which Hooker's *Flora of British India* was his invariable companion. He devoted a great deal of time, irrespective of other work, to the investigation of these plants, some of which, I believe, now form a part of the Kew Herbarium. Between 1907 and 1911, I accompanied him on most of these Himalayan excursions and can recall the thrill we experienced when a plant new to the collection, an orchid or a rare species of epiphyte was discovered, and Birbal climbed sometimes at some risk, or helped me with a perch, to capture it. This passion for outdoor life and trekking was acquired early from father who, himself an inveterate walker, carried out traverses on foot across the Himalayas, and invariably took us with him. Among the many traverses that we made, I may mention those from Pathankot to Rohtang Pass; Kalka to Chini (Hindustan-Tibet road) via Kasauli, Subathu, Simla, Narkanda, Rampur Bushahr, Kilba, taking the Buran Pass (16,800 ft. high) in the stride. Other traverses were from Srinagar to Dras, across the Zoji la Pass; Srinagar to Amarnath (height 14,000 ft. with another climb of about 16,000 ft. *en route*); Simla to Rohtang (12,000 ft.) via the Bishlao Pass and thence back to Pathankot. We trekked across the length and width of Kashmir, collecting plants.

On his return from Europe, Birbal made long traverses independently, the most im-

portant of which was from Pathankot to Leh in Ladakh in 1920. The route followed during this traverse, carried out in the company of the late Prof. S. R. Kashyap, himself a keen botanist, was Pathankot-Khajiar-Chamba-Leh and thence back via the Zoji la Pass-Baltal-Amarnath-Pahalgam and finally Jammu. This tour lasted over several weeks and resulted in a rich collection of Himalayan plants.

Between 1923 and 1944 he made a number of other traverses in the Himalayas, accompanied at times by his wife. Of these I will mention the one undertaken in 1925 between Srinagar, Uri, Poonch, Chor Panjal, Pal Gagrian and thence to Gulmarg. During the course of this trek they were marooned on the snow at Chor Panjal and arrived at Gulmarg after much hardship. In 1944 he repeated the traverse of 1923, then left unfinished owing to unavoidable circumstances. This time he was also accompanied by Prof. Jen Hsü and another colleague from the University, Dr. R. D. Misra. Their route lay between Gujrat, Bhimbar, Nowshera, Rajauri, Thanamandi, Poonch, Aliabad, Uri and finally Srinagar.

It was these treks through the Himalayas which gave him that expansive horizon, breaking through the bounds of insularity, and which enabled him to view palaeobotanical and geological problems in their widest perspective, so essential to their correct understanding. It was these accumulated experiences and his geological background, indispensable for palaeobotanists, which he brought to bear upon his views on the origins and distribution of fossil floras, and upon the geographic orientation of ancient continents and seas.

WIDE SCIENTIFIC INTERESTS

Birbal's interests were wide and, if I might say so, Lamarckian in scope. To this his discovery of the coin moulds at Rohtak in March 1936 bears witness. This archaeological discovery by a palaeobotanist, with the stroke of a geologist's hammer, symbolizes the vitality and versatility of the man. It is a tribute to his genius that not only did he make this unique discovery, but also threw himself heart and soul into the study of these coin moulds. He published his results in a masterly monograph in the journal of the Numismatic Society in 1945, setting, according to a numismatist, a new standard of research in the subject. For

this purpose he set himself to the study of some of the Indian coin moulds as well as those from China. He took keen interest in all geological problems, even those that had no direct bearing upon his palaeobotanical work. But it must be said that, if one scratched him deep enough, one always found a botanist in the core.

Apart from his scientific interests, he was much inclined towards music and he could play on the *sitar* and the violin. He was also interested in drawing and clay-modelling and he utilized opportunities, whenever he was free from his other work, to visit the Arts School, Lucknow, for further acquaintance with these arts.

INDEPENDENT OUTLOOK

There was another aspect of Birbal's attitude towards life which comes forcibly to mind and which shows his independent outlook and his love for the science to which he remained devoted throughout life, and in which he was subsequently to make a name for himself and for his country. Father was one of those disciplinarians from whom a mere suggestion was usually enough to settle where the decision lay. He and his friends had sometimes discussed what career the sons were to follow. In the summer of 1911 came Birbal's turn to proceed to England for higher studies. Father had planned the Indian Civil Service as a career for him, not because he wanted his son to add another rod to the "steel frame" (far from it), but for reasons which I need not dilate upon, though they were quite in conformity with his political attitude. In short, Birbal was asked to prepare for his departure. There could not be much argument about it, but I distinctly remember Birbal's answer: that if it was an order, he would go, but that if his own inclinations in the matter were to be considered, he would take up a research career in Botany, and nothing else. Though this astonished father for a while, yet he consented, for in spite of his strong disciplinarian attitude, he gave us perfect freedom of choice in essential matters. Thus it was that my brother took up a career as a botanist. In this case, perhaps, father's acquiescence was not so difficult, as he had been himself always keen on research and, indeed, after years of service as a professor of chemistry, he went to

Manchester where he carried out investigations on radio-activity with Prof. Ernest Rutherford, results of which were subsequently published. Indeed, Birbal helped him there in photographic and other incidental work during the vacations, though he had himself to take the Natural Science Tripos, Part II, in the same year. It scarcely needs repetition that father's example gave the incentive and inspiration for research to all those around him, and not only that; he inculcated a spirit of fearlessness, shedding the lustre of freedom around himself which played its own part in the independence movement.

Although Birbal gained many academic distinctions, he did not, I think, particularly seek them. He invariably had an independent outlook where such matters were concerned, irrespective of consequences. Once again I might illustrate his way of thinking by an incident during his B.Sc. examination of the Punjab University. Sitting down to the Botany examination he found that the question paper set was an exact, or almost exact, replica of the paper set at a previous examination. He thought that such a question paper might give undue advantage to some and an undue handicap to others, and that, in any case, it could not be a fair test of knowledge. He got up, and handing the (blank) answer sheets to the invigilator against all persuasion, walked out of the hall in protest. When he came home within less than half an hour of the commencement of the examination and met father at the doorstep, it was a worthy sight! The surprised parent could not decide whether to show anger or laugh at the situation, such as even he as a professor of long standing had never been faced with—a situation comic enough, but, nevertheless, potentially fraught with serious consequences, for the University was in no way bound to set a fresh paper to please the impetuosity of a young student. The matter went up to the University Syndicate. Birbal won the day, for it was decided that no examiner could be so easy going or disinterested as to pick up an earlier paper and inflict it upon the students, almost *in toto*. A fresh paper was set for him. This shows how well he held the courage of his convictions, where even an older man might have been afraid to lose a year so unnecessarily, being well able to answer the questions set.

MARRIAGE

In 1920 Birbal married Savitri, daughter of a close friend of father. His wife stood by him through thick and thin and was a true companion to him throughout life. Even now, with the burden of a deep sorrow in her heart, she looks after the priceless legacy which her husband has left to the nation—the Institute of Palaeobotany at Lucknow.

She was constantly with him whether at home or abroad, and they both had many unique opportunities of visiting foreign universities and institutions and of meeting the leading scientists of the day. The last of such visits was to the U.S.A. and Europe.

With his own artistic bent of mind he planned and built a beautiful home on the banks of the Gomti, where friends from all parts of the world were frequent visitors and where he lived the best part of his busy and unostentatious life.

THE INSTITUTE OF PALAEOBOTANY

This account would be incomplete without a few words about the Institute of Palaeobotany which is unique in Asia. For creating this, Birbal sacrificed everything he possessed. Furthermore, it is due, in a large measure, to the sympathy, dynamic personality and keen interest taken by Dr. S. S. Bhatnagar that the Institute is what it is today. It is also fortunate that all the scientific work of the Institute is being continued by a band of devoted students of Birbal and by others, among them Dr. R. V. Sitholey, Prof. Jen Hsü, Dr. K. R. Surange, Messrs R. N. Lakhnupal, D. C. Bhardwaj and M. N. Bose, all of whom have a big responsibility to shoulder.

RELIGIOUS VIEWS

Birbal rarely discussed religion with anybody. He was religiously inclined but not in the dogmatic sense of the term. He expressed his faith in his lasting friendships, his generosity (for those whom he helped are many) and, above all, by his care and forethought in the small matters of life, irrespective of individual status. I recall one little incident. It was when we were on one of our Himalayan traverses with father, on the Hindustan-Tibet Road, proceeding towards Chini. The road from Narkanda to Baghi lay through a thick forest

infested with bears and other wild animals as, indeed, the name Baghi suggests from *bagh*, a leopard. We had started late for our next camp. Reaching the edge of the forest when darkness was already falling fast, we realized that one of our porters had not reached. Nor was he likely to reach soon. Birbal, taking the *khad*-stick from father, soon disappeared alone into the jungle, and though quite late, safely brought back the porter who had had an attack of malaria. There was nothing too small, nor anybody too insignificant for him to take an interest in, or help.

LENGTHENING SHADOWS

Birbal was always a dreamer and a visionary. Soon after his return from Cambridge and while I was yet a student there, he wrote to me that he had plans to explore the trans-Himalayan regions and even the unknown islands of the Pacific. It became, of course, impossible for him to give tangible shape to all these ambitions, for he was always steeped in his work. Quite early too the idea of founding the Institute of Palaeobotany took shape in his mind. Towards this end he worked incessantly, enriching his collections of fossil plants by field work and exchange and by building up the finest library for palaeobotanical work in India. The Institute was founded on the 10th September 1946. The foundation-stone of its new building was laid on the 3rd April 1949 in the presence of a galaxy of scientists and men of letters, by the nation's pride and idol, Jawaharlal

Nehru, himself a student of science and a near contemporary of Birbal at Cambridge. Such, however, was the cruel irony of fate, that on the midnight of 9th-10th April, within less than a week of this ceremony, ere this tender sapling had even taken root, the gardener was snatched away, and laid to rest in the infinitude of eternity. And such was the affection and high esteem in which he was held that he was laid to rest within the precincts of the Institute itself, a homage unique and unparalleled in the history of perhaps any town in India to a scientist. It seems, looking in retrospect at the rapidity with which happy and tragic events followed each other, as if Birbal had been pre-ordained only to fulfil a mission—and depart. To those who knew him and loved him, this cruel and untimely blow meant not merely the passing away of a great scientist, a philanthropist and a patriot, but the end of a beautiful and unbounded friendship. The unscrutable plan of the Architect is, however, different to ours. The beginning and the end are, after all, mere human conceptions, one likes to think. For who can probe into their eternal mysteries and unmask their hidden secrets—

Who knows the Final End
 and who the Morning Glow?
 The darkest depths of night
 unfold the brightest day;
 The ripened acorn tumbles
 always but to grow;
 Were Life and Death not moulded
 in one, common, clay?