Made in India

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The Story of Desh Bandhu Gupta, Lupin and Indian Pharma

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and
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juggernaut

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To my parents by birth and marriage for the inspiration to read, write and dream big.

MANISH

To my mother, who continues to inspire me long after she's gone.

SUNDEEP

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Abbreviations

AAM	:	Association for Accessible Medicines
AGM	:	Annual general meeting
AI	:	Artificial intelligence
AMPG	:	Above my pay grade
ANDA	:	Abbreviated new drug application
API	:	Active pharmaceutical ingredient
BES	:	Birla Engineering School
BCG	:	Bacillus Calmette–Guérin
BITS Pilani	:	Birla Institute of Technology and Science, Pilani
CCI	:	Controller of Capital Issues
CDMO	:	Contract Development and Manufacturing Organization
CDSCO	:	Central Drugs Standard Control Organisation
CITU	:	Centre of Indian Trade Unions
CNS	:	Central nervous system
CRO	:	Contract research organizations
CSIR	:	Council of Scientific and Industrial Research
DARPA	:	Defense Advanced Research Projects Agency
DMF	:	Drug master file
DOTS	:	Directly observed treatment, short-course
DPCO	:	Drugs (Price Control) Order
DPI	:	Dry-powder inhaler

EBITDA	:	Earnings before interest, taxes, depreciation and amortization
ESOP	:	Employee stock option programme
EU	:	European Union
FDA	:	US Food and Drug Administration
FERA	:	Foreign Exchange Regulation Act
GDP	:	Gross domestic product
GDUFA	:	Generic drug user fee amendments
GMP	:	Good manufacturing practice
GoI	:	Government of India
HR	:	Human resources
IAF	:	Indian Air Force
IAS	:	Indian Administrative Service
ICI	:	Imperial Chemical Industries
ICMR	:	Indian Council of Medical Research
ICT	:	Institute of Chemical Technology
IDMA	:	Indian Drug Manufacturers' Association
IPL	:	Indian Premier League
IPO	:	Initial public offering
IPS	:	Indian Police Service
IRF	:	India region formulations
ISKCON	:	International Society for Krishna Consciousness
JIT	:	Just-in-time
LCTL	:	Lupin Chemicals (Thailand) Ltd
LHWRF	:	Lupin Human Welfare and Research Foundation
M&A	:	Merger and acquisition
MD	:	Managing director
MDI	:	Metered-dose inhaler
MNC	:	Multinational company

MSSIDC	:	Maharashtra Small Scale Industrial Development Corporation
NBE	:	New biologic entity
NCAER	:	National Council of Applied Economic Research
NCE	:	New chemical entity
NCL	:	National Chemical Laboratory
NIH	:	National Institutes of Health
NPPA	:	National Pharmaceutical Pricing Authority
NSF	:	National Science Foundation
OMJD	:	Outside my job description
OPPI	:	Organisation of Pharmaceutical Producers of India
ORG	:	Operations Research Group
OTC	:	Over the counter
PBM	:	Pharmacy Benefit Manager
PE	:	Private equity
PFY	:	Polyester filament yarn
PIO	:	Person of Indian origin
PSU	:	Public-sector undertaking
R&D	:	Research and development
ROW	:	Rest of the world
SEBI	:	Securities and Exchange Board of India
TB	:	Tuberculosis
UDCT	:	University Department of Chemical Technology
VC	:	Venture capital
WHO	:	World Health Organization
WTO	:	World Trade Organization

Introduction: Three Journeys

Veer bhogya vasundhara.
(The brave inherit the earth.)

– SHIV PURANA

Shikwa-e-zulmat-e-shab se to behtar tha ki apne hissey ki koi shama jala dete.
(Instead of lamenting the darkness of the night, it's better to light a candle of your share.)

– AHMED FARAZ, Poet

In 1948, a father from the Rajasthani village of Rajgarh carried his injured son on his shoulders for three hours to reach the nearest hospital, about 20 km away. For the ten-year-old boy who had broken his ankle, the treatment was too late and too costly to prevent a lifelong limp. Forty years later, that boy, Desh Bandhu Gupta (DBG), now founder of the pharmaceutical company Lupin, took three-and-a-half hours to cover the 5,800 km from London to New York on the Concorde. He then travelled by helicopter from JFK Airport for a three-hour meeting with Abbey Butler, the chairman of the major pharmaceutical firm FoxMeyer, after which he immediately returned to Mumbai for another important meeting.

These two trips capture three intertwined journeys.

The first is that of Indian pharma: the luck, skill and choices that enabled a few Indian companies to make medicines affordable worldwide. The average American takes five made-in-India pills every day. The second is that of Lupin, a company started under India's Licence Raj, whose revenues have increased a hundredfold since 1991 and that now sends 20 billion pills to America every year. The third is the journey of DBG, a village boy who grew up without electricity or a toilet and went on to become a teacher, professor and pharmaceutical employee before founding a company worth $10 billion. These three journeys fuelled each other, defied India's economic stagnation after Independence and demonstrated the impact of entrepreneurship on public health and economic progress.

The global pharmaceutical industry, a formidable force in extending human longevity, began with attempts to treat infections. Nathan Rothschild, once the world's richest man, died in 1836 of an infected abscess that, today, could have been cured by an antibiotic costing ₹20. Antibiotic drugs were first developed in the West, but they were unaffordable for most of the world. India's pharmaceutical industry made medicines affordable, tackled neglected diseases and extended lives. Their sales have grown from ₹10 crore in 1947 to over ₹5.2 lakh crore ($60 billion) today, while saving global consumers vast sums of money ($1.5 trillion in the last ten years in the US alone). The massive global reduction of tuberculosis (TB) and HIV/AIDS mortality would have been impossible without Indian pharma companies Lupin and Cipla becoming the world's largest producers of TB medicines and antiretrovirals. Of the 700 US

Food and Drug Administration (FDA)-approved factories that sell medicines in the US, a third are located in India.

The philosopher Schopenhauer distinguished between talent and genius: Talent hits a target that no one else can hit; genius hits a target that no one else can see. The co-creators of Indian pharma – Yusuf Hamied (Cipla), Anji Reddy (Dr. Reddy's), Parvinder Singh (Ranbaxy), Dilip Shanghvi (Sun), Ramanbhai Patel (Zydus-Cadila), Habil Khorakiwala (Wockhardt) and DBG (Lupin) – matter more to India than their companies' revenues, exports or profits because they saw something no one else did. They raised India's soft and hard power, demolished the myth that multinationals possessed unfair advantages over Indian companies, and ended pessimism about India's ability to export goods. China and India had the same per capita income in 1990, but China's is now five times higher, partly because it is the world's factory. Yet India has become the world's pharmacy: Nearly half of the 400 billion pills Americans consume every year are made in India, as are 60 per cent of the world's vaccines.[1] This is valuable because a medicine must clear a high bar of trust in development and manufacturing before it is available for consumption.

DBG often acknowledged that Lupin was a child of brave policy choices made by two governments on opposite sides of the planet. The Indian Patent Act of 1970 replaced patents on products with patents on processes (how products were made). The US Hatch-Waxman Act of 1984 opened the American pharmaceutical market to generic drugs. As Indian drugmakers used the Indian Patent Act to replace expensive foreign medicines with affordable ones made in India, they built muscle memory – the chemistry, manufacturing, and research skills – to capitalize on the American opportunity created by the second Act.

As ageing populations raise global pharma spending, India must continue advocating for policy interventions that increase drug affordability. The $2.62-per-pill launch price of heart medicine Crestor twenty years ago is now down by 90 per cent. Estimates indicate that generic versions of injectable semaglutide (a weight-loss medication) will reduce the drug's current price by 80 per cent. Pharmaceuticals is one of India's two most globally recognized industries, with sales in over 200 countries, but its singular challenge for the future is shifting from volume (half of the world's pills produced) to value (5 per cent of the world's medicine sales). While the industry confronts many challenges – regulation, tariffs, competition (mainly from China), research funding, biology and artificial intelligence (AI) – that promise a future different from the past, the outlook is bright.

The second journey is that of Lupin, the world's largest maker of TB medicine, whose footprint across geographies, diseases and products has evolved over six decades. This adaptability stems from the successful navigation of multiple management transitions across professionals, families and generations; all of DBG's four brothers were initially part of Lupin but established independent companies before Lupin's initial public offering (IPO). Lupin also overcame business challenges to emerge stronger: falling profits in 1989, a near-death experience with diversification in 1993, and profit and quality challenges in the years following DBG's death. While the specific solutions to each episode differed, the comeback strategy remained consistent: return to basics, confront the pain head-on and invest in the future.

The third journey is that of DBG: a classic hero's journey where a man from humble beginnings, through grit, intelligence and luck, builds an empire. He confronts monsters in the form

of the Licence Raj, financial ruin and personal tragedy. He finds strength within himself and in his family, mentors and loyal team. And ultimately, he creates a legacy that outlives him. His life is significant not because he was among the richest men in India when he passed away, but because of the distance he travelled from where he started. Primitive medical care in his village – plausibly potent fuel for his later ambitions in medicine – resulted in two siblings dying as infants, a friend dying of TB in school and his own lifelong health challenges.

DBG was an unlikely entrepreneur, given his inventory of role models, resources and timing. His father, grandfather and great-great-grandfather were teachers in village schools, government colleges and elite private institutions with a 'security of salary' mentality that led DBG to start his career in teaching. His father could not afford the fees for his son's master's degree at Birla Institute of Technology and Science Pilani (BITS Pilani). DBG became an entrepreneur under the Licence Raj when connections mattered more than courage or competence. However, he was an entrepreneur by temperament; childhood accounts identify curiosity, ambition, persistence, hard work, relationship building and challenging authority as early skills.

DBG wandered widely before founding Lupin in 1968, when he was thirty; his five jobs included schoolteacher, college lecturer, university professor, Indian pharma company salesman and multinational pharma company manager. Many people wander, searching for their destiny and for themselves. But there is courage and purpose in the wandering of entrepreneurs like DBG captured by the poet Ghalib: *Manzil to milegi bhatak kar hi sahi, ghumrah to woh hain jo ghar se nikle hi nahi* (By wandering we find our destination, lost are those that don't leave home).

After completing his master's degree in chemistry from Jodhpur, DBG returned to his village to teach at the government school where he had studied, as he was unable to find a job. However, he soon relocated 35 km away to teach at Alwar College, where he had earned his bachelor's degree. As an aunt recalled, '*Jahan seekhyo, wahan padhaayo* (He taught where he studied).' Within twelve months, he moved another 160 km to be an associate professor at BITS Pilani, the institution where he had secured admission for his master's degree but could not afford. Still restless, the newly appointed teacher cleared the Indian Air Force (IAF) exam while at Pilani but was medically disqualified due to his limp. His disappointment was compounded when administrators at Pilani asked him to resign or face termination for taking the Air Force exam without permission. DBG dug in his heels, saying nobody needed permission to serve their nation. The college fired him. Being let go by an institution unwilling to tolerate free spirit placed the future entrepreneur in the company of notable figures such as Michael Bloomberg, Walt Disney and many others. But DBG's wandering was not done.

Unknown to him, being a chemistry professor was fertile soil for entrepreneurship in medicine – India's first pharmaceutical company, Bengal Chemicals, had been started in 1892 by a chemistry professor. The founders of Cipla, Alembic, Novo Nordisk and Biogen were also chemistry teachers. But DBG had not yet given himself permission to be an entrepreneur – the eye cannot see what the mind does not know – and he needed more experience. Fate cooperated in 1960; his firing from BITS Pilani took him to two pharmaceutical jobs 1,250 km away from his *janmabhoomi* (birthplace), the economically underdeveloped Rajgarh, to his *karmabhoomi* (workplace), India's commercial capital and pharmaceutical hub, Mumbai.

DBG's first job at Khandelwal Labs came through his Marwari community network. The next few years were an excellent apprenticeship that exposed him to pharmaceutical sales and the subservient role of Indian companies to multinational pharmaceutical companies, for whom they converted and packaged imported chemicals into finished doses. He was a quick learner and a hard worker, but the family business was not a meritocracy. The old guard, threatened by his rising stock, manipulated his banishment to a company backwater. DBG asked the owners to intervene, but they did not. The Khandelwal Laboratories's owner's decision to ignore a strong performer being sidelined by petty politics left a lasting impression on DBG, shaping his approach to talent and forging his determination to make Lupin a kind, loyal and fair employer.

His final stop before Lupin was the British company May & Baker (now Sanofi). The contrast with Khandelwal Labs was stark – the organizational structures, human resources (HR) processes and financial resources felt empowering. The downside of these processes was slow decision-making in India and important decision-making in London. Fate was forcing the young man's hand by presenting the contrast in relative strengths and weaknesses between an entrepreneurial Indian company and an institutional multinational. DBG realized his *fitrat* (inner nature) and *manzil* (destination) lay in creating a company rather than working at one. As Red, played by Morgan Freeman, says in *The Shawshank Redemption* (1994), 'Some birds aren't meant to be caged, that's all. Their feathers are just too bright.'

DBG first quit May & Baker in 1967 but withdrew his resignation when his boss suggested it would be irresponsible, given his recent marriage. Fate conspired again – his brother was

a student at India's leading institute of chemical technology, the University Department of Chemical Technology (UDCT, now Institute of Chemical Technology [ICT]) in Mumbai, giving DBG and his hungry mind access to the library and a new world of possibilities in the evenings and on weekends. Unlike his family of teachers, his wife Manju came from a family of entrepreneurs and understood that the king of a small kingdom was still a king. Manju recognized DBG's unhappiness at May & Baker and encouraged him to pursue his dreams. She handed her husband her father's wedding gift – a fixed-deposit certificate for ₹5,000 – and told him, 'It's time.'

This was the nudge DBG needed. He resigned the next day from May & Baker for the second and final time. While there is no record of his feelings that day, he probably felt the elation at discovering purpose as articulated by Winston Churchill in his memoir *The Second World War*: 'I have a profound sense of relief … I felt as if I were walking with Destiny and that all my past life had been but a preparation for this hour.'[2] Since new licenses were hard to come by, DBG's entrepreneurial journey began with buying an existing company. The company, called Lupin, was named after a flower with medicinal benefits that also enriches its environment. Unlike other entrepreneurs, DBG did not get to name his startup, but the symbolism of the flower resonated with his values. In serendipitous synchronicity, Kashmir, the only place in India where Lupin flowers grow naturally, became a favourite holiday destination for DBG.

DBG had his share of personal challenges. His village childhood, marked by poor healthcare, led to lifelong struggles with tinnitus (a constant ringing in the ears) and hearing loss (that created stress for an extrovert who thrived on company) – the result of

his eardrum being damaged by an amateur village ear cleaner. His broken ankle in childhood resulted in a lifelong limp caused by a two-inch shortening of one leg following delayed treatment. He also struggled with heart disease and periods of poor mental health, including bipolarity and depression. Ironically, despite a disciplined regime of diet, exercise, spirituality and meditation, this doyen of pharma spent his last few years taking ten pills a day.

He had a complex relationship with his father that began with defying him over his college subject choice, continued with DBG disregarding his father's early advice against moving to Mumbai, quitting his multinational pharma job, shutting down his startup and returning to a stable job. This defiance led to his father's refusal to join Lupin's board; DBG asked his businessman father-in-law to join instead. The father–son relationship healed in later years, and DBG was shattered when he lost his father (and youngest brother) in an Indian Airlines plane crash in 1993.

These challenges did not stop him from building a great company and taking care of his family (he relocated all four of his brothers to Mumbai to work at Lupin, arranging their marriages before seeding them with independent businesses and buying their first homes) and empowering his children (two of his children are doctors, and the other three have master's degrees). He was always in a rush; after multiple accidents while driving his car, his wife Manju banned him from driving and insisted on a driver. He refused to slow down; he would now jump out of the car in traffic jams, change into sneakers conveniently kept in the trunk and start walking.

Lupin's journey began two decades into two risky experiments – one political and the other economic – that India undertook in 1947. The political experiment – no country before had given everybody the right to vote from the time of its birth – has paid off spectacularly with India creating the world's largest democracy on the infertile soil of the world's most hierarchical society. But India did not create the world's largest economy because its economic experiment – the Licence Raj – blunted entrepreneurship, stunted capital markets and reserved 'the commanding heights of the economy' for the government. This sabotaged the shift out of farms, fostered export pessimism and kept India poor. But DBG defied the Licence Raj odds: Without connections or money, he created a large, valuable and global company through courage, persistence and hard work. Like animals bred in captivity that struggle to survive in the jungle, most companies successful in the Licence Raj era saw downslides after 1991 because they failed to respect talent, borrowed or stole their equity from nationalized banks, or diversified into too many businesses.

The last two decades of entrepreneurial stories have been dominated by Silicon Valley narratives spanning a broad arc: rags-to-riches immigrant tales, companies' near-death experiences, David versus Goliath battles, the manager-versus-entrepreneur dichotomy and the unlikely gambles that paid off. The attributes of each founder – the raw intelligence of Google's Larry Page and Sergey Brin, Elon Musk's long-term thinking, Steve Jobs's knack for predicting what people wanted before they knew it themselves, Mark Zuckerberg's ability to pivot a multibillion-dollar company and Jeff Bezos's 'underdog mentality'[3] – feel different from DBG's story because of scale and era. A biographer must be mindful of historian Braudel's

warning against 'fireflies and froth' – events that feel urgent but are not important – and exercise caution with the disease of presentism that propagates the belief that today's circumstances are somehow more special, unique and different from any in the past.

DBG's story prompts reflection about entrepreneurship. What is the best academic and professional path for a first-generation entrepreneur with no money? Is the role of the government setting things on fire or creating the conditions for spontaneous combustion? Is the most critical choice people or products? Are the sources and manifestations of innovation in business and technology different from those of creativity in the arts? What is the difference between the two kinds of companies – a baby (small that grows) and a dwarf (small that stays small) – that an entrepreneur can create?

There are no definitive answers to these questions. But there is something special about entrepreneurs who convince the world to join the good fight and change it. Writing this book made three things clear. DBG was a good ancestor who left the world a much better place than he found it. Lupin now makes medicines at scale for the planet's population. And Indian companies have made medicines accessible and affordable in ways that Western companies never would.

And that's where the three journeys of this book begin.

DBG Early Years

1938–1968

1

Rural Rajasthan: Rough and Tough Childhood

Jo tujh se lipti bediyaan samajh na inko vastra tu, ye bediyaan pighal ke banale in ko shastra tu.

(Don't mistake the chains that bind you for clothes. Melt these chains into weapons.)

– TANVEER GHAZI, Poet

Udyamah sahasam dhairyam buddhih saktih parakramah,
Sadete yatra vartante tatra deva sahayakart.

(Hard work, risk-taking, patience, intellect, strength, and prowess are six human qualities, which, if present in an individual, even God extends help.)

– MAHA SUBHASHITA RATNAKARA

DBG was born in 1938 in the village of Rajgarh, in Rajasthan's Alwar district. It was a good year for Indian political freedom: The fifty-first session of the Indian National Congress met at Haripura near Surat to reinforce the non-negotiability of

Poorna Swaraj; the seven provincial governments elected that year demonstrated that Indians could rule; and the Lahore resolution, which would make India's painful partition inevitable, was still two years away. However, 1938 was a challenging year for Indian economic freedom. Jawaharlal Nehru was appointed as the chairman of the Indian National Congress's National Planning Committee, whose recommendations became the basis of the party's Avadi Resolution of 1955. These events marked the transition from a pre-Independence vision for a planned economy to the formal adoption of a socialist framework. This policy created an economic regime hostile to private enterprise, capital markets and first-generation entrepreneurs. For decades, until liberalization in the early 1990s, this economic regime ensured India delivered slow growth because it handicapped India's labour without capital and its capital without labour. But an unintended consequence was the birthing and growth of Indian pharmaceuticals.

Where did DBG's ambition come from? If ambition is an inordinate and necessary desire to achieve great things, is it innate or taught? Does it come from being around the right role models? These questions are at the core of education, evolution and progress. Some believe ambition comes from a moral foundation developed in early childhood. Others believe it comes from surrounding oneself with ambitious people. DBG came from a nondescript village with no ambitious role models, yet humanism and work ethic were deeply ingrained in him.

For an ambitious boy with stars in his eyes, Rajgarh could not have been an easy place to grow up. In the 1940s, life was

not all that different from how it had been in the nineteenth century. DBG's home had no electricity or toilet, and Rajgarh's temperatures were extreme, reaching 50°C in summer and falling to 0°C in winter. Public infrastructure, including running water, sanitation, electricity supply and phone connectivity, was missing. As in most villages in the hot and dusty plains of North India, the primary occupation was farming. As seems inevitable in most parts of India in that era, Rajgarh society was riven by class, race and caste divides (between Rajput, Baniya and backward castes). Rajgarh could have been what Babasaheb Ambedkar had in mind when he described Indian villages as 'dens of ignorance, narrow-mindedness, and communalism'.[1] In stark contrast to the living conditions in Rajgarh, the maharaja of Alwar lived in gilded splendour, had armies of liveried servants and spent lavishly. French Jeweller Cartier even opened a store in Delhi thanks to the patronage of rulers like him.

Although recent infrastructure, including a railway station and an expressway connecting Delhi to Mumbai, has reduced the distance and the pain of getting there, Rajgarh still feels frozen in time. An abandoned fort on a hillock, most of it wrenched out by the vicissitudes of time, is the town's high point, visible from every direction and looming large over every home. Remnants of a moat and a wall, constructed to protect the village from intruders, are a reminder and symbol of an insular and feudal past.

Rajgarh today spans only 6 square km and has a population of 40,000 (five times larger than when DBG lived here), making its narrow lanes perpetually crowded. The satellite TV antennas dotting the skyline, plastic water tanks on every roof and the ubiquitous mobile phones in every hand are clear symbols of creeping modernity. The rising aspirations are clear: Many parents

send their children to schools in Alwar, even though Rajgarh itself has nearly twenty-five. Eager mothers today proudly speak about sons and daughters who have gone off to work for firms like Capgemini and TCS in Noida or Bengaluru. But many more youngsters sit at intersections with snappy Bollywood or football-inspired haircuts and clothes, their mouths stained with *paan* masala or a *beedi*, absorbed in their smartphones, unemployed or unemployable. Indian villages continue to be burdened with problems of education, jobs, social mobility and dated expectations from women and youth. It is hard for young people there to imagine a different future. Rajgarh's fortunes have not changed significantly since Independence; for the town's bright young people, salvation lies in migrating to larger cities to pursue higher education and employment.

DBG often sang a song from the movie *Hum Dono* (1961): '*Main zindagi ka saath nibhaata chala gaya, har fikr ko dhuein mein udaata chala gaya, barbadiyon ka sog manana fizul tha, barbadiyon ka jashn manaata chala gaya* (I kept travelling with life and let worries go up in smoke, it is a waste to worry about destruction, so I kept celebrating destruction).' In 1958, when the twenty-year-old left his village and the comfort of a loving, even if poor family, choosing to replace fear with optimism, one can't help but wonder what drove his choice. What kind of India was he stepping into?

Around the time of DBG's birth, in 1938, the first Indian governments had been elected in the provinces, and the Lahore session of the Muslim League had passed the Pakistan Resolution. The Satyagraha and Quit India movements were gaining force. India's key indicators were painful, reflecting decades of British exploitation. When DBG was born, life expectancy according to various estimates was twenty-seven years, per capita income was