
In the Gardens of my Heart
The story of a Pakistani American Entrepeneur
RASHID N. KHAN

Edition 1: As of August 2012

Note: This book is a work in progress. This edition contains
all the chapters Completed as of August 201.

Dedication

This book is dedicated to the memory of my late mother, Begum Mustafai Nisar Khanum, and my aging father Nisar Ahmed Khan. By the example of their simple but eventful lives they instilled in me the love for working hard, the virtues of patience and the rewards of unyielding persistence.

"Full many a gem of purest ray serene
The dark, unfathomed caves of the ocean bear
Full many a flower is born to blush unseen
And waste its sweetness in the desert air"

The Elegy by Thomas Gray

Preface

Welcome to my book "In the Gardens of My Heart"!

This book is a bit unusual because it is being published online and incomplete. The reasons for this are described in the end of my bio in "About the Author".

I want to mention a few things that will hopefully make reading this book a more enjoyable experience for you and help you better understand it.

1. Please make sure that you subscribe to the book by clicking the Subscribe button on the top right of each page and providing your email address. That will activate email notifications whenever a new chapter is published so you can keep up with the story. My commitment to you is that we will not disclose or share your email address with anyone. And you can un-subscribe anytime you want.

2. As explained in the first chapter "The Gardens" the book combines my personal and professional experiences. Many readers may get concerned when I use some technical terms. However, please note that you do not need a technology background to understand the book. Indeed, my hope and desire is that even non-technical readers be able to follow and fully understand what I am trying to say. If you find a technical term or description confusing, or you do not know anything about a technical device such as an "oscilloscope", please just ignore it. You will still be able to understand and follow the book.

3. Having said that, if you do find some technical comment or product name confusing, please let me know and I will do my best to simplify or explain it better.

4. There is no charge or fee to read this book. I simply request that you promote the book by sharing the URL http://www.gardensofmyheart.com with all your family members, friends and colleagues. Nothing makes an author more happy and motivated than the knowledge that a large number of people are reading what he or she has written.

5. I welcome your comments and feedback. The fact that I am neither a professional writer nor did I hire the services of a ghost writer or a professional editor makes it even more important to get your feedback. Please use the Comments capability at the bottom of each page to provide feedback about the content, grammar or typos etc.

6. In this book I have tried very hard to honestly present all the good or bad facts and events of my life without any fudging. I run the risk of offending some people or embarrassing them. I have used real names throughout except for some individuals or

organizations who I did not want to embarrass or offend. The goal of the book is to present the life and experiences of a small-time entrepreneur which will hopefully entertain the readers or help them in their own endeavors. It is not to embarrass or offend anyone. If I have erred in this and have offended anyone, please let me know and it shall be corrected. I would like to apologize in advance to anyone who I may have offended.

7. On a similar note, some sections of the book may be embarrassing to members of my family, especially my adult daughters for whose benefit the book is being written. Many children are shy and embarrassed even by the ordinary actions or their parents. In this book I have mentioned some events when I was a young man from a conservative society who is suddenly, and without much guidance or supervision, exposed to the tempting pleasures of Western culture. This resulted in one or two incidents in my life that were embarrassing and awkward at most. I have honestly written about these incidents as they explain how I handled the "culture shock" that millions of immigrants from conservative societies face when they come to the US and how they handle the transition. While with 20/20 hindsight I would handle some of these incidents differently, I am not ashamed of anything that I have done and happy with the way I survived the temptations.

8. As noted previously, the book will be published online in a piecemeal fashion. All the chapters I have written to date are included in the first installment. After that I will publish one or two chapters every 2-3 weeks when I have enough content that I feel is ready to be shared. One of the consequences of this is that the order is random and the topics I write about may jump from some events in my youth to something to do about business with no logic to explain the sequence other than my whims. I can do this because each of the chapter is more or less self contained and a story by itself. If it depends on material in some other chapter, I point this out and provide a brief explanation to make the chapter as complete as possible.

9. You can either read the book online on the website, or you can download the eBook version which is provided both in the ePub and PDF formats. If you prefer the eBook you can read it in your favorite eReader such as iPad or Kindle. You can also print the PDF file and read it the old fashioned way.

I hope you enjoy reading the book and I welcome your comments and feedback.

Rashid N. Khan
Raleigh NC USA
August 2012

Acknowledgements

I would like to acknowledge the contributions of several individuals who have helped, or continue to help in this project. First and foremost I want to recognize the gracious assistance of Christine Andrade who patiently edited many chapters and provided invaluable feedback. She also encouraged me often to continue writing the book when I was discouraged about the value of the book as compared to the effort it would take to complete it. Even though it is far from complete, it would be nowhere close to what it is today without her feedback and support, which I shall continue to seek.

Second I want to thank my wife Carla Khan for taking care of me in my serious illness while I write the book, and patiently tolerates the many hours I take away from the family to devote to the book.

Third, my three adult daughters also need to be thanked for showing patience when they were young adolescents and teenagers and I started writing the book. I used to spend many hours in the basement office of our house writing the book and taking time away from them. I hope that they will feel proud of the book and not embarrassed and shy when discussing it with their friends and colleagues.

Fourth, and most lovingly, I would like to thank baby Sarah who does not even know that I would be spending much more time with her if I were not writing the book. She often comes to me when I am typing away and insists on helping me with the keyboard, or poke at the screen to see if it is strong enough. More than anyone else, this book is for the benefit of Sarah. I hope that she will read it when she grows up to learn about her Pakistani roots, and perhaps even inherit some love for the mother country of her father.

Finally I am indebted to people all over the world who have touched my life in some way big or small. These include my extended family, my friends, my schoolmates, my teachers and professors, the caregivers at the hospital I frequent, and my employees, customers and partners at Sintech/MTS, Ultimus and Chatty Solutions. All these people, many of whom I do not even know or cannot name, make up the fabric of the ecosystem of my life, and without them barren would be the gardens of my heart.

Rashid N. Khan
Raleigh NC
August 2012

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The Gardens

Memories of a life reside in the gardens of my heart. Like the gardener who lovingly tends his garden for the pleasure of bloom, I nourish these memories because they comfort my soul and give meaning to my life. As we feed our gardens, the gardener and I anticipate the flourish of the coming spring that will surely bring joy to our lives. In the cold desolation of approaching winter we prune these delicate children of our past with sadness, tempered only by the eternal hope that the turning of the seasons will renew life and bring more bounties to our gardens. More flowers for the gardener, more memories for me to clutter every corner of my heart brimming with old memories that stay forever young. When I close my mind to the din and clamor of the world, they all vie for my attention, repeating the symphony of my life with violent crescendos yielding to placid vistas of my lake where they fly like graceful swans in the mist of approaching forgetfulness. Tiring insomnia is the reward for nourishing these memories, which I often refuse to trade for the bliss of sleep.

Most of my memories are mundane that I share aplenty with my contemporaries. Like the green shrubbery abundant in every garden, these ordinary memories compose the background of my paintings. Other memories are uniquely mine for their pleasure and pain entwined, inseparable. They stand high above the rest as orchids in my verdant gardens, seeking the sun, striking in their vivid colors, and hoping to catch the eye bedazzled by the kaleidoscope of random events that is my life. These orchids are scattered in my gardens, exploding with life, but ever ready for lifelessness as soon as the gardener misses a heartbeat.

In these pages I preserve these orchids before memory fails. Here many readers may only find the monotonous ramblings of a Pakistani American who came alone to this country from far away as a young man with boundless dreams, and who still does not know if he is a would-be entrepreneur or a romantic writer, and who is not particularly good at either. But perhaps hidden in these ramblings some may find the simple beauty of a life, and a gem of wisdom here and there crystallized by the weight of my life experiences.

I have several reasons for selecting the title of this book. The first reason leads me to confess that I have plagiarized the idea of the title. The idea actually belongs to Mir Dard, a remarkable poet of the dying days of Mughal India[1]. In the hubris of my early teenage years in Cadet College[2] when I was introduced to Urdu poetry, and especially

[1] The Mughal Emipre started in the reign of Babar in early 15th century and lasted till the Muslim rulers were overthrown by the British in the Revolt of 1856. The Mughal Emperors were responsible for great works or architecture, best exemplified by the Taj Mahal

[2] Cadet College located in the town of Hasan Abdal, Pakistan, is a military academy for boys from grade 8 to 12.

the ghazal[3], I disliked it immensely like all my classmates. But in only a few more years, as life stumbled across some joys and some sorrows, I discovered its beauty, never to lose my love for poetry. Among Mir Dard's doleful and introspective ghazals is this beautiful couplet:

Why shouldn't Dard nourish the heartaches in his heart?
Every gardener nourishes the roses in his garden.

Mir Dard was a sad man and his beautiful poetry reflects the sadness of his time in the waning days of the Mughal Empire when his way of life was destroyed. Even his pseudonym "Dard" means pain in Urdu and Farsi. He dwelt upon the pains in his heart and visualized red roses. I dwell on the many joys and a few sorrows of my life and I visualize orchids. The color of my orchids is a wild mixture of joy laced with some streaks of sorrow which makes them more enchanting to the discerning eye.

Second, I am a frustrated poet. I love poetry, and especially the ghazals of brilliant Urdu poets such as Iqbal[4] and Ghalib[5]. Poetry inspires me and enriches my life. I have always wanted to write poetry but have never been successful. The only ghazal I was ever able to write was when I was moved by the innocent love of my three daughters. It deals with how they brought joy to my life and is titled "The Residents of My Heart".

[3] A form of poetry popular in Turkey, Iran, Pakistan and Northern India. It typically has seven or nine pairs of couplets that rhyme, but each couplet is independent of the others.

[4] Sir Mohammad Iqbal, also called the "Poet of the East" was a world known poet who was the inspiration of Pakistan. His poetry is written in Urdu and Persian.

[5] Mir Asadullah Khan used "Ghlaib" as his pseudonym. He is still considered the most eminent poet and was prolific in writing ghazals

The Residents of My Heart

By Rashid Khan, August 1994
(Inspired by my daughters who live in my heart)

I used to pray for short days and short nights from the Keeper of Time
Life's a fleeting moment since opened eyes, the Residents of My Heart

Nary a sign of a rose in my deserted heart before they were born
Blooming Spring their companion made, the Residents of My Heart

Restlessness found no cure in the virtues of the mosque or vices of the tavern
Their innocent ways gave peace to my soul, the Residents of My Heart

O' lonely nights, my carving the scars of anguish was also God's Purpose
Scars into roses, heart into rose garden made, the Residents of My Heart

A thousand prostrations make in zest, the seekers of heaven
But all ran to the tavern when called by the Residents of My Heart

Infidel and corrupt they called me, the dwellers of the mosque
But "God lives with us" proclaimed the Residents of my Heart

Why expect soul's nourishment Rashid from the shallow people of earth?
Gave joy, gave sadness, gave you all you need, the Residents of My Heart

میرے دل میں رہنے والے

کرتا تھا چھوٹے چھوٹے شب و روز کی دعا میں وقت ناپنے والے سے
زندگی اک لمحہ بن گئ جب کھولی آنکھیں میرے دل میں رہنے والوں نے

دلِ ویران میں کوئی نشان گل نہ تھا ان کے جنم سے پہلے
بہار کو اپنے ساتھ ہی بسا لیا میرے دل میں رہنے والوں نے

بے قراری کی دوا ملی نہ مومن تیری مسجد میں نہ صاقی تیری محفل میں
اپنی بھولی ادائوں سے قرار دیا میرے دل میں رہنے والوں نے

اے شب تنہائی اس داغ تراشی میں بھی تھا اِک مقصد خدائی
داغوں کو گل، دل کو گلستاں بنایا میرے دل میں رہنے والوں نے

ہزاروں سجدےکئے جوش ایمان میں جنت کو ڈھوندنے والوں نے
فوراً لوٹ آئے مہہ قدے میں جب بلایا میرے دل میں رہنے والوں نے

کافر کہا، گناہ گار کہا، بہت کچھ کہا مجھے مسجد میں رہنے والوں نے
کہا خدا رہتا ہے ہمارے ساتھ، یہ میرے دل میں رہے والوں نے

کیوں کرتا ہے رزق کی امید راشد سرسری دنیا والوں سے
خوشی دی، غم دیئے سب ہی کچھ دیا میرے دل میں رہنے والوں نے

This book is for those who live in my heart, or come and visit me there.

The final reason for the title is that all my life I have done only those things that I believed in passionately. Whether it is love for a person or love for an entrepreneurial project, it starts as a dream born in my heart. Every day and every night I nourish the dreams. Many dreams die young, and these unfulfilled desires lie scattered in my gardens like rose petals, forlorn but not forgotten. But some dreams escape my heart and walk in the real world as the people I love or the projects that I have worked on. They are the children of my passion. Passion makes me obstinate and unyielding. Passion that is timeless, giving a long-term perspective to my struggles. Passion that is blinding, causing me to walk on paths my rational contemporaries would consider foolhardy and unworthy. Passion that is so hard to abandon because the heart does not easily expel futile dreams rooted in its gardens. This is one of the reason I think that I

became an entrepreneur. I believed passionately, and often blindingly, in the work that I did. This is also why, despite having lived in the America of endless opportunities, my modest success pales in comparison with the many contemporary entrepreneurs of my time who can dispassionately evaluate people and projects, whereas I, because I have many blind spots painted by zeal, succumb to the illogic of romantic idealism. These are the perils of yielding first to the heart and letting the mind come after; but perhaps the soul is happier with the illogic of the turbulent heart rather than the heartless logic of the mind.

This is a book about business and about my personal life. I write this with trepidation that I will lose half the readers who are interested in business, and the other half who are interested in a personal story. However, I accept the risk because I write about the many intertwined passions that live and die together in the gardens of my heart. I cannot separate my personal life from my business life because they are one and inseparable. If I were to bifurcate the two, both would become insipid and devoid of energy because in each is the soul of the other.

Foggy Memories of Childhood

I was born in the hot summer of 1952 in the city of Rawalpindi that sits in the lap of the Himalayas. There in the scorching heat of June the snow-capped mountains rise majestically from the rugged plains of the Punjab, temptingly close but yet very distant for a people struggling to cope with the stifling heat and dust of their poverty. At that time my father was a captain in the Pakistan Army and the family lived a modest but decent life on his income and the small perks of his rank. Less than five years prior to my birth, my newly-wed parents migrated from India to Pakistan with only the clothes on their backs during the carnage that is called the Partition of 1947. This was the goriest chapter in the demise of the crown jewel of the British Empire written in the blood of hundreds of thousands of innocent victims on both sides killed in blind rage in the frenzy of religious hatred gone amuck. My parents spent nine months during the Partition, parts of which was supposed to be their honeymoon in the beautiful valleys of Kashmir, in an open fort where thousands of Muslims were kept prisoners by the Hindus and Sikhs for a variety of reasons. Every day hundreds died of disease, starvation or simply the banal bestiality of man. My father's crime was that he was a Muslim and an officer of the Patiala Lancers of the British India Army with five years of service and deployment to the Middle East during World War II already under his belt. The tank regiment consisted primarily of the Sikhs of Patiala as the name suggests, who were arch enemies of Muslims. His mistake was his loyalty to his uniform as an officer in the British India Army.

Married at the end of June, 1947, my parents went for their honeymoon to Kashmir when the ominous signs of an upcoming calamity were brewing and the carnage of the Partition was starting. My father was advised by his elders not to return to Patiala state when the call went out for all military personnel to return to duty to provide safety for the refugees during the months of Partition. He was advised to go to Pakistan instead. To him that was treason, and he returned to Patiala where one of the worst carnage of the Partition was just starting. Within days he and his wife along with some other totally innocent family members were arrested by Sikh officers seeking revenge, while some other officers openly cried at the crime being committed against a loyal officer. After nine months of living in an open fort with barely a roof to protect them from the weather, they were they allowed to migrate to Pakistan. This was made possible only by the intervention of the Maharajah of Patiala himself to whose family my ancestors had provided loyal service for many generations.

The tragic events of Partition were the subject matter of countless true stories I heard throughout my childhood and teenage years. My mother was the story teller, but her stories were corroborated by many other relatives and accounts published in the newspapers of heroism and cowardice, humanity and brutality, and angels and devil all living in the flesh of mortals. Love of a country, the land and its people was born of these stories of sacrifice and courage. Surely migrant refugees like my parents had

scarified their world and their way of life for the sake of a great new nation that was worth loving and sacrificing for. My life therefore started when Pakistan was in the uncertain throes of its adolescence, not knowing its national identity, uncertain of its future and awkwardly finding friends or enemies among the community of nations.

I was the third of three sons separated by about 14 months each. Therefore it is not surprising that my birth was not an occasion for great celebration. My parents probably had their fill of boys and were hoping for a cute girl to follow. As they told me the story as a humorous fact, some tears were actually shed on the occasion of my birth, and they were not tears of joy! Aunt Sarwat, my father's first cousin was in the hospital with my mother during maternity while my father was at work. When he came to the hospital Aunt Sarwat came out of the maternity room to meet him. She was weeping and did not want to make eye contact with him. This was obviously very disconcerting for my father who wanted to make sure that everything was OK with the mother and the newborn. So he asked her firmly what the matter was and if everything was OK. "Yes, everything is fine," replied Aunt Sarwat. "But you have a little dark boy!" That was my reception to the world! Years later when I grew up my high school was near Aunt Sarwat's home in Wah. This provided occasions to meet her. Once I teased Aunt Sarwat about her crying on my birth. She became apologetic and embarrassed, and tried to compensate me with a treat of the best of fruits and sweets she could find in her house!

Sometimes after my birth we moved to the military town of Nowshera and lived in a run-down but majestic old British colonial bungalow made of mortar and bricks and located on the banks of the River Kabul. The house was a part of a colony built by the British on the Grand Trunk Road that meanders from the Khyber Pass along the Khyber River, crossing the Indus at Attock guarded by the majestic Attock Fort, and then rolls into the plains of the Punjab and ends in Delhi. Even as a child I was aware of the many great invaders, including Alexander the Great, who journeyed along this road with their armies seeking the wealth and treasures of India.

In that old bungalow the silence of my nights was the murmuring of the river as it yearned for union with the mighty Indus a few miles downstream. In hot summer nights prior to the arrival of the monsoons we slept outside under the stars and the continuous murmur of the river was my pacifier. On clear nights from inside the mosquito net I and my brothers would gaze at the stars which adorned the sky like jewels studded on a black shawl. Now and then one of them would come loose due to unknown heavenly forces and streak across the night, eliciting a prayer from innocent hearts because cousin Rabia had told us that all wishes made during the short life of a shooting stars are granted. With the help of our parents we could identify the heavenly cloud that smeared the pristine blackness of the night as the tail of our Milky Way Galaxy. On some nights we would catch a star in motion a if crawling among other stars, and we knew immediately that it was the Russian Sputnik arrogantly flouting its freedom in the face of the Americans. However the Americans were not far behind in launching their own satellites and create more objects for us to chase in the skies, increasing our desires to

become pilots and astronauts. Uri Gagarian, John Glenn, Alan Shepard and other cosmonauts and astronauts become our heroes.
Sometimes in the night the wind would pick up and the old sheesham[6] trees surrounding the bungalow would sway in the darkness like black giants engaged in an epic struggle accompanied now and then by the howling of the wind. My fertile imagination made them real giants and the howling their anguished cries of pain or anger. Fear would grip me in the darkness of the night as I remembered the tales of "jinns", giants and wild beasts recounted to us kids by one of our older cousins. I would jump out of my bed in panic and hop into the next bed which belonged to my father. He would utter a few words of protest in Urdu which I never understood, and then go back to sleep again oblivious of my presence as long as I did squirm too much. Sometimes it would start raining in the night when everyone was deep asleep. It was a rude shock to be woken up by the rain drops. We would then all scramble to dismount the mosquito nets, roll up our the bedding and run inside to our bedrooms which were stuffy and sweltering hot due to the trapped summer heat in sharp contrast to the fresh and cool air outside. Sleeping outside in the garden under the stars during the hot summers was one of the best experiences of my life.

In the daytime the sound of the river would beckon us to come play on its green banks with the waves and vortices spawned by strong currents just beneath the placid surface. We would run out the backdoor to the verandah, skip down the steps, through the back yard into the little service gully between the neighboring bungalows which led to the banks of the river. There we would find flat stones and throw them with a little spin and all our strength parallel to the surface of the water so that the stone would bounce a few times before being swallowed by the river. The game was to see who could make the stone bounce the most number of times. Or we would lean dangerously over the bank and put our hands in the cold water to feel the strength of the currents, always wary of parents or some other elder catching us in the middle of dangerous pranks. When tired we would walk back to a nearby park that had several mulberry trees among other fruit trees, with branches drooping with the weight of their succulent fruit. Someone would get a sheet and lay it under the tree and one of us would climb halfway up the and start shaking it. Sweet, juicy mulberries would rain on the sheet and all of us would scramble to get our share of the loot, gouging the sweet fruit and making a mess of our clothes. After satiating ourselves with mulberries we would head home to face the wrath of mother.

As I ran barefoot up the brick steps of the verandah I saw the moving rope. I had seen a similar moving rope in the middle of the night as we slept outside in the backyard of my grandfather's home in Gujranwala. The loud noise of a gunshot woke me up and under a flickering light my mother pointed out the cobra she had just shot lying dead on the brick patio. I remember her telling me that it is a dangerous animal which should be killed as quickly as possible. Now I saw the moving rope between me and the door. I did

[6] A common large tree that is fund in South Asia and its strong wood is used for making furniture.

not have much concept of danger at that age, and the moving rope looked pretty harmless. It was moving only so little. Barefoot I jumped over it and ran inside the house to my mother and told her that there was a moving rope on the verandah like the one in grandfather's home. By the time she came out the cobra had disappeared somewhere in the shrubs on the side of the verandah. That was my second encounter with cobras, and at that age I had no fear. Years later in the city of Multan when I was sixteen I ran into another cobra slithering on the sidewalk of our house. I did the teenager thing and wanted to play with it but knew very well that it was very dangerous. So I got my father's golf iron and went up and touched the cobra from as far as possible. Instantly it coiled itself and raised its head in the majestic stance of the cobra accompanied with a spine-chilling hiss. Then the game for the teenager was to prod the cobra with the golf iron and make it attack the iron. With each attack the adrenaline would flow sending shivers down the spine, creating the excitement I was looking for that boring summer afternoon. After lancing with it for a while I killed the cobra in fear when I remembered someone telling me that a dying cobra takes an image of the enemy that killed it. The image is preserved in the open eyes of the cobra. When its mate finds it the mate captures the image of the enemy in its own eyes and searches for the enemy to kill it in revenge. Remembering that we slept outside in the garden at nights I did not want this cobra to capture my image so I killed it as soon as possible. I felt relieved, but at the same time sadness overcame me for ending such a majestic life just for the sake of some afternoon fun. Memories of the cobras live also in the gardens of my heart to enrich my life in their own way.

I was about five years old sitting on my "throne", which was the popular name for the commode that was commonly used in the bathrooms of middle income families in those days before the modern flush system became affordable and popular. The commode was like a chair with a hole in the middle of the seat through which the potty pan would be seated. There was always a lid on the back which was used to cover the pan after one is done with nature's calling to let others know that it was used and needed servicing. The thrones were arranged around the bathroom, almost as if they were set up for a conference without the conference table. There were two big ones for father and mother on one side, and 3 small ones for each of us brothers on the other side. And then there was large one kept in reserve for guests who may need to use the facilities. A cleaning lady would come twice a day to collect all the used potty pans and take them out to dispose their content, wash them and put them back on thrones in the bathroom. I sat there on the throne as patiently as an impatient 5-year old, thinking about how I would have fun for the rest of the day. Suddenly the old wooden doors of the bathroom started rattling. In the beginning it was a pretty mild as if someone was knocking on the door urgently wanting to come in. I thought it was the cleaning lady. I shouted at her that I am using the bathroom; please come back later. But she would not listen to me and actually the rattling became louder. Then the whole room started swaying and it was hard to sit steady on the commode. Cousin Rabia's jinns and giants came alive again in my fertile imagination, and now I was convinced they were here to get me while I was alone in the bathroom. Convinced about the presence of real genies I panicked, jumped

off the commode, and ran out naked as fast as I could along the main corridor of the house to the front verandah. There I was surprised to see the whole family and servants standing in the lawn watching me come to an abrupt stop at the top of the verandah's stairs when I realized that I was all naked and everyone was looking at me. Then they all started laughing at my embarrassing situation. That was the first of several encounters with earthquakes.

One day when I was about seven my uncle Inam, who was pilot in the Pakistan Air Force and therefore a hero to all of us brothers who dreamt of becoming fighter pilots, drove to our house in Nowshera with his family. The family consisted of his wife, a son and a newborn baby girl who was only 2 or 3 months old. After the customary greetings by the elders someone pulled out a basket with a handle from the car and inside was the baby babbling happily as she had just woken up from her afternoon nap. Since naughty boys tend to get rough with babies, I was only allowed to have one glimpse of the baby. I thought she was cute, but not interesting because she did not do anything but sleep. Then I ran away to play with my cousin. That was my first meeting with my future wife.

The shrill call of the black quail heralds the arrival of the monsoons in the Punjab. In the months of May and June the temperature gradually rises and heat builds up to stifling levels. In the stillness of the heat there was no breeze to give comfort to toiling bodies of the poor as they went about their daily lives. Gradually the humidity would build as the air from the Bay of Bengal made its way across the Indian peninsula and reaching the parched land of Pakistan. At the start of July the quails would start singing loudly and happily, sensing before humans that change was in the air. On a stifling hot day when the temperature hovered at 120F, a grayish-black mass would appear in the distant sky hugging the ground as it dashed northwards. People would start running around collecting their belongings and securing loose objects that might be damaged by wind or water. Suddenly the breeze would pick up into a fury as the dark clouds arrived and sunlight changed to partial darkness. The sky would open up with a huge downpour accompanied by loud thunder and lighting. Within minutes little rivers replaced the roads, and water reigned everywhere and flooded all low lying areas. We would plead with mother to let us go out and play in the rain to cool off. Her initial hesitancy would change as she finally gave in to the persistent demands of three boys. We would go into the garden and splash around dancing in the rain, slithering on the wet grass, and plastering each other with mud. The temperature would drop by 40 degrees in a matter of minutes bringing relief to everyone.

Around that time father bought a small car, a British Morris Minor. One day just after the start of the monsoons the parents decided to drive to Gujranwala where my maternal grandfather lived, along with several uncles and aunts. Gujranwala is where most of the family had settled after migrating from India during the Partition of 1947. As children we used to love to go to Gujranwala because not only was it time for a vacation, but the uncles and aunts would spoil us and there were many cousins to play with. In addition Gujranwala was an agricultural town proud of the chaos in its streets

instead of the organization and discipline of the military town like Nowshera. The crowded bazaar was always full of farm animals, piles of fruits, vegetables and raw meat of all types that attracted a seemingly infinite numbers of flies which the locals ignored as they went about their business. In the midst of all this were small restaurants and sweet shops that served excellent local dishes whose aroma competed with the putrid smell of open gutters. I liked these sights and sounds of the chaos and disorganization, and would look out the car window in sheer amazement at the sights of the city that was vibrant and alive in stark contrast to the relative serenity of Nowshera and Rawalpindi.

To travel of Gujranwala from the north we had to cross the Jhelum River, one of the major tributaries of the mighty Indus. The river was in flood due to the monsoons. The bridge was long, narrow and one- way, shared by a railway track which meant that all the traffic would come to a standstill if a train came by from either direction. The traffic would flow from the north bank to the south for about 15 minutes, and then the traffic from the south would move north. Unfortunately we arrived at the bridge at the time when a battalion of army tanks were being transported in the same direction as we were headed. Our little Morris Minor was positioned between two huge tank transporters. They were so big as compared to our car that I could only see the undercarriage of the transporter and the dangerous-looking barrel of the tank's gun pointed straight at us. We waited for our turn and when the time came for our one-way crossing we made good progress squeezed between the tanks to about the middle of the bridge and then came to a stop. Some brash junior officer from the other side had violated the rules and started traveling in the opposite direction when it was not his turn, and a number of other vehicles followed him to take advantage of the opportunity. Father, being a stickler for rules and a no-nonsense officer, was furious and would have none of it. Even though he was in civilian dress he got out of the car, showed his military ID, and ordered the junior officer to drive backwards and vacate the bridge along with all the other vehicles who had tried to take advantage of the situation. Throughout this commotion I sat there in the middle seat of a small car, with an ominous-looking tank in front and a tank in the back and the waters of the River Jhelum inches away from overflowing the bridge. The old bridge shuddered and swayed under the weight of the tanks and the pressure of the water as it flowed down from the Himalayas. I thought the bridge would collapse, or that soon the car would be carried away by the strong currents of the river and we would all drown. I sat there quietly gripped in fear, but too proud to admit to anyone that I was afraid of anything. I recalled the short verses of the Holy Koran my mother had taught me and quietly I recited them to give me courage. Finally after what seemed like eternity, the traffic started moving. Soon we reached the other side of the bridge and I thanked God for saving my life. Experiences like this in the formative years of my life is how I lost my fear of dangerous situations.

In Gujranwala, the uncles, aunts and cousins would gather every evening in the front yard of grandfather's house. The house had a huge verandah with pair of Greek pillars every 10 ft or so holding up the arches that supported the roof. We used to play hide-

and-seek among those pillars. On the side there was a large garage which housed grandfather's farming tractor, plows and other farming contraptions. Under the watchful eyes of Yar Mohammad, grandfather's driver, we brothers would climb on to the tractor and pretend to drive it around and play with the gears and instruments. I used to be fascinated by the engine with its numerous pipes and wires, and in my curiosity I imagined how the engine made the tractor move. Sometimes grandfather would give us a ride on his tractor with the three of us riding on a large rectangular wooden plank pulled behind the tractor.

The elders would sit in the front courtyard and talk about subjects that were very boring to us kids, and drink their tea till the sun set and it was time for dinner. During one of these long evenings I heard a conversation about the fact that the earth was round and rotating to make the days and nights. That conversation led to the first scientific experiment I remember conducting in my life. I took a chair to the back courtyard which was empty and sat there patiently on the verandah. Not used to me sitting so patiently the elders of the family were intrigued about what was going on and why I was not running around jumping over things and bothering everyone which is what I would do normally. An uncle came over and asked me what I was doing. I was very serious and told him that since the earth is rotating I am waiting there in the backyard to catch the front courtyard come to the back!

My paternal uncle's house in Gujranwala was a typical Hindu "haveli" located walking distance from grandfather's house where we also used to spend some of our vacation days. The haveli has a square courtyard with two stories of rooms on all sides and an accessible rooftop used for games, hobbies and sleeping outside in the summer. There was one entrance with a solid wooden door in the front with a staircase that went up to the roof. Another door on the back led to a small courtyard with some fig trees and a chicken coop where the family used to raise chicken for their own consumption. In summer evenings we would go up to the roof with cousin Abid and fly kites, competing with kids and adults of neighboring havelis. In summer nights we would sleep on the roof under the starry sky and listen to stories, watch the shooting stars and try to name the others before going to sleep with many other families also sleeping on the roofs of their havelis. In winter Abid's hobby was to raise pigeons and we would train the birds to fly back home, which they did most of the time. In winter nights we would cuddle up near the fireplace in the family room and listen to cousin Farida tell us the oft-repeated stories of fairies, ghosts and jinns. Or sometimes we cleared the family room and lay out a large number of comforters and pillows on the carpets to make two large bed for the boys and girls to sleep. Before going to sleep we would darken the family room to play a few games of hide-and seek which often deteriorated in to fierce pillow fights in the dark where the loser was the one who first chickened-out and turned on the lights. Sometimes a miffed elder whose sleep was interrupted by the commotion, would come and end the mayhem. My aunt was an excellent cook and cooked on an open fireplace in the courtyard. There she would sit on a small stool and invite us to sit next to her and talk to us about life in general as she cooked our favorite dishes. Then she would make

some fresh puffy "chappatis" and serve them with meat and potato curry straight from the skillet on the fire. These, and similar foods prepared by other aunts, are still the most memorable meals of my life despite the fact that I have had the privilege of eating in some of the best dining places in the world later in my life and travels.

These are my earliest memories, foggy but not forgotten. The fact that for the most part I have happy memories of my childhood greatly helped in their preservation. Pakistan in the nineteen fifties and sixties was a wonderful place to live in. The country was not yet burdened by population growth, the struggle for natural resources, debilitating inflation, intense political instability and the ravages of two wars with India in 1965 and 1971.

Lost in a War

In the spring of 1965 my parents enrolled me in Cadet College[7] at Hassan Abdal as an eighth grade student and I left home for the first time. Later that summer I became a teenager as the dark clouds of war between Pakistan and India followed the monsoons that soaked the parched land of the Punjab. That hot summer was the most exciting and adventurous for me as I straddled the unreality of childhood and the reality of adolescence. My brothers and I had seen every war movie there was to be seen and read all the stories of the World Wars that we could get our hands on. There were exciting rumors that Pakistan had parachuted a large number of commandos behind the Indian lines in Kashmir in order to ferment unrest. The daily newspaper, which I and my brothers fought to be the first to read every day, was full of stories of brewing conflict interspersed with images of the machines of war which fascinated me as a boy. Pakistan Radio constantly aired stories of increasing tension and confrontation between the two arch enemies, mingled with patriotic songs and messages. I grew up with the sound of this music reverberating in the background of my boyhood, deepening my love for Pakistan.

In those days of boyhood my dream was to become a fighter pilot in the Pakistan Air Force (PAF). In my boyish imagination, which flourished into daydreams in the boredom of the afternoon siesta my mother insisted upon in the summers, I flew many brave missions against India, strafing tank formations in the verdant fields of the Punjab, dive bombing strategic targets deep in the Rajasthan desert, getting shot down over the beautiful valleys of Kashmir, and parachuting in to golden fields of saffron dancing slowly with the zephyrs. With great difficulty, I always managed to escape back to Pakistan over the alpine meadows of the Himalayas with the help of sympathetic Kashmiri villagers who sheltered me in their remote hamlets, and nourished me with "daal roti"[8] in their humble mud kitchens.

At that time my father was the commander of 25th Cavalry of the Pakistan Army which he himself had raised as a new tank battalion only 3 years earlier in 1962. The battalion was based in the strategic border town of Sialkot only a few miles from where India, Pakistan and Kashmir were joined to form the vortex of conflict. On 1st September the Pakistan Army launched a pincer attack across the cease fire line dividing Kashmir just north of Sialkot, gambling that India would limit operations to Kashmir and not expand it to a full scale war along the international border. My brothers and I spent the days glued to the radio listening to the news, running outside at the roar of fighter jets flying low on some mission, or watching convoys of battle-ready troops and the paraphernalia of war moving to the front. At the same time 25th Cavalry also moved out and was deployed in a defensive position just miles away from our home in Sialkot. I vividly remember my father, in full battle dress and tank helmet, leaving home for the

[7] A military academy for boys in Grades 8 -12 located in the town of Hassan Abdal, Pakistan
[8] Lentils and thin flat bread which is the staple food of villagers and poor people in Pakistan.

battlefield in his open camouflaged Jeep with a long wireless antenna fluttering in the air, followed by another Jeep with an anti-tank gun.

On 4th September, when my mother sent me off to Cadet College accompanied by a batman at the end of the summer break, a battery of long-range artillery guns were positioned in the field behind our house. I wanted to stay and watch the guns in action, but my mother was happy that I was going to be back in Cadet College, far away from the emerging battlefield. The batman was a Bengali soldier and a very good cook, but that day he had a fever and a deep cough and chain-smoked throughout the journey. He was a proud and good man who died a few years later of lung cancer, and never told us about his wife and baby girl living alone in a remote village on the banks of the Ganges River in East Pakistan. After seeing me off, my mother and brothers went to Lahore to stay with her sister as everyone in Pakistan incorrectly assumed that the war would be confined to Kashmir, and Lahore was further away from Kashmir than Sialkot.

On Sunday 5th September, I and the other cadets prepared for our classes and spent the afternoon digging trenches around our dormitories for shelter from aerial bombardment. On the morning of 6th September, the Indians, in a defensive move to counter the Pakistani incursion into Kashmir, attacked across the international borders aiming for Lahore which also was very close to the border. For some inexplicable reason, the principal of Cadet College decided to shut down the school even though it was far away from the war zone. Perhaps the reason was that Pakistan's only ordinance factory was only a few miles away and an important potential target for Indian bombing. I and three hundred other boys were elated at the unexpected extension of the summer break, and excited at the prospects of returning home and giving our full attention to the erupting war.

This was the first time in my life, at the age of 13, I was forced to travel alone. I hurriedly packed a pair of clothes in my bag and left for the railway station with some friends and we headed for Rawalpindi only about thirty miles away and an easy bus ride. I was determined to go home to Sialkot to be with my mother, unaware that she was not there. It never occurred to me that a major tank battle was likely to be fought only a few miles from our home, and that maybe it was not such a good idea to go to Sialkot.

At the Rawalpindi Railway Station patriotism reigned over the clamor and bedlam of the platform, uplifting the spirits of strangers. As we boarded the train headed for Sialkot, a familiar voice in his deep, slow, confidence-building tone read the news on Radio Pakistan about the Indian attack on Lahore, and the success of the PAF and frontline defenses in repulsing the attack. The news was bracketed with mesmerizing recitations of the verses of the Koran, followed by patriotic songs in the enchanting voice of Nur Jahan, the leading lady of Pakistani vocalists, extolling the nation to rise to the occasion. The train left the station but did not go very far before the news came that the Indian Air Force was attacking the bridges across the rivers of the Punjab. It stopped on the tracks in the barren hilly terrain outside of Rawalpindi where frisky goats and languid

cows grazed on wild bushes and shrubs in the natural catacombs of cliffs and ravines, followed by barefoot shepherd boys, oblivious of the war, lazily watching their flock and the indecision of the train. Then the train reversed direction and returned to Rawalpindi Station.

Back in Rawalpindi all my friends made alternate plans. Some went to their relatives in the city; others decided to take buses to their relatives in other cities. One by one they left. I found myself alone with no place to go in a large city where I did not know anyone. Fear and uncertainty crept into my mind displacing the youthful bravado. I remembered that my Uncle Mazhar, a history professor, lived in the city of Peshawar, about 100 miles northwest of Rawalpindi. I had a vague idea of where he lived as my family and I had visited and stayed with them the year before. I found my way to the bus station in Rawalpindi and boarded the next bus headed for Peshawar. The bus was packed with fierce looking Pathan men with their coarse dresses and coarse manners, and ladies clad in white burqas who occupied the back seats of the bus with an occasional child on their laps or a baby squirming under the burqas. I felt completely out of place in my shirt and pants headed for Peshawar. I was squeezed between an old man who chewed naswar[9] throughout the trip, and a man in his thirties who was chain-smoked through a pack of K2 cigarettes. The miasma of unfiltered smoke purged the smell of fifty sweating bodies sandwiched in a bus in the heat of early September.

The old man started telling me his views of the war and the customs of his village. Every so often he would make a guttural sound from deep in his throat, collect all the phlegm and naswar in his mouth, and spit ferociously out of the window. I would look away trying to avoid the smell and the sound without being rude. He would then pull out a small pouch from a pocket among the many the folds of his robe, and take another pinch of naswar and place it deep in his mouth with his fingers to replenish what had just splattered the Grand Trunk Road used by Alexander the Great, Tamerlane and the Mughal Emperors on their historic conquest of India. Once he offered me his open pouch so I could also take a pinch of naswar and experience the new world on this day of new experiences, but before I could figure out how to refuse without affronting the hospitality of an old Pathan, he himself volunteered that naswar is not good for young people. Throughout the journey the radio blared patriotic music interspersed with news from the battlefields in the fields of the Punjab and the air above as Pakistan tried to repulse the Indian attack. Even among strangers on the bus on a weary journey, one could feel the spirit of nationalism and unity in the hour of crisis as the hated Indians attacked Lahore, the pearl city of Pakistan.

We reached the old city of Peshawar around one in the afternoon. By now I had found some comfort and confidence in the bus and knew my seatmates. When I got out of the bus in the heat, dust and bustle of the inner city, a sense of fear and anxiety mingled with the putrid smell of the old city unashamed of the garbage of its inhabitants.

[9] An addictive greenish powder of tobacco and other ingredients. Used mostly by poor people.

Suddenly I felt alone again in a strange place where I did not know anyone, and in my shirts and pants I stood out as an alien among the throngs of men in shalwar-kameez[10] and veiled women in burqas. Luckily the old man came out of the bus after me and enquired where I was headed. He advised me to take a bus from the old city to Saddar, and from there another bus to University Town. And that is what I did. On the way we crossed the Peshawar airbase which was the headquarters of the Pakistan Air Force. The road to the University Town crosses the very end of the runway. As we crossed the runway, a sortie F-86 Sabers, the mainstay of the Pakistan Air Force, howled like banshees as they strained to take off for missions loaded with munitions. My boyhood fervor for phantom dogfights flying on the belly of a jet, now inflated with patriotism by the ceaseless echoes of the songs of Nur Jahan in my ears, came back to momentarily displace the fear and uncertainty of my day.

The bus dropped me off at a bazaar in the center of University Town. Once again I had no idea what to do next. I did not know Uncle Mazhar's address. I looked around, lost but pretending not to be lost. Luckily I recognized a tandoor shop where I had gone several times with my cousin Anwar to buy fresh hot naan during my stay with them the previous year. I knew then that I was in walking distance of Uncle Mazhar's house and I managed to trace my way there and knocked on the door hesitantly since I was not completely sure it was the right house. I was overjoyed and relieved when the door was opened by Aunt Shaukat, who was also surprised and happy to see me and hear the story of the day.

Uncle Mazhar's home became my home for the duration of the war. He lived there with his wife, 3 sons and 2 daughters. We were also joined by Dr. Izhar who was my cousin, a post-doctoral student at Peshawar University and the most taciturn person I have met in my life. That afternoon we boys spent digging two trenches in the backyard of the house. The University Town was close to the end of the runway and not far from the air headquarters. It was sure to be in the path of any Indian attack on the air headquarters and the civil defense authorities had instructed all citizens to dig trenches and take other precautions.

Unbeknownst to me, my mother was in Lahore on the morning of 6th September when the city was attacked by the Indian Army. Pakistan Radio announced the closing of schools and she heard that the Cadet College was also closed. With the instinct of a mother, she correctly concluded that I will try to find my way back home to Sialkot. And I would find the home empty and not know what to do. She therefore decided to drive back to Sialkot in our VW to meet me there. She left Lahore and crossed the Ravi Bridge as thousands of people in panic were leaving the city under attack, causing a massive traffic jam. Her car crawled through the traffic and took four hours to cross the bridge as the skies over Lahore were witness to dog fights between the fighter jets of the two countries trying to control the airspace above the fierce battle being waged at the gates

[10] Very popular traditional dress in Pakistan consisting of loose, long shirt and baggy pants.

of the city. She drove back to Sialkot, a city deserted and quietly waiting imminent attack. She reached our home late at night only to find that I was not there. I was lost, and there was nothing she could do about it. That night the artillery in our backyard engaged in action, firing deafening salvos at Indian positions. Fear spread among the women and children left in the army housing colony where all the men were at the front. The next day, she decided to go to Gujranwala to stay with her brother. This time the road she travelled was being shelled by the Indians artillery trying to prevent reinforcements coming to Sialkot, and her car weaved its way through the bombardment.

In Peshawar the night of 6th September started peacefully with a golden sunset that turned blood red as the day yielded to darkness. At dusk, a PAF F-104 fighter crashed on takeoff at the airport and emblazoned the birthing night with a ball of fire, perhaps in violent anticipation of what the night had in store for us. We were ready. People suddenly remembered their religion and civic duties. Those who had not prayed in months found God in the presence of danger. Everyone prayed for their families and friends and for the safety of Pakistan. The trenches were ready and people trained about what to do in the case of an Indian air attack. Uncle Mazhar was glued to his transistor radio switching back and forth between Pakistan Radio and BBC. By the evening the BBC had declared that the Indians had occupied Lahore and was showing footage of Indian soldiers inside the city, but Pakistan Radio was adamant in asserting that a massive Indian attack on Lahore had been repelled. Later it turned out that the BBC was wrong and the Indian Army was stopped at the gates of the city. I went to sleep oblivious of the fact that I was lost in the eyes of my mother as she frantically drove from one city under siege to another to find me. I was not worried at all, and having found Uncle Mazhar's home I was eager to see the action of a real war instead of the celluloid wars I had so far seen in the World War II movies.

In the middle of the night I was awakened by a loud metallic rattling. Every electric pole in the city of Peshawar was assigned a man with a metal pipe. His job was to make a rattling noise by hitting the aluminum pole with the pipe when he heard the man on the pole next to him do the same. This was the improvised air raid warning siren that emanated from the Air Headquarters when the authorities detected the presence of Indian planes on the radar. The city quickly went dark as all the lights turned off, and the stars shone with brightness never seen before. In Uncle Mazhar's house all of us scrambled out of our beds and went outside, not knowing what to expect. Uncle Mazhar ordered everyone into the trenches that we had dug just a few hours earlier. The ladies panicked as they were terrified about getting into a dark hole in the darkness of the night, afraid of scorpions and snakes. After much cajoling and Uncle Mazhar leading the way they climbed in, but I could hear them feverishly reciting the verses of the Koran in fear. Every now and then there was a muffled scream as they encountered a root or a rock in the darkness and imagined some venomous creature, all good fun for the boys.

Boys being macho boys, I and my male cousins all stayed out except for Anwar who was the youngest son of Uncle Mazhar. We wanted to see the action in the skies. Soon there was pin drop silence as people settled into their trenches, the rattling of the poles stopped and darkness alone ruled the silent night. We peered at the skies to see what was happening, and in the beginning there was nothing. After ten minutes or so we started hearing the silent roar of approaching jets in the distance. It started slowly but then became a constant hum like many bees fluttering metallic wings in harmony with each other. After a while I could feel the jets right over Peshawar.

Suddenly the sky lit up bright as daylight as three or four flares of bright orange appeared, floating in the sky like miniature suns. We could see everything around us like in a golden sunset. No sooner had the flares lit when the sky opened up with a tremendous barrage of anti-aircraft fire. Their colorful tracers streaked across the sky in the most intense display of fireworks that I had ever seen, and the noise was ear shattering. The barrage was aimed at the floating flares and within seconds the flares were blown up and the fireworks stopped. The world became dark and quiet again except for the humming of the jets overhead. Then the bombing began with the sound of tremendous explosions. The ground shook with every explosion like a series of small earthquakes. It seemed that the bombs were falling just on the other side of the wall that divided our house from the neighboring property. In reality, they were at least a mile away. So intense were the explosions that Dr. Izhar lost his cool and ran to the trench and jumped on top of the ladies. This lead to another round of shrieks and groans as the ladies were petrified by the ferocity of the exploding bombs above them and the fear of snakes and scorpions lurking in the darkness of the trench.

The bombing was soon joined by soft whooshing sounds as white needles of lighting appeared occasionally in the sky. We peered at the dark skies above us but could not see any jets. We could only surmise that the PAF was intercepting the intruders, and the whooshing needles were their guns or rockets aimed at each other. The noise of jets was now very intense and the sky was teeming with planes flying in the darkness. I did not see any explosions which meant that the planes failed to harm each other, and soon the humming of the jets started waning and the bombing stopped. I was dreaming again of becoming a fighter pilot, and in my imagination I was in a fighter jet roaring in the dark skies above Peshawar giving chase to the retreating Indian bombers.

When it was over there was another rattling of the poles as the all clear was sounded. Gradually people came out of the trenchers and the lights came on. By now my female cousins and aunt were crying in the trenches, and through their tears they continued to recite the Koran in fear. They were relieved to come out of the trenches and gathered around the radio to hear the news about what hat just happened before going back to bed.

The sirens of attack sounded a couple of times more in the next two weeks but the Indian bombers never showed up again at Peshawar. I missed the opportunity of seeing

more action in the sky. During the course of the war we spent our days reading the newspaper and listening to the news all the time. An intense war was being waged across the international borders. Every day the news was filled with stories of the PAF attacking Indian airbases and military formations, and the heroics of the Pakistan army. Of keen interest to me was the frequent mention of the Sialkot front where my father was based. There was more and more mention of a small village named Chawinda near Sialkot where the fiercest tank battle since World War II took place.

Just prior to the outbreak of hostilities the 25th Cavalry was dug-in at Chawinda in a defensive posture with the mission of protecting Sialkot from an attack by the Indian Army which was at least three times larger than the Pakistan Army in manpower and armaments. The unit had often conducted training exercises in the area and knew the terrain very well. By 6th September they were ready and patiently waiting for the Indian attack. On 7th September a small unit of the Indian Army made a foray across a bridge about 20 miles south of Chawinda. Due to poor intelligence and the fog of war, Pakistan Army's high command concluded that the Indian Army will attack the city of Lahore through the bridgehead. Since the area was lightly defended, the high command panicked and ordered 25th Cavalry to vacate its defensive position at Chawinda and go south to repel the phantom Indian attack. Moving an entire battle-ready tank regiment 20 miles is no small feat, especially given the fact that the tanks had to cross a stream flooded due to the monsoon rains. However 25th Cavalry successfully completed the maneuver. Upon reaching the bridgehead they found no enemy in sight. The commander of the Pakistani regiment defending the area was furious because he was confident that he could handle the Indian Army and did not need any help. In the meantime a full Indian Army division supported by a couple of Infantry brigades attacked and occupied the Chawinda area just vacated by the 25th Cavalry. It was clear that the main thrust of the Indian Army was through Chawinda to Sialkot and the Grand Trunk Road to effectively bifurcate Pakistan cutting off the north from the south. Now the Pakistani high command was in complete panic as there was nothing to defend the Indian thrust via Chawinda. They turned to 25th Cavalry again. The brigade commander, who was my father's boss, sent a message to my father which is probably one of the shortest and most un-specific battle orders in the history of warfare. "Nisar" he said, "The Indians are attacking Sialkot. Do something!" Now my father ordered his regiment, which was just reaching the bridgehead, to make a u-turn and trek back to Chawinda in the middle of the night. All the tanks in his regiment had travelled over 40 miles by the time they approached Chawinda in the early hours of September 8th, and none of the troops had any sleep or rest for more than twenty four hours. Without any back-up and with not much intelligence about the size and disposition of the Indian armored division that had occupied Chawinda, he made the bold plan to attack the enemy frontally. Three squadrons of the regiment were ordered to attack from the left, right and center forming a long battlefront, and one was kept in reserve. As the tanks of the 25th Cavalry roared across the fields towards Chawinda, the formation appeared to be a much bigger force than it actually was. Now the Indian High Command panicked at the sheer audacity of the attack and assumed that it was facing a full Pakistani armored division,

rather than a solitary, exhausted regiment with no backup. After suffering significant losses the Indian Army retreated and its forward momentum was thwarted.

At a critical stage in the battle a 25th Cavalry tank occupying a pivotal position protecting a flank of the regiment was knocked off by an Indian tank, but its crew survived. The unit was at risk. Sensing the critical nature of the situation, my father gave up his commander's tank to the crew defending the flank, and used his open jeep as his command center for the rest of the war. He often told me about how close he came to death in the open jeep, once targeted by an Indian RPG at close range and at another time by an Indian ground-attack fighter that tried to strafe his jeep. The battle of Chawinda raged for two weeks and ended in a stalemate with the tanks engaged in very close encounters. However it was deemed a victory for 25th Cavalry as the regiment had stopped an entire division and thwarted the Indian thrust towards Sialkot and beyond. While my father never made any such claim, many people who have studied the war concluded that the actions of the 25th Cavalry on 8th of September saved Pakistan from a major defeat. It is not surprising the young regiment became the most highly decorated regiment in the Pakistan Army and earned the sobriquet "Men of Steel". The Battle of Chawinda and the actions of the 25th Cavalry became exemplary battles in the annals of Pakistan Army and studied by generations of officers learning the art of tank warfare. Decades later I still meet ex-Army people who start recounting the heroism of the 25th Cavalry when they find out that I am the son of Lt. Colonel (later Brigadier General) Nisar A. Khan.

After the war I learned that my mother, when she was unable to find me in Sialkot, drove back again to Gujranwala and stayed with her brother for the course of the war. She had no idea where I was throughout the war as the intense battle raged just a few miles from our home in Sialkot where my father was commanding his tank battalion. Somehow my father was also aware that I was lost, but he had no time to worry about me. In a lull during the battle he did send a jeep to Gujranwala to inquire about the well being of the family. The driver was told that everything was okay except that no one knew the whereabouts of Rashid.

At the end of the war when the cease fire was declared the Radio started broadcasting awards for bravery given to members of the armed forces. Almost universally the announcer would announce the name followed by the words "shaheed" meaning the person had died in battle and the award was posthumous. On the very first day we heard a list of names and almost all of them were followed by the word shaheed. My father's name was in the list. However no one was sure whether it was followed by the word shaheed. A couple of days later, the newspaper carried a picture of President Ayub visiting the forward battle formations in Chawinda and awarding the Sitara-e-Juraat (Star of Bravery) to my father and other members of the 25th Cavalry. This was our first conformation that he was alive.

After the cease fire was declared the radio announced the re-opening of Cadet College Hasan Abdal. I made my way back to school alone by bus, but by this time I was an experienced traveler and knew exactly what to do. In the meantime a letter arrived from my mother asking my uncle if he knew about my whereabouts. Apparently she had written to all our relatives. Uncle Mazhar wrote back to her that I was safe and headed back to the college. By the time I reached college, my father was a hero of the war. I felt a deep sense of pride and also of responsibility. The son of a war hero cannot be at the bottom of his class where I had always been! It was the turning point of my academic life which saw me rise to the very top.

Apollo Plum Jam

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By now we had run out of ideas and MAD Magazine did not have any more to offer either. So the next week we were reluctantly back to running on the Grand Trunk Road with the rest of the students, having managed to avoid it only for about 10 days. Sadly the world would have to wait another day for some other bright scientist to build a rocket to discover what gravity does to the mental agility of ants. **Apollo Plum Jam**

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Even after the spectacular failure of the experiment, Pasha and I were allowed to continue with the project. However we could no a longer use the facilities of the chemistry lab. Mr. Saleemi decided that our rocket was too dangerous and we were told to use one of the open lots in the remote back corner of the campus to conduct our experiments. We also realized the obvious problem that powder is powder and cannot be classified as a “solid” rocket fuel. We then made our first real solid rocket fuel by mixing a little water to the sugar and potassium sulphate powder and converting it into a paste, pouring the paste into the rocket tube and then letting it dry in the sun. This seemed to work very well and we ended up with a crystalline solid in the tube. So early one morning when the rest of the cadets went out for their strenuous run along the Grand Trunk Road, Pasha and I headed to our rocket proving grounds in the empty lot with no one but the assistant from the chemistry lab. We set up the rocket with the intention of actually launching it and seeing the height it could reach. At count of zero Pasha touched the acid-dipped rod to the solid fuel. It ignited into an impressive orange-red flame, lifted barely a fraction of an inch and then flipped over and fell to the ground. There it burnt for a few minutes, all fire but no fury, and then died mercifully. It was

obvious that Apollo Plum Jam was a dud. Our fuel was all show and no energy, not surprising in retrospect for a fuel made of sugar.

By now we had run out of ideas and MAD Magazine did not have any more to offer either. So the next week we were reluctantly back to running on the Grand Trunk Road with the rest of the students, having managed to avoid it only for about 10 days. Sadly the world would have to wait another day for some other bright scientist to build a rocket to discover what gravity does to the mental agility of ants.

In a Student Rebellion

It was very early in the morning of March 5, 1971. I was sleeping in the upper bunk bed of my room on the seventh floor of Yurt 4[11] that I shared with three Turkish students. Suddenly the loud wailing of sirens broke the silence of the night. I woke up annoyed by the noise because I had had stayed up late that night studying for the Freshman Chemistry exam. When I glanced out the window I was jolted into reality by what I saw from my excellent vantage point on top of the building on a hill with a panoramic view of the campus and the gently rolling countryside around it. A long chain of headlights was snaking its way up the main road to the campus. In the distance the convoy looked like a strand of shining pearls coming towards me. I could not identify the vehicles in the pitch darkness of night before twilight broke. Almost immediately the PA system came on and announced in Turkish: "The fascist Turkish regime is attacking the dormitories. All students must stay in their rooms and avoid windows and open areas. No one can leave the dormitories. The Dev Genc[12] will fight the imperialist and the Yankees." The message was repeated periodically.

METU[13] was a hotbed of radicals in those years when the Vietnam War was at its peak. The Dev Genc was one of the most radical organizations with roots in the student community in Turkey. Like most radicals they were a small and fanatic group. In my freshman year at METU I had heard about the Dev Genc and I also knew some parts of their revolutionary song in Turkish because of its beautiful cadence. My roommates turned on the radio which reported that the Dev Genc had kidnapped four American airmen working at an intelligence facility near Ankara, and the Turkish government suspected that they were being held hostage on the METU campus. The campus was soon surrounded by the gendarmes of the Turkish National Guards intent on releasing the hostages and eradicating the Dev Genc presence on campus.

Yurt 4 was in a state of commotion and panic. I was feeling a mix of excitement and some anxiety as I recalled the days in Peshawar during the 1965 War six years earlier. A bunch of hot-headed radicals were planning to take on the Turkish Army. Every building had a single stairwell in the center and there were no elevators. Members of the Dev Genc were quickly collecting all the furniture from the second and third floors and piling them up in a huge mountain in the stairwell in order to block access to the upper floors. They planned to set fire to the furniture in the stairwell to make a defensive barrier. This meant that all of us on the upper floors of the Yurt had no way to get out.

[11] Yurt is the Turkish word for dormitory. At METU there were five dormitories at that time called Yurt 1-5

[12] Pronounced "Dev Gench" and meaning "revolutionary youth". The name of a radical student organization in Turkey

[13] Middle East Technical University in Ankara, Turkey where I was a college freshman and sophomore.

March 5th dawned a clear, crisp day on the barren, rolling countryside of Anatolia. At the first light of dawn I could clearly see the other Yurts and the sloping hill on which the campus was located with the main road leading up to it. The road was jammed with a convoy of black Army trucks, some with artillery guns in tow. The troops had disembarked and encircled the Yurts. I could see some soldiers taking positions behind trees and other obstructions, while some crouched on the ground. The Yurts were surrounded as far as I could see. Occasionally an Army helicopter flew overhead. The campus had become a battle zone with hundreds of students trapped inside. I had no idea how the Dev Genc would fight the vastly superior army, but I saw small groups of students with guns in their hands running from one building to another. They had also taken over the administration of the buildings and the PA systems and were occasionally broadcasting revolutionary messages. Some members of the National Guards were using bullhorns to communicate with the students, but we could not understand the exchange. Soon the water in the dormitories was also shut off by the National Guards. We were in a siege.

As the golden sun rose above the hills the gunfire started. At first it was the dull pop pop of pistols which rapidly escalated in to bursts of semi-automatic fire coming from all directions. We quickly took cover in safe places away from the doors, windows and open areas. There was no way to tell who was firing at whom. Like my roommates I found safety under the bed in the corner, crouched against the wall. Pretty soon I heard the shattering of windows and the crashing of glass as bullets ricocheted on the inside walls in the hallway that separated the row of rooms. I could also feel the pounding of a hammer on the wall behind me as the bullets hit the hollow brick walls of the Yurt and settled inside, mercifully unable to pierce through. Yurt 5 was the female dormitory and a little out of the way further up the hill, adjacent to Yurt 4. It was attracting more intense gunfire than the other Yurts because the Dev Genc fighters were using its higher position to get a commanding view of the area. During lulls in the gunfire we peeked out the windows and saw streaks of bullet holes on the side of Yurt 5, like a giant graffiti painted by a drunk. Every so often I heard terrified screams as a female resident of Yurt 5 became hysterical and ran outside in panic, followed by students running after her to force her to take cover. These scenes of terror became the fodder for amusement among us boys in the relative safety of our refuge under the beds.

The gun battle continued off and on till early afternoon. It was impossible for us in our rooms to find out what was actually going. Around lunch time a ceasefire was declared and the gendarmes allowed a number of ambulances to drive up to the Yurts to evacuate the wounded. The following day we heard rumors that one of the leaders of the Dev Genc faked an injury and was evacuated by these ambulances. However, there was a lot of confusion when the ambulances reached the hospitals in the city. In the confusion he quietly walked away and managed to find his way to exile in Switzerland.

During the ceasefire my name was called on the PA system asking me to come down to the cafeteria on the ground floor of the Yurt to receive a phone call. I climbed down the

stairs going over upturned desks, chairs and mattresses blocking the way. My math professor was on the phone. He was a kind and grandfatherly gentleman who had recently invited me and other Pakistani students for dinner at his house. He was concerned about the safety of foreign students like me, and had used his connections to bring a police bus to escort as many foreign students out of harm's way as possible. He told me that he would meet me at the bus stop in front of the Yurts in about twenty minutes and I should get out there with my friends.

I was touched by his kindness and thanked him. However when I went up to my room to get ready I realized that I had a stubby beard which needed to be shaved. I had just turned 18 and my beard was beginning to grow, but I had never shaved before. I could not possibly go to out and meet my professor in the shape I was in. With a modicum of vanity and ignoring the dangers of the situation, I decided to shave for the first time with the brand new razor kit that I had recently purchased. There was no running water and only a few drops trickled from the faucet. I made a mess by cutting myself and bleeding, and cleaned my face with paper towels. In the confusion I took too much time. By the time I came downstairs the police bus had left without me.

Soon the cease fire was over and the shooting started again, but it was more intense in the afternoon. I crawled back to my safe spot under the bed. By now the hallways of the Yurt were littered with glass. The screaming of girls in Yurt 5 continued. As I lay there in the dark and uncomfortable position under the bed my thoughts wandered to my father and mother. At that very moment they were in the eyes of another storm brewing up in the lush countryside of East Pakistan where the exuberance of greenery camouflaged the misery of millions. There the entire Bengali population was ready to revolt against the West Pakistanis, which was far more explosive and violent situation than I was experiencing. My father was Director General of the East Pakistan Rifles with twenty thousand soldiers responsible for guarding the borders at remote outposts. His Bengali troops were ready to mutiny, which they did a few weeks later on March 25, 1971 and our home in Dhaka became the scene of a fierce gun battle. Surely, in the midst of their own crisis, they must be thinking that at least I am safe in far away Turkey. Blissfully they did not know that I was hiding under a bed in the middle of a gunfight!

By late afternoon the shooting slowly died down and the gendarmes reached the doors of the Yurts. The Dev Genc had disappeared. The soldiers announced on the bullhorns that everyone should leave their belongings and come out of the buildings with their hands up. I climbed down the stairs again making my way over the mountains of furniture blocking the way. I came out of the Yurt with many other students in a long line and we were immediately surrounded by the soldiers with menacing, loaded guns pointed at us. We were searched one by one and ordered to walk slowly towards the soccer field next to the Yurts. Many lines of students from all the Yurts coalesced into one long line that walked quietly, guarded by hundreds of gendarmes who were mostly polite young country boys of our age, but armed to the teeth. After a couple of hours

when the air became chilly we were ordered to walk to the indoor sports stadium next to the soccer field.

Soon the sports stadium was filled with a thousand students. We sat around in groups on the spectator benches or on the ground. A ring of gendarmes surrounded us on the upper rows with their wary eyes and loaded guns pointed as us. I met some of my friends and we recounted our experiences of the day. I was frustrated because I had studied hard and was ready for the Chemistry exam. Now I would have to study for it again, not realizing that it would be months before I would take the exam. Rumors were floating around as the youthful crowd had nothing else to do. The most pervasive rumor was that all members of the Dev Genc had escaped through the utility tunnels that connected the Yurts to other parts of the campus outside the security ring established by the gendarme. At one point a gendarme officer announced the name of one of my Pakistani friend and asked him to step forward. He walked up to the officer and was immediately handcuffed and taken away to spend the next eighteen months in a Turkish prison. It turned out that he shared a room with an active Dev Genc member, and they did not get along with each other. When the Dev Genc escaped, the roommate left his pistol in my friend's drawer, which was found by the gendarmes when they searched the Yurts. I was so glad that my roommates did not belong to the Dev Genc!

Nightfall brought tense uneasiness to the stadium where we had no place to sleep. None of us had eaten anything in the day long excitement and confusion of the gun fight. Now there were a thousand hungry and impatient students waiting in the sports stadium not knowing what would happen. Soon they started demanding food and the gendarmes were not prepared for that, which led to even more frustration. Then someone in the crowd started singing the revolutionary song of the Dev Genc in a quiet whisper. Taking his cue, more and more students joined in and soon the stadium was ringing with the beautiful chorus of the revolutionary song:

'ey dev gençlik, ey dev gençlik	"O revolutionary youth,
savaş vakti yaklaştı	the time of revolution has come!
al silahı, vur beline	take your gun! And shoot!
emperyalizme karşı	Against imperialism.''
vedat, taylan, mehmet, battal	Vedat Taylan, Mehmet Battal
devrim için öldüler	Has been killed for revolution
devrimciler ölür ama	Revolutionists die but,
devrimler durmaz surer''	Revolutions continue''

The singing of the banned revolutionary song infuriated the gendarme, but they were helpless. In the darkness of the stadium it was impossible to tell who was singing. A few times some of the soldiers would come inside the crowd. The students on that side would become quiet, and the other side would pick up. This cat and mouse continued for a while. When the students became tired of the revolutionary song they started singing other songs or simply shouting for food. By now all of us were starving. I realized that I had not eaten anything since the previous night, and I was feelings pangs of hunger. The young soldiers of the gendarme had not planned for the eventuality of having to feed a thousand hungry youth. So the tense drama continued with the sound of the revolutionary song echoing louder and louder from the ceiling of the sports stadium. By that time, like everyone in the youthful crowd, I had joined the chorus.

Finally, late at night the gendarmes brought bags of Turkish bread, black olives and Turkish "beyaz peynir" or salty white cheese. Olives are not native to Pakistan and I hated their bitter taste. However I was famished. The combination of olives, cheese and Turkish bread became the tastiest meal that I ever had, and I ate as much as I could get my hands on. From that night I developed a taste for olives which I still have to this day. After satiating themselves the crowd of students gradually fell asleep here and there; some slept on the benches, others on the stairs, and the vast majority on the floor. The singing slowly gave way to silence with the aging of the night.

Next morning the gendarmes were better prepared[14]. They treated us with hot Turkish tea, "kashar peynir" or sweet white cheese, and bread when we woke up in the morning. Everyone was tired and cranky. There was nothing to do and the students were getting impatient. At mid-morning we were ordered out of the stadium and walked in a long line for a quarter of a mile to the main amphitheaters on campus where we were to be tried by a military judge. The gendarme watched us with pointed guns as we walked over, happy to get some sunshine and fresh air. In the amphitheaters we were again crowded and waited impatiently for the judge to start the proceeding. Hunger came back and again there was nothing to eat. So the students ransacked every vending machine they could find in the amphitheater. The snacks in the machines vanished in seconds.

When the proceedings began each student was brought one by one in front of a military officer, where he would give his or her name, sign a document and then be escorted to the judge. This was a long a tedious process for the hundreds of students waiting in lines. When my turn came in the late afternoon the officer asked me for my information and made me sign a piece of paper. After that there was another wait in another line. Finally I was brought in front of a judge who was a middle aged army officer. The prosecutor read the charges: "Rashid Nisar Khan, you have been arrested for sedition against the Turkish Republic and for trying to overthrow the legitimate Government of

[14] I was informed by a Turkish friend who reviewed this chapter that the food was actually donated by sympathetic students of Hacittepe University in Ankara, and not by the gendarme

Turkey by force. Do you plead guilty?" I said "yok" which means no in Turkish. The judge signed a piece of paper. I was escorted out and released.

Outside I joined a number of my friends. We had no personal belongings with us. We were taken by a bus to the central Kavaklidere district of Ankara about 10 miles from the campus and dropped on the curbside to fend for ourselves. The Turkish students went to their homes because no one knew when the University would reopen. The Pakistani students did not have that option. So we debated what to do and finally ended up going to the campus of Hacittepe University in the city which was closed and allowed us to stay in its dorms. These dorms were old, run-down and crammed, but it was the best option we had. So we parked there for few days. The next morning the newspapers were filled with stories of the gendarme attack on METU. One front page had pictures of my Pakistani friends showing ugly wounds on their bare backs and legs from the beatings they had received from the police. These were the same friends who had left the Yurts on the police bus arranged by my professor! The Turkish policemen were vicious and merciless as compared to the young and polite gendarmes of the National Guard. Vanity had saved me from a beating at the hands for of the police!

Two days later the dorm at Hacittepe University was also raided by the police and we were unceremoniously thrown out again. Back on the streets of Ankara and not knowing what to do, I and two of my friends decided to use the forced vacation for good purpose. We planned a sightseeing trip to Greece. Money was not a problem as all three of us had scholarships that paid us well. We took a long bus ride and went first to the port city of Izmir by way of Afyon. There we spent a day and night in a cheap hotel and went sightseeing in Izmir. Then we took a plane to Athens. One of my friends had objected to the cheap hotel we had stayed in Izmir. He insisted that we stay in a luxury tourist hotel in Athens right near Mount Lycabettus in the heart if the city. To oblige him we went to stay there and now I found myself in the lap of luxury after being kicked out on to the streets from the dilapidated dorms of Hacittepe. We spent two days visiting the famous museums of antiquity, the Acropolis and other sights of Athens. Then we took a guided bus tour of historical sites in the Greek countryside around Athens. The bus was full of wealthy and elderly American and Japanese couples, and three scruffy, under-twenty Pakistani students awkwardly mingling with the rich. In a few short days we had gone from the violent den of communist radicals to the opulent luxury of the capitalist elite, such is the fickleness of life.

We absorbed the sights and history of Piraeus, Olympus, Delphi, Mycenae and Petra. After spending a few days in Greece we flew back to Izmir. Those were the days when Turkish-Greek relations were at their rock bottom. The Turkish jet was empty except for the three of us and a young American couple. The pilot was apparently a trainee and this empty flight was a good opportunity for him to practice some flying maneuvers. The landing at Izmir was is still the scariest one in my life as the jet made a steep, sharp turn only hundreds of feet above the ground. As I was straining my body in fear and vainly trying to straighten the plane I could see people on the ground gaping at us in

amazement. When I was getting off the plane with my heart still pounding I saw the elderly pilot patting the back of his younger co-pilot.

Back in Ankara there was no news about the re-opening of the university. Turkey was now in a state of martial law and the civilian government was deposed. The military would not say anything. After a couple of weeks they allowed foreign students to move back onto campus so at least we had a place to stay. We had nothing to do except engage in long discussions about the political situation in Turkey and in Pakistan, or play cricket to pass time. Every day I would go to the post office, impatiently looking for mail from my parents and MIT. Finally the military administration announced that the University will reopen after the summer vacations. A group of us decided to go back home to Pakistan. We made the long journey by train and bus back across eastern Turkey, Iran and Afghanistan, crossing the majestic Khyber Pass into Pakistan.

In less than ten months after leaving home and traveling internationally for the first time, I had become an experienced traveler, never to be afraid of strangers and strange lands.

Dennis: My Mentor

Dennis Howling was my first boss, my mentor and my surrogate father when I started my career in the US. I was twenty three years old when he hired me as a logic design engineer at Instron. It was my first job outside of campus. Dennis was in his early sixties and his remarkable life and experiences fascinated me in those early days of my professional career. He was born in the UK and had joined the Royal Air Force (RAF) in his late teens to become a fighter pilot flying Spitfires in World War II. He was posted to India and flew many combat missions against the Japanese in the Burma campaigns. He was shot down by the Japanese but escaped through the jungle. In India he met and married Sheila who was the daughter of a British plantation manager. Sheila was beautiful even in her late fifties when I first met her. I can only imagine her beauty as a young lady when she met Dennis. His was a real-life story made for the movies. A dashing young RAF fighter pilot meets and falls in love with a beautiful daughter of a British plantation manager in the lush tropical countryside of South India in the middle of a raging war. After the war Dennis and Sheila returned to the UK where Dennis earned a PhD in Physics. In the late Fifties they migrated to the US and Dennis became a physics professor at a Florida university. Later he joined a commercial company and ended up becoming the manager of the computer systems department at Instron where he hired me. While the story of his life was impressive, even more impressive was his deep knowledge of the issues of our times, his love for his wife and family, and his selfless willingness to help anyone in need.

Dennis used to take me and other young employees for long walks on a footpath in the woods around Instron after lunch. During these walks we would have lengthy and sometimes heated discussions about technology, vision, physics, people, family, politics, war, philosophy, life, and love. Dennis would relate his experiences about people, management, and the meaning of happiness and success in life. He was a visionary. He would expound at length on the need for people and organizations to have a long term vision coupled with steely determination. Mixed with his vision was his deep commitment to people, caring for the needy, and the importance of love in one's personal and professional life. Dennis correctly observed that we worked tirelessly for a company owned by strangers only because we cherish creativity and innovation. If we did not have a passion for what we were doing, we should find something else to do. With this philosophy, Dennis gave me and other twenty-something engineers great latitude to innovate, think big, and make decisions which very few other engineers of our age would have. The computer systems group at Instron was therefore the envy of the rest of the company, and this envy sometimes bred resentment among other managers and departments who adhered to the conventional, top-down management style.

One day during our walk Dennis and I came across a hapless earthworm creeping across the footpath amidst the remnants of some other crushed earthworms in the vicinity. Dennis used a couple of large leaves to scoop up the squirming earthworm and place it

on the grass off the footpath where it was safer from being trampled. With the inexperience and bravado of my youth I challenged Dennis. Why bother with this act of kindness when the earthworm does not know, the world will not care, and death was its destiny anyway? His simple reply revealed the depth of his character and the wisdom of his experiences. “Rashid” he said. “I have done my small part to help the earthworm and the world. Now it is up to the earthworm and the other people of the world to do their part.”

I have never forgotten Dennis’ words. In good times and in difficult times I have tried to live up to his words by doing my part as best as I can, and leaving the rest to others. His words brought back vividly the memories of my English teacher, Mother Monica, at the Convent of Jesus and Mary in Sialkot who imbued in me the love of English poetry when I was 11 years old. I still remember the joy I felt the day I first grasped the meaning of the beautiful verses of Thomas Gray’s “The Elegy: Written in a Country Graveyard” as explained to me by Mother Monica when I was coming to grips with the world and with matters of life and death:

> Full many a gem or purest ray serene,
> The dark unfathomed caves of the ocean bear
> Full many a flower is born to blush unseen
> .. and waste its sweetness in the desert air

Through the words of Dennis I found deeper meaning in the poetry of Thomas Gray. These gems and these flowers are not wasted and neither do they go unseen, even though in our solitude we may think such morbid thoughts. Every little thing of beauty and of goodness makes my world richer and brightens the intricate mosaic of my life. Like Dennis in his walks helping the earthworm, unseen and upraised, I am inspired to do my part as best as I can. Our struggle to express our goodness and the best of our calling -- our light and our fragrance - is the infinite wellspring of the collective beauty and grace of humanity. So evolved a philosophy of being that guided me throughout my life and explains the happiness I find in the struggles with the turning of each day.

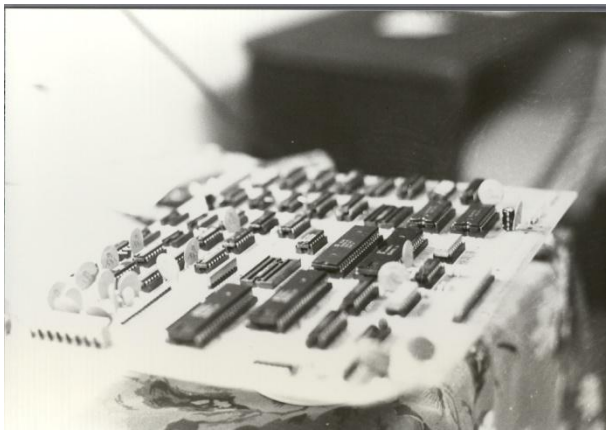
I was never able to make myself pick up earthworms from the footpaths of life in my solitary journeys since I could never match Dennis in kindness and humility. However, I have often encountered one or two ants randomly running around, with abrupt stops and turns, in the bathroom sink which is the boundless white space of their universe. Alone or in pairs, these infinitesimal creatures are searching for something; yearning for some happiness and grace in the endless world which is only a plain old sink. As I peer at them and try to make sense of their random journey, my thoughts always go back to Dennis and his earthworms. I wonder what these ants are seeking. They are in a universe of their own where random encounters produce random results. Surely they must have a greater purpose. Perhaps my life is also a random walk in this world and some greater being is watching curiously and wondering what I am trying to do with the strange twists and turns of my life. Some days, always with Dennis in my mind, I am

moved by kindness and let the ants walk up my finger and gently put them outside the sink where they can seek safety. On other days I think about the zillions of other ants and wonder what difference the absence of one will make to the inexorable destiny of time. I turn on the faucet, washing the ants down the endless pipe of oblivion, thinking that here I witness the last chapter of my life where my destiny and that of the ant is remarkably similar in our dissimilar worlds. We have both struggled to express the best in our individual capacities, and the fragrance and the light of our lives will surely make a difference to the universe that engulfs us in its timeless embrace.

The Birth of a Little Company

Author's Note: *This chapter has many technical words which most readers will not be familiar with. Please do not let that become an obstacle for you. The story will still make sense to you even if you ignore the technical words. While reading, please focus on the events described instead of the technical words. Just think of them as names for products used in a laboratory, or companies that make the products.*

It was now the summer of 1982. In the cool, damp basement of my house in Wrentham, Massachusetts I was laboring with Frust16, the program named by abbreviating "frustration" and combining it with the number of iterations it had undergone in my fruitless search for an elusive bug. The hardware and software of the first SIMA system[15] were working well, except that every half an hour or so the software would go haywire and the system would crash. Two weeks had gone by since I first encountered the problem, and I had struggled from Frust1 to Frust16 in search of the intermittent cause of the crash. Over the past six months since I quit my job as Product Marketing Manager at Data General I had designed the microprocessor-controlled electronics and software to control and acquire data from an Instron[16] machine, and interfaced it with my new SuperBrain[17] personal computer. Now the system would run well for about thirty minutes or so, and then die randomly and inexplicably. On my work table the SuperBrain sat on one side, a cable connected it to the SIMA electronics in the middle, and on the other side was my oscilloscope with probes clipped to various test points on the electronics. In the dimly lit basement the green trace



[15] SIMA was the name of the first product developed and sold by Sintech. It consisted of hardware and software to control and acquire data from a mechanical testing machine.

[16] Instron was the market leading company for mechanical testing systems. It was the first commercial company I worked for. "Instron machine" is the generic name for mechanical testing systems. See http://en.wikipedia.org/wiki/Instron

[17] The personal computer which was used as a part of the SIMA system. See http://en.wikipedia.org/wiki/Intertec_Superbrain

of the oscilloscope painted a clean square wave with sharp edges, confirming what I expected from the design. However, every now and then the wave would become a lifeless, flat line signifying death. Then I would restart the system and begin the hunt again, hoping to capture the moments just prior to death that could yield some clues about the cause of the crash. I probed hundreds of points to see if the signals were free of noise and behaving as expected from the design. Everything looked normal. The only benefit of this otherwise frustrating effort was that I got to thoroughly understand and verify the performance of the system, which was why it ended up being a reliable piece of electronics.

After trying Frust16 for many hours and exhausting all possibilities I finally gave up. I left the basement and went outside to clear up my mind and think of a different new approach. Something was not right somewhere which I could not understand. Deep in my heart I knew that if I persisted the cause of the problem would reveal itself. As soon as I fixed it, it would enter the realm of things that are obvious in hindsight and forgotten, and no one but I would remember or care about it. Two weeks had passed in this futile search, and now some gloom and pessimism were encroaching upon my usual optimism. In frustration I questioned the whole design approach; perhaps I was not that good a designer after all with my inclination to push the limit and always wanting to do more. Was the sophisticated design with an onboard microprocessor and memory running in parallel with the SuperBrain far too complicated than it needed to be? I had doubts about the viability of the business I was starting. I wondered if it would have been better to stay on at Data General with a good salary, great benefits and an easier job in corporate America, like all my Harvard Business School classmates. In that moment of rising despair I thought of the many other struggles of my life, and the dreams each had nurtured in it's wake. I thought of my parents and my young wife, and their hopes and expectations tied to this venture. Surely after coming so far I could find a little glitch in the electronics that I had designed myself. I remembered Dennis Howling and the earthworms struggling for survival on the footpath in a situation far more precarious than mine. I remembered Prof. Aram Thomasian at Berkeley and his stoic patience in face of seemingly insurmountable technical challenges with my Master's project. And I remembered the Eaton Peabody lab where I had spent long hours learning the art of debugging systems which I now loved so much. Somewhere, somehow these recycled memories mingled with the logic of my design, and from these entangled confusion of thoughts a new idea of how and where to find the problem dawned on me. That is how ideas often come to me in strange ways and at strange times. Excited by the possibilities of the new approach and with hope resurgent, I went back to the basement and started molding Frust16 into Frust17.

It was late that summer night when I was working on Frust17. Fatima was asleep upstairs, and the gypsy moths were making their normal racket outside in the summer heat of New England. The basement was dark and quiet as if the world had left me alone to toil with my invention. I finished Frust17, downloaded it to the SIMA system and started probing it's pulses. All the test points looked the same as usual. Then I

probed another test point and stared at the trace on the oscilloscope in the darkness. There I thought I saw a tiny speck, a brighter dot of light, which looked odd hiding in the rising edge of the wave. Intrigued, I increased the resolution on the scope to its maximum. The rising edge changed from a cliff to a slope. I strained my eyes and thought I was seeing a very narrow pulse – what we logic design engineers call a glitch- just after the wave started to rise. I wanted to see it more clearly, so I covered the display of the SuperBrain with a sheet of paper to get rid of the glare. In almost total darkness I stared again. Then the scope revealed the culprit I was looking for. As the signal was rising, it would revert back momentarily for about 10 billionth of a second and then go back up; the most beautiful glitch to behold in that moment of joy when I found it. It was so short-lived that once in a billion times it would trigger another component when it was not supposed to, causing the system to crash randomly.

I was excited by the discovery of the glitch, but so far it was just a good theory. The only way to prove it was to get rid of the errant glitch and see if the crash would happen again. I studied the circuit diagram. I could fix the glitch by adding another chip which produced a clean rising wave. I did not have the chip and it was the middle of night. RadioShack, my rush supplier of electronics, was closed. I had to fix it there and then otherwise anticipation would not let me sleep. I thought of other design workarounds, but concluded they were not feasible. I had used this chip before. I was thinking where I had used it. That led me to think of my work at Instron where the first product I had designed used the same chip. I remembered something else. Mike LeVangie, who was my electronic technician when I worked at Instron, had given me a farewell memento when I left the company to join Harvard. It was a chubby number “1” carved in wood with the electronics of my first design for Instron mounted on it. Now this trophy was displayed on the wall of my bedroom office to remind me of the good days at Instron. I tiptoed upstairs to the bedroom and looked at the trophy. Sure enough, there was the chip I was looking for! Happily I pirated the chip, amused at the thought that this was another gift from Instron to help me compete with her! In another half an hour I had cut up the electronics, soldered some wires and made the other changes necessary to add the new chip. Then I re-loaded Frust17 and turned off the lights. In the pitch darkness of the basement I beheld the most beautiful sight of a clean wave with sharp edges and no glitch!

Convinced that I had fixed the problem I left the system running and went outside and sat on the front steps to savor my accomplishment. The goddess of night was in full stride with the half moon casting a silvery light on the wild oaks on which the gypsy moth were feasting. In the silence of the night I could hear the rustling of leaves as they gorged themselves with abandon. I knew that I had crossed a major obstacle. With that knowledge my world was peaceful, and deserted stood the demons of self-doubt. Billo the kitten joined me outside and soon he was pouncing on some poor moth, believing himself to be the tiger he was not. Was I also deluding myself into believing that I was someone who I was not? My thoughts drifted to the next big hurdle I would face, which was to sell the first SIMA system. Nothing in my life had prepared me for that challenge.

But on that night, with spirits soaring, I concluded again that it was better to be delusional about a worthy though unrealistic cause, rather than being the rational prisoner of the mundane. Just look at Billo happily pretending to be a tiger. If he kept at it long enough he may end up becoming one! No longer able to tolerate the persistence of the mosquitoes and the beckoning of sleep, I went in and down the basement for one last look, like a mother checking on her child in the middle of the night for her own peace of mind. Frust17 was still running happily. Then in the wee hours of the morning I went to sleep in peace.

In a few more weeks I had more or less completed the hardware and software of the first SIMA prototype, working alone in the evening and weekends while holding a day job as a contract consultant at Northrop. I was ready to show the SIMA system to some real prospects and start selling. During the endless hours of working on it I used to dream of selling hundreds of them and revolutionizing the material testing industry through the power of software and personal computers which were just becoming popular. I was at the bleeding edge, which is always a dangerous place to be. Conviction, nurtured by these naïve dreams, built a fortress of confidence in my heart. This fortress made me immune to the fear of failure. How could any Instron user not immediately see the enormous benefit the SIMA system offered? Selling would be easy, I figured, day-dreaming about how I would sell to always-eager audiences of buyers by touting the powerful features and benefits of the system I had invented.

My confidence did not succumb to the crippling fear of failure that could result from dwelling on the huge obstacles I faced. I had never sold anything before in my life, not even a used appliance or a piece of furniture. The marketing manager of Instron, the dominant company in the industry with 80% marketshare, had predicted that Instron could sell only two such systems per year, and therefore did not consider it a worthwhile product to market. If mighty Instron, with all her resources and sales force could only sell two, the number that I and my wife could sell from the basement of our house was presumably zero. I planned to sell the SIMA system for fifteen thousand dollars which was high enough to classify it as capital equipment. How many companies would spend so much money on buying a new, unproven piece of capital equipment from a foreign fresh graduate working alone with no employees, no brand, and no resources other than foolhardy determination? I had a heavy Pakistani accent which made it difficult for Americans to understand me, especially when I got carried away talking rapidly so that I could highlight all the features of my invention and not miss the last little one. And above all was the fact that I had no money and my net worth was negative with a mortgage and a young wife to support. I cannot say that I was blind to fear born of rational thought; simply that in the long days and nights of working in solitude I had banished doubt by combining hope with self-confidence. I had convinced myself that the mechanical testing world was ready for me, and surely every Instron customer would see the value in the system born of passion in the basement of the little house in Wrentham.

I was given Bob Earlandson's name by a former colleague at Instron who was a service engineer and knew many Instron customers. Bob was the lab manager for Albany International Corporation in Dedham, MA and had several Instron machines in his lab. I had no idea what the company did and I really did not care. I was confident that if they did any type of material testing using an Instron machine, I could help them. One bright morning in late September of 1982 I made the first sales call in my life and called Bob with fear and anticipation. He was very friendly on the phone and interested in learning what I had to offer. He told me that they had two Instron machines and neither was hooked to a computer because the computer systems from Instron were very expensive. Ah but those were the same systems that I had designed when I worked for Instron! Now I had developed a more cost-effective system based on personal computers that did much more. I managed to convince Bob to agree to a demo in his lab later in the week. I was thrilled! My very first sales phone call had landed me an opportunity to give a demo to the lab manager of a major corporation. This is exactly how easy I had envisioned sales to be, and a live demo would be so much more convincing than a phone conversation. Over the next few days I put the last touches on the demo and prepared my sales pitch.

On the day of the demo I put on my best suit and tie, loaded the bulky SuperBrain into the trunk of my car and drove to Albany International. There I hauled it into the corporate conference room and was the introduced to Bob. He was a gregarious elderly gentleman with gray hair and a warm smile. He invited one of his technicians named Steve to sit in the demo. He asked me where my company office was and I told him it was in Wrentham, but I stopped short of describing the basement of my house and my "staff" consisting of Fatima and Billo the cat. At a frenzied pace I went through the demo and my sales pitch. Bob nodded throughout and smiled when I talked about the software that would replace the manual work he had to do in the lab. He asked a few good questions, and expressed a concern that this would be the first computer in the lab. That was an opening for me and I went in to a spiel of how personal computers were about to revolutionize the world. It was up to pioneers like him to lead the revolution. Being on the leading edge myself, and riding the wave of youthful enthusiasm, I did not have the wisdom to know that most people do not want to be leaders of a revolution! Bob could see my excitement and our discussion lasted well beyond the one hour scheduled. He then briefly explained what Albany International did as he gave me a tour of his lab. That is when to my great surprise I learnt that the company was a sub-contractor for NASA and responsible for making the fabric liner that was glued sandwiched between the aluminum body of the new NASA Space Shuttle and the ceramic tiles outside. Together they formed the heat shield that protected the Shuttle from burning up during re-entry. In those early days of the Shuttle program one of the big problem that got a lot of publicity was the tiles falling off during lift off which could result in the Shuttle burning-up on re-entry, as tragically happened to Space Shuttle Columbia twenty years later. Bob's lab was responsible for testing the strength of test pieces cut from the side of each and every square foot of the fabric, and the adhesive that glued it to the body and the tiles. Suddenly I grasped the enormous

significance of the testing! He showed me how they conducted the tests, which involved manually controlling the machine, reading the results from a strip chart recorder using a straight edge, and then recording them in a notebook. I explained to Bob how the SIMA System could control the machine for the duration of the test, gather the data, and produce the results in the format they wanted. We concluded the meeting by Bob asking me for a price proposal which he would discuss with his management.

I left elated. On the short trip home and over the next few days my head was spinning with dreams of all the possibilities. The first sale ever in my life from the basement of my house would be for a system to perform 100% quality control of a critical component of the NASA Space Shuttle! I remembered with happiness the disaster of the Apollo Plum Jam rocket I tried to make with my friend Pasha in high school when we almost burnt down the chemistry lab, and the abandoned dreams of my youth to become a fighter pilot and astronaut. This was the closest I would be to anything to do with the astronauts. What a great story it would be if I could get this order? This was the opening I needed and there was no limit to my motivation as I worked long hours finalizing the product. Whenever I was tired or faced a serious obstacle I thought of the Space Shuttle and what I would be doing for it's success to excise the demons of doubt. I continued my day job consulting for Northrop to pay the bills, and worked on the SIMA system in the nights and weekends. At night I would go to bed, and when Fatima was sound asleep, I would sneak out of bed and go down to the basement where Billo the cat would crawl up in my lap. I would either probe the electronics with my oscilloscope to debug the remaining issues, or would be glued to the screen of the SuperBrain working on the program. I prepared the price proposal for Bob and mailed to him. Then I eagerly waited for the phone to ring.

A couple of weeks went by and nothing happened. Hesitantly I called Bob to see if he had received my letter and quotation. He was pleasant as usual and reiterated how impressed he was with what he had seen in the demo. However money for buying a new system was not in the labs budget for the year, so he had to talk to some other people to see if there was some leftover money in their budgets that he could use. He confirmed that he was very interested and that I should call him back in a few weeks. I was a bit disappointed, but since I still had to do some work to complete the system in my spare time, I tried not think much of it and continued my efforts.

A few more weeks passed and now it was close to Thanksgiving, and still no word from Bob. Now I was a bit worried and I called him again with some trepidation, expecting bad news. Bob was happy to get my call and we engaged in small talk about the upcoming holidays, talked about his grandchildren and his passion for tennis. Gradually I steered the discussion to the subject of my interest. He told me that buying the system was a high priority, but they had no money in the budget for the year. I would have to try again next year. In passing he mentioned that the Instron salesman had visited him and they had discussed the need for a computer system for the NASA project. Instron was also going to give a price quotation but Bob thought it would be very expensive and

not as flexible as what I had developed. Sensing the opportunity slipping away I explained to Bob that the reason for that is that the Sintech system was based on the new technology of personal computers which was far more cost-effective than the minicomputer technology Instron's system was based on. Personal computing was the wave of the future. He said not to worry. They have to evaluate different vendors as a part of their due diligence. In any case they would not have any money till the middle of next year. We ended the call on a friendly note with Bob wishing me the best of success for the coming year, and also encouraging me to call him if I had any new ideas. By then I knew that I had failed to make this sale, but did not understand why as I had the gut feeling that the lack of money in the budget was not the reason. I also did not understand why, if selling was all about relationships, I was still unable to sell to Bob since I had a very good relationship with him. The Space Shuttle would have to go on without me and my little dreams.

I was sad and disappointed. Here was a real customer with a real need who was also a nice man. Yet I had been unable to sell him. Despair and self doubt crept back in my life. I talked at length with Fatima who was my close confidante. We both agreed that I had developed a very good product. I just had to keep on going and not give up. With not much else to do, I started calling lab managers of companies in New England that had Instron machines. One of them was Joe Piccolo at Davis & Geck Company outside Danbury CT, later acquired by Johnson & Johnson. Joe was in charge of the corporate quality lab in this company which made medical sutures. They were required by law to do rigorous testing on every batch of sutures that was manufactured. He listened to my pitch and then invited me for a demo for him and his team. Danbury was about a three hour drive from my home in Wrentham. With renewed excitement, I loaded the SuperBrain into the back of my VW Rabbit and drove down to Danbury early one morning so I could be there for the 10AM presentation. This was the first of hundreds of long and lonely road trips I made over the next six years to companies all over the US in cities large and small, and it was ordained to be auspicious in its own strange way.

I arrived at Davis & Geck at the appointed time after a quick breakfast at MacDonald's. This was my second demo and I felt more comfortable. The demo went very well and Joe and his team were impressed with the product. They asked numerous questions and the two hour meeting stretched to three. They quickly figured out that I was not just any ordinary sales person as I had deep knowledge of both the hardware and software, and I also knew a lot about their Instron test machines thanks to my three years of intensive work at Instron. Little did they know that they were talking to all the talent in the company and that I had single-handedly designed and developed the hardware and software. The meeting concluded with Joe telling me that he did not have an immediate opportunity, but they will keep an eye open as the company was expanding and opening new plants which required rigorous testing to comply with FDA requirements.

I was happy when I left Davis & Geck. The meeting was a reconfirmation that the product was good and the vision of personal-computer based testing was spot on. I

simply had to do more of these demos and sooner or later doors will open for me. I started finding my way to the highway from the back roads in the beautiful fall countryside adorned with a tattered garment of light snow. I was a little lost when I noticed a beaten-up old pickup truck behind me. Perhaps it was someone else headed to the highway. However I soon realized that the pickup truck was following me. I was on a country road along a New England farm with an old barn and rusting farming instruments lying outside in disarray. Concerned about why someone would be following me I decided the best thing to do was to stop and find out. Sure enough the pickup stopped behind me. The driver came out as I stepped out of my car. She was about thirty five years old in a disheveled dress and curly lose hair which were unkempt under a colorful woolen cap and a woolen scarf wrapped around her shoulders. She reminded me of Lynette “Squeaky” Fromme of the Manson cult gang who had been in the news again only a few years ago for attempting to assassinate President Ford. Now I was fearful of this encounter. She walked up to me and said “Sir, I am moved by your devotion to your faith. Will you join me in a prayer for Jesus our Lord?” as she gestured towards the back of my car. At first I had no idea what she was talking about. Then I realized that my car, which I had bought from a nurse in Detroit who worked with my brother, had two bumper stickers which I had not bothered to remove. One read “Star Trek Lives” and the other "Jesus is Lord”. I did not know what to do in that awkward moment. I was afraid to say no lest I offend her and perhaps make her angry, with flashbacks of the gory details and gruesome pictures of the Manson gang's murder of Sharon Tate-Bianca coming to my mind. I did not have the heart to tell her that I was not a Christian. Quickly I decided that the safest thing to do was to agree to her request and hope for the best. So I told her that I was in a rush, but would be happy to join her for a short prayer. She walked me to a small patch of grass on the roadside and sat down on her knees, and I did the same facing her. She shut her eyes and started praying in a soft voice with her hands clasped. I quietly imitated her. It was a surreal sight. Here was Pakistani-American Muslim would-be entrepreneur on his first sales trip in his best suit and tie, kneeling on bare ground in a Christian prayer with an American hippie on a country road, with the chilly breeze of November playing games with the scattered golden leaves of late autumn! To my great relief the prayer lasted only a couple of minutes, after which she thanked me and drove away in her pickup, leaving me alone to dwell on the strangeness of life. I now had the Christian prayers of a stranger, another blessing for me on this first out-of-town sales trip of my life.

Soon the year 1982 turned, bringing the first anniversary of the day I left my job at Data General to devote my energies to Sintech. I had spent one year making the prototype. Within a month after I purchased the SuperBrain the prior year, IBM surprised me and the entire computer industry by announcing the IBM Personal Computer which grabbed the spotlight of the emerging personal computer market and was an instant hit. The SuperBrain, on which I had invested all my saving only a few months ago, was suddenly obsolete and the company that made it went bankrupt a few months later. I wanted to switch to the IBM PC, but I had no money. I had two prospects but no customers. And even these prospects had told me they would not be buying anything in the near future.

I had a full time consulting job in the morning to pay the bills, and devoted the evenings and weekends for the hardware and software development of the SIMA system. Fatima was my closest companion and supporter. She was taking classes for an Associate's degree at a local community college. In her free time she helped me by doing a variety of things for Sintech such as reviewing and testing the IMAP software, writing the documentation and doing some simple programming which she was learning at school. We would often go out for walks along the country road and have discussions about the business and challenges we faced. She was a firm believer and never had any doubts, and even in the gloomiest of days never asked me to drop the idea of Sintech and get a regular job like everyone else she knew was doing. Fatima wanted to start a family but I convinced her that she was too young and it was not the right time for us. One day while driving in town she saw a sign by someone wanting to give away a litter of kitten. From that litter she picked up the most playful and energetic kitten and that is how we ended up with Billo the cat. Both of us grew very fond of Billo and in a way he was a substitute for a baby. We lived a frugal but peaceful and simple life in a country setting, far from the hustle and bustle of Boston. With the student loans from MIT and Harvard, and the investment I had made in the SuperBrain and the oscilloscope, our net worth was still negative and we had no savings. Yet we were happy and enjoyed the numerous gifts we were blessed with. For me the most important of these gifts was that I was now a free man, my own boss able to devote my energies to the vision I passionately believed in. Never again would I lose this freedom, for once you have tasted it, it is hard to give up.

In early 1983 I met John Lamb and David Gleicher, two retired consultants from Arthur D. Little Inc., both in their mid-sixties. They came to see me in my "office" which was the living room of our home in Wrentham. They had an interesting background and appeared to have a lot of connections because of their years of consulting for corporate America. More importantly they had grey hair and were good sounding boards for me trying alone to start a business. They were intrigued by what I was trying to do and how much I had accomplished with very little money. They also understood my vision and liked the business plan that I had written for Sintech. I was impressed by their wisdom and their connections and I felt that I could learn a lot from their experiences. They wanted to invest some money in Sintech. John came up with a number of $15,000 each for which they would get 10% each of the company. Like every entrepreneur who thinks his company is worth a lot, my valuation of the company was at least ten times higher. Initially I was disappointed by his offer. But after some quick thinking I came to the conclusion that if after 1 year of work someone is valuing the company at $150,000 in 1983 dollars, it was a fairly good deal. The brutal facts were that the product had never been tested. I had never sold anything in my life and had no business track record. I had no patent protection on anything and software can always be copied. Furthermore the competition was mighty Instron with 80% market share; a publicly traded company with an excellent, world-wide brand, with far more resources than me, my wife and the cat. So I accepted their offer. That $30,000 was all the capital that Sintech ever raised.

John and David also became members of the Sintech Board with me being the third. I trusted them completely even though I had known them for less than a month, and in my naiveté I did not think there was anything wrong with 20% equity holders controlling two thirds of the Board. This caused me a good bit of grief in later years.

Now I had $30,000 in the bank, far more than I ever had. I quit my consulting job at Northrop to devote full time to Sintech. I also spent $3000 to buy the first IBM PC and within a few intense weeks of working days and nights I migrated the hardware and software from the SuperBrain to the IBM PC[18]. With sadness I packed the obsolete SuperBrain into its original box which still sits there today in my garage only to refresh the memories that live in the gardens of my heart. Now the Sintech SIMA system was based on IBM, the largest computer company in the world and a household name. It was a huge marketing gain for Sintech. An unknown startup was no longer selling a system based on the personal computer of an unknown brand. Instead we were selling a solution based on the personal computer manufactured by the best known and largest company in the world! I did not realize it at that time, but in doing so I had developed the first laboratory instrument control system based on the PC. We were pioneers in a new frontier without really knowing it. Over the years in numerous discussions with prospective customers, when the question about the comparative reliability of the systems would come up in comparing small Sintech with mighty Instron, I would rhetorically ask the question "Who do you think makes more reliable electronics, Instron or IBM?" For all but the most diehard Instron customers, that would be the end of that conversation.

There was another big change. Now I had two investors and partners who had given me a lot of money. One of the values that my parents had ingrained in me and my brothers while growing up was that we should always be self-reliant and not take money from others. And if we had to take money, it should be used very carefully, accounted for accurately, and returned as soon as possible. My parents were not familiar with the concept of angel investors. This was the first time in my life that I had taken money from someone, and I was scared at the thought of losing it. I felt a deep sense of

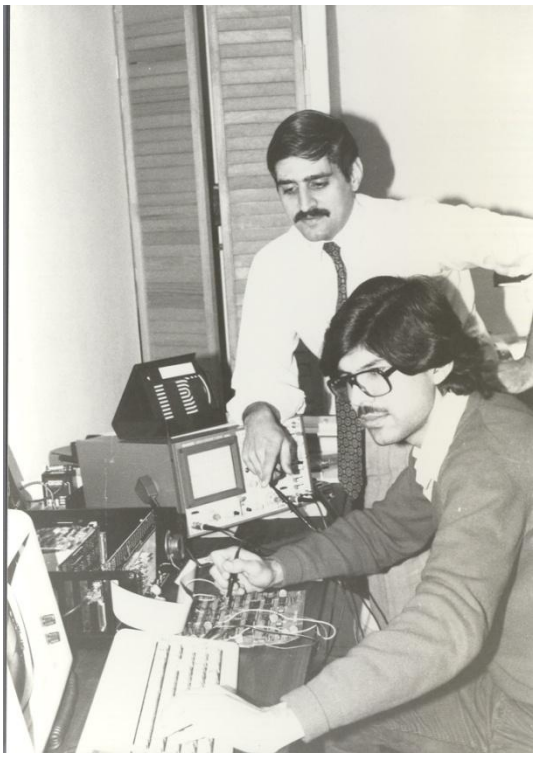
[18] Several factors enabled me to migrate the system to the IBM PC in only a few weeks of intense work. The IMAP software for SIMA was written in Microsoft Basic running on the CP/M operating system which came with the SuperBrain. The IBM PC also ran Microsoft Basic but running on DOS which was only slightly different and I could make the changes relatively quickly. The SIMA electronics was modular in design and based on its own microprocessor which ran independently of the SuperBrain. The only thing the SuperBrain was doing was to read and write instructions and results from its memory. Making the IBM PC do this was not difficult at all. The most time consuming work resulted from the fact that the SIMA electronics was designed to fit inside the SuperBrain and was large. There was no way to plug it inside the IBM PC. Therefore I hacked a solution which was to provide an external box to house the SIMA electronics and power supply. Then I designed an interface card that plugged inside the IBM PC and connected it to the SIMA electronics via a cable. We shipped these SIMA boxes for about 1 year. After that Russ Bauer, who joined us in 1984, repackaged the SIMA electronics into one card that plugged into the PC. This greatly simplified the system as well as cut down the cost substantially.

obligation to make sure that I did not waste any of it, and the pressure and motivation to succeed increased, as if I did not have enough already.

Barry Hoffman was a long time Honorary Counsel of Pakistan in Boston who I had met socially at various Pakistani parties and events in Greater Boston. He was a tall, gregarious gentleman living in a large estate in Westwood that was a reflection of the wealth he reportedly had made from real-estate investments. He knew that I was an HBS graduate and he would often talk to me about business and entrepreneurship, especially when he came to know that I had quit my job at Data General and was trying to start a company from the basement of my house in Wrentham, an act which he admired. One day after a dinner party at the home of a mutual friend he stopped me outside in the driveway. He had a business proposition that he wanted me to consider. The grandson of the former President Ayub Khan of Pakistan had recently graduated as an electrical engineer from Northeastern University. He wanted a US green card so that he could stay and work in the US, but was having a hard time finding a company to give him a job and sponsor him. I did not know Adnan Auragnzeb, but I knew that he was from a very wealthy and famous family in Pakistan. His maternal grandfather was Ayub Khan, the first military dictator of Pakistan who had ruled the country for 10 years in the Sixties. His paternal grandfather was the Wali of Swat, the ruler of the small but gemstone-rich princely state of Swat in Pakistan, and basically the king to the population there. Barry knew that I could not afford to pay a salary and that I was not hiring an engineer. In fact, if anyone, I needed an electronic technician who could help me build and test SIMA Systems. Barry proposed that I hire Adnan but pay him only when Sintech was able to pay and the amount I felt comfortable paying. In return the company would sponsor Adnan for the green card. I told Barry that it was an interesting proposal, but I would like to meet Adnan and think about it.

I met Adnan a couple of days later. He was a polite, refined and polished young man whose demeanor reflected his elite upbringing. Unlike others of his background who wore their wealth on their sleeves, he was humble and down to earth. Technically he was not the best of graduating engineers and had much to learn, but what he knew was more than enough for the technician's work I envisioned he would be doing. We agreed that we would use the best immigration lawyer in Boston to make sure that Sintech and Adnan would not do anything that is in violation of the law as neither wanted any legal troubles. I also had a soft spot for him because his situation brought to mind the three years of difficulties I had endured only a few years ago trying to get a green card. Dennis Howling had helped me out, and now I felt that it was my turn to help someone else in a similar situation. In addition, I could really use the help and it was an excellent deal for Sintech with no downside risk. I accepted Barry's proposal and that is how Sintech got the scion of a famous family as its first, full-time employee with no drain on its cash flow!

Adnan, who lived in Barry's large estate, would show up to work every morning and occupy one of the two cheap folding tables in the basement which were our "workstations". As quickly as I could train him I off-loaded the grunt work of assembling the electronics, ordering parts, making cables, and other such tasks to him so that I could focus on programming and sales. Adnan was also good company during lunch and tea breaks and we would often discuss politics and other topics of mutual interest. He loved to talk and I had to remind him sometimes to stop talking and get back to work. Fatima now had to make a more formal lunch for three because Adnan would join us for lunch. That was his only perk! Within a few weeks he became productive and an asset to the new company.



John Lamb knew a Director at Albany International where I had tried in vain to sell to Bob Erlandson a few months earlier. Through this connection John put me in touch with Fred Wilson who was the program manager of the NASA program at Albany International, and senior to Bob. So I called Fred one day. He was unfriendly and abrupt, and transferred me to his secretary to arrange a meeting. The secretary was equally gruff and would only give a half-hour appointment at a time convenient to Fred. I was not optimistic but figured that a half-hour was better than nothing. So we agreed on the time and date.

When I showed up for the meeting Bob met me at the reception and was happy to see me. He and Steve, his technicians, helped me set up the computer, and throughout the setup Bob kept bantering about the benefits of an IBM PC-based system and how difficult-to-use and expensive the competitive product was from Instron even though they were the market leaders with so much experience. I was happy to have an ally, but kept wondering if it was so good why I had been unable to make a deal with Bob? When I was ready, Fred walked in with a dour look on his face. He reminded me of a middle-aged army sergeant with a no-nonsense attitude. He was not interested in any frivolous conversations and wanted to get right down to business and reminded me that he only had 30 minutes. He had a copy of my proposal with him. Nervously I started my presentation and demo. I was only ten minutes or so into it when Fred stopped me. He said that he had listened enough. What is the price? I referred to the price quotation he was holding in his hand and told him it was $17,000 including annual maintenance of $3000. He thought for a moment and said "Forget the maintenance. I will give you a

conditional purchase order for $14,000. You have one week to install the system and make it work according to our requirements. If it works we will pay you $14,000, otherwise you can pack it up and take it away."

I had to think quickly about his proposal and make a decision on the spot on which the first sale of my life depended. I had never hooked up the SIMA System to an Instron machine before, so the electronics was unproven. But I had tested it extensively on the bench for many weeks now and was confident that I could make it work. One week did not sound enough time to customize the software to their requirements. A lot of programming was needed for formatting their reports. But formatting was mostly grunt work, and did not involve any risk. On the surface one week was 5 days; in reality I had 14 days if I worked 14 hours a day for the next 7 days. It was a calculated gamble. The only thing I had to lose was one week of intense work, and I was not afraid of work. I could do most of the work at home with no distractions. In addition, I figured that Fred would not be involved on a daily basis. I only had to satisfy Bob and Steve. Both of them were very reasonable and I got the sense they wanted me to succeed; Bob because of his pride in introducing this promising new IBM PC-based product to the company, and Steve because I would make his work so much easier by automating the tedious calculations and report generation he had to do manually. So I accepted Fred's offer.

The next week of March was one of the most intense weeks in my life. I was extremely motivated but at the same time I had a lot of work to do. The first task was to hook up the SIMA System to the Instron test machine for the first time ever and make sure it worked. I did that the very next day. When I hooked up the cables and turned the power on with my fingers crossed, all the lights on the Instron control panel started flashing in a bizarre way and the machine made a weird humming sound. I switched off the power immediately and was relieved to find out that I had not burnt up the expensive machine of my first customer. Not an auspicious beginning. To isolate the problem I disconnected all the cables and then started reconnecting them one by one, testing it after each connection. Bob and Steve were constantly looking over my shoulders as I was doing this, worried about their expensive machine. That was causing me a lot of stress and I wished they would simply leave me alone for a day. Gradually I was able to isolate the problem. There was no way to fix it on the spot, so I unplugged it and drove back to the "factory" and there I worked on the solution which was pretty simple. The next day the electronic interface was working perfectly. I knew that half the battle was won. It was exhilarating to see the SIMA system control the Instron machine and acquire data for the first time, validating the design and hundreds of hours of work that went into it. From then on it was simply a matter of working on the software and formatting the reports the way they wanted.

Over the next six days I labored intensely on the software working all day long and well into the night. Every morning I would go to Albany International and show Bob and Steve the progress I had made and get their guidance. Both of them came to appreciate me greatly and we became friends and collaborators in the project. They felt that they

owned the project and I was not simply a vendor but a part of their team. By the end of the week they were bringing their colleagues to the lab to show them the world's first IBM PC controlled automated mechanical testing system which not only did the testing but calculated all the results and produced reports in exactly the format NASA wanted.

In a week the system was fully functional. Fred came to look at it and Steve and Bob proudly gave him a demo of the system with me standing there like a proud father witnessing the birth of his first born. Then Fred took me to the Director of the Lab with a purchase order.. The director signed the purchase order for $14,000 and I made the first sale of my life. No one had heard of Sintech. A few people had heard of Albany International. Everybody knew NASA and the Space Shuttle. And here I was, with my wife and a young engineer in the basement of house in Wrentham, having just sold a mission critical system on which the success of the Space Shuttle depended in no small way. My joy knew no bounds, and I was ready to conquer the world of material testing automation without fully realizing that I was a pioneer and what we had accomplished would change forever how mechanical testing would be done in the future.

I also learnt one of the most important sales lessons of my life. Selling is not about finding nice people who say good things about you and your product, even though it is important to have such friends. Selling is about finding people who can make the tough decision to spend money, irrespective of their temperament. After the first sale Fred became a champion, a friend and a customer for the duration of my time at Sintech. Even more importantly, he and Albany International also became essential to the success of Sintech.

Right after completing the sale to Albany International I had gotten in touch with Jeff Arthur at Davidson Rubber Company in Dover, NH, later acquired by Textron. Jeff was the lab manager and had six Instron test machines in his lab used for quality control testing of automotive instrument panels. I talked to Jeff on the phone and we discussed what Sintech had to offer. He was skeptical and asked me if I had ever sold my system to anyone. Luckily by that time I had closed the deal with Albany International. Jeff wanted to come for a demo and presentation. I could not possibly invite him to the basement of my home! Then I thought of approaching Fred and asking him for a favor. By now Fred was looking like a hero. He had acquired the first PC based system which automated the testing and reporting for NASA, his most important customer, and it was up and running in two weeks. He was very pleased and trusted me, and without me knowing it he owed me a favor or two. So when I approached Fred and asked him to let me use the Albany International conference room for a presentation to Davidson Rubber and let them see the NASA system as a demo, Fred readily agreed. He also had another motive. Being a contract research lab, Albany International was always looking for companies like Davidson Rubber to walk through their facilities in the hope that it might kindle interest in future research projects. By bringing large companies for demos, Sintech was exposing and promoting their state-of-art research capabilities. It was a perfect win-win situation which became even better for Sintech later on.

Jeff came to Albany International with his lead lab technician named Brenda. Brenda was a big motor-cycle driving country girl who appeared more suitable for working on a Western ranch rather than a materials testing lab. They were escorted to a nice big conference room, a far cry from my basement. With renewed confidence I jumped into my presentation, which was followed by a live demonstration by the customer of the system doing testing for the Space Shuttle. Then they listened to Steve talk about the main features of the SIMA system and how much time it saved him. It was bound to impress anyone. At the conclusion of the meeting Jeff invited me to come to his lab in Dover and give a presentation to his boss and the other technicians in the lab. I did that the following week and it was a big success as Jeff and Brenda were already sold. Those were the days before the computer mouse was invented. Moving the cursor on the screen and selecting an option required using keys on the keyboard. In the IMAP software I had developed every screen had two standard commands displayed at the bottom. They were “<P> to Proceed” and “<C> to Cancel”. In my excitement to show them how easy it was to use the software I repeatedly said “Simply hit P to Proceed” during the course of the demo in my heavy Pakistani accent. For many years Jeff and his technicians nicknamed me "Mr. Pee to Proceed" in jest! And I also had a few choice names for each of them.

By the end of April I had received the order from Davidson Rubber for about $23,000 dollars to provide a SIMA system and 11 different types of ASTM standard tests for Jeff's lab. These would later evolve to become the library of ASTM standard tests that we sold to other customers. There was a lot more programming and testing required to make sure the programs worked as per the ASTM specifications. Dover was about 90 miles from home. In May 1983, I drove up there every day early in the morning and worked till late in the night during their second shift, writing and testing the different applications. Jeff, Brenda and the other technicians became good friends and collaborators who helped me understand the ASTM test procedures and patiently worked with me to verify that the tests were performed properly and the calculations were accurate. The software was complete by end of May and I had completed my second successful sale. In 5 months I had already equaled the Instron marketing manager’s forecast that the market for add-on computer systems was only two per year!

One day when I was working at Davidson Rubber, Jeff called me to his office at mid-day. Fatima was on the line all stressed out and crying. Steve from Albany International had called her and told her that the SIMA system in their lab had caught fire. They wanted me to come there right way. She was in a panic as she had just deposited the $14000 check from Albany International which was the payment for our first sale. I immediately excused myself and got in my car headed for Albany International which was 90 minutes away. My head was spinning with all types of nightmare scenarios as I sped down Route 128. The very first system catching fire was not a good beginning at all. I thought of Fred who could be one angry customer. He may cancel the first order. He may sue Sintech for

damages to his lab. Sintech had no product liability insurance. Sintech's reputation would be ruined. What would my investors say? This could be the end of Sintech!

When I reached Albany International Steve came out to receive me in the lobby. He did not seem overly concerned. He took me to the lab and sure enough there was a strong, pungent smell of something burning. He said that the Sintech SIMA electronics box had started smoking, and when he saw the smoke he had quickly stopped the testing and unplugged the power to the box. To my great relief nothing outside the box was burning or damaged. I disconnected the power and opened the SIMA box and there was no visible damage at first sight. On closer inspection I found that a couple of capacitors on the electronic board I had designed had been mounted backwards and their polarity was reversed. They had survived for a couple of weeks, and then had gotten too hot and popped. Their purpose was only to filter the power to the circuitry and they were not essential to the design. I asked Steve for a pair of pliers and simply snipped them off, put the electronics back and reconnected the systems. It worked perfectly. From then on the people at Albany International often made fun of me and my smoking system when they saw me in the lab.

This mini-crisis turned out to be a lucky break for Sintech. After I had put everything together Fred came to the lab and asked me to have lunch with him in the company's cafeteria. I was worried that perhaps he was unhappy and had lost his initial enthusiasm because he had the usual dour look on his face. At lunch, Fred first thanked me for my prompt service. Then he said that Albany International had not purchased any maintenance. How long was the warranty for? Being the CEO and salesman at the same time one has the big benefit that one can give an answer to a customer's question on the spot without having to check back with the home office, but has to check back with the home office if there is a need to buy time! So I made it up there and then and told him that the warranty was for 3 months, but if he bought an annual maintenance contract for $3000/year the warranty would be extended indefinitely as long as they renewed the annual maintenance every year. Fred wanted to negotiate and asked me what discount I can give him since they were my first customer. I thought for a while. I thought of how effectively I had used Albany International's conference room and the first Sintech system to sell to Davidson Rubber. Albany International had an excellent location, good facilities and could be prestigious showcase for Sintech. In addition they were located only four miles up the highway from Instron, and customers visiting Instron could easily come to Albany International to see the Sintech system running live. Of course I had been thinking of all of this in the back of my mind because I had no other way of inviting prospects and showing them a live system in use. So I made Fred the offer that Sintech will give free annual maintenance if Albany International gave us three things in return. First, Albany International would permit Sintech to use the conference room and the NASA system for demos whenever we needed but without inconveniencing them or interfering with their work Second, Albany International would agree to become a reference. And third, allow Sintech to run an ad featuring the NASA

system and a testimonial from Fred. After some clarifications and discussion, Fred agreed to my proposal and we had a deal that was later formalized on paper.

For the next two and half years, till Sintech grew much larger and had its own office with a demo room, we used the Albany International's corporate conference room for Sintech presentations, and lab for demonstrating the SIMA system to potential customers. It was a great story. Instead of bringing customers to our "office" in the small house in Wrentham, I could invite them to an actual customer doing mission-critical testing for the NASA Space Shuttle. They not only saw the system in use but also talked to the users and got instant and positive references. I did not have to invest in a demo system, which I could not afford anyway because the Instron machines were very expensive. To top it off, Albany International was located right up the street from Instron where Instron users, who were my target customers, would frequently come to visit their and easily make a side trip to see this little upstart company called Sintech.

That summer I worked with a photographer and developed Sintech's first full page ad placed in the ASTM Standardization News. The ad had a photo of the Sintech System for NASA's testing at Albany International and boldly proclaimed "Your Instron machine is an obsolete money loser and time consumer. The SIMA System will convert it into a state- of-art test instrument". It included a testimonial from Fred touting the benefits of the SIMA system. When the ad ran that summer, Instron's management had a fit. Here was little Sintech rubbing the nose of the market leading company in the ground. Instron had been a supplier to Albany International for many years and the management of both companies knew each other well. The news of Sintech first sale had already reached Instron's management and ruffled some feathers. It was quickly followed by the news of Sintech being deployed at Davidson Rubber, another important customer. Instron knew that I was a two-man and a woman show operating from my home, and it was hard for them to comprehend why customers were choosing a garage shop over the world's leading mechanical testing company. The fact that I was a former employee made it even more painful. And now I had the gumption to run this ad declaring their system obsolete! The President of Instron called the Director of Albany International to complain. After all, he protested, they had been long term suppliers of test systems to Albany International and deserved to be respected. The Director talked to Fred who called me in for a meeting. He agreed that everything we said in the ad was true, but requested that we tone it down and not call Instron obsolete. I did not tell Fred that I had no plans to run the ad again because we simply did not have the money for an expensive ad campaign. Instead I told him that our relationship with Albany International was very important to us, and we did not want to jeopardize the relationship. I asked Fred how he would like the ad to be reworded, and agreed to do that.

In early August of 1983 I got a call one day from Betsy Westlake. She was the lab manager at Kendall Healthcare in Palatine, IL just outside Chicago, and had seen my ad in ASTM Magazine. Kendall manufactured medical stockings and her lab was responsible

for testing the stockings under conditions that simulated real life use. It was a labor intensive, error-prone and time consuming cyclical test as the technician had to stop the machine at precise locations and use a stop watch to determine when to go to the next point. She was intrigued by the Sintech ad showing an IBM PC controlled Instron test machine. So we discussed her requirements and she promised to send me a detailed description which I could generate a price proposal. The tests were non-standard. I had a huge advantage because I could easily modify the IMAP program written in the BASIC language and adapt it to her specific needs virtually on the spot. Instron, with an expensive mini-computer system and overhead could not match me in price or the delivery time, especially given the "developed-in-delivery" approach I used for Kendall.

After reviewing her specs I gave Betsy a proposal of $18,000 for a SIMA System and customized software to fully automate the tests. She asked for references and I was happy to give her the names of Bob Earlandson and Jeff Arthur who I knew would give me glowing recommendations. In about 3 weeks I had my 3rd order, and this one sold entirely over the phone. Then came the real challenge. I had quoted a 1 month delivery but the system required a good bit of custom programming. At that time I was very busy working on another systems for Albany International, and I did not have much time to work on Kendall's program. At the same time a family matter had to be handled. My middle brother Khalid, his wife, four year old son and two year old daughter had migrated to the US only a couple of month earlier, and were staying with my eldest brother Dr. Shahid Khan, in Detroit. Khalid was preparing for his medical Board examinations so he could practice in the US. The plan was for him and his family to move to Boston and stay with us, and I had promised to give them a ride. So I planned to kill several birds with a stone and also save money by driving to Chicago instead of flying.

We started early one Friday morning in early September. I loaded up the SIMA system in the trunk of the brand new red Subaru we had recently purchased, and took a printout of the entire IMAP program. As soon as we hit the Mass Turnpike Fatima took over the driving and I occupied the passenger's seat with the long program printout in my lap. It is a long 14 hour journey from Boston to Detroit and during this time I carefully went over the IMAP program and marked up all the places that I had to change or add new program lines to customize the application. By the time we reached Detroit late in the evening I had most of it completed. We had a good family reunion in Detroit with all three brothers and our families together in one place after many years. I used the weekend to transcribe the changes from the printout into the actual program in the computer. In the next leg of the journey on Sunday from Detroit to Chicago I made the remaining changes, and reviewed all the changes one final time to make sure they made sense. I wondered what Kendall would think if they found out they were paying thousands of dollars for a program that was basically written in a car ride! The Kendall installation was smooth, and the resulting system was as impressive as the first two. Here was a fully automated test system that stretched and relaxed medical stockings precisely over several cycles based on strict specification. It eliminated a lot of operator

time and potential for error. A couple of years later, on Betsy's recommendation, the Kendall manufacturing plant in Seneca, SC purchased 2 test machines from Sintech for doing the same tests for production quality control.

On the drive back from Chicago we stopped again in Detroit for a couple of nights. From Detroit to Boston the Subaru was fully loaded with Khalid, his family and their possessions in addition to myself and Fatima. At the end of a successful trip it was a fun and enjoyable journey that went by fast as we reminisced about old times and bantered with the kids. From then on we had a full house in Wrentham **in** contrast to the two of us alone which could be lonely at times. It was not only the office of Sintech but the home to two families and two small children. My parents would often come and stay with us. In addition, my uncle, who was in the process of migrating from Canada to the US, would also be a frequent guest. Between the business, the two families, guests and two young children, never was there a dull moment within its walls.

One day I got a call from Bob Earlandson at Albany International who asked me to come and meet Dr. Mary Anne Kenney, a researcher at the company. Bob said that perhaps I could help her. When I went to the company I met Mary Anne with Tatiana who was her lab technician. Tatiana was a recent Russian immigrant in her early forties with the looks and accent of a character straight out of Dr. Zhivago, one of my favorite movies. Mary Anne was doing research which required precisely measuring the compressive strength of the fabric. This involved testing on a matrix of 10x10 points with a separation of a tenth of an inch between points. Tatiana showed me how they did it. It was slow and cumbersome task requiring a lot of human effort and patience. Tatiana would carefully position the fabric on a precision X-Y table, start the machine at a very slow speed to compress the fabric with a small probe the size of a pinhead till the load reached 2 pounds. It took about four minutes to test one point. Then she would use the dial on the X-Y table to move the fabric by precisely one tenth of an inch and repeat the test. At that rate testing one piece of fabric would take entire day with Tatiana watching over it carefully and making sure the probe was positioned properly and the load did not exceed the limit. After testing all 100 points Tatiana would manually type all the readings into an HP computer in the lab which would then produce a three-dimensional graphical printout of the results. Mary Anne asked me if I could automate this test. I recalled reading somewhere in a technical magazine that one could buy these precision X-Y tables with stepper motors that could be controlled by a computer, but I was not sure. I have no aptitude for things mechanical. So I told Mary Anne that I could automate it, but that I would give her a definite proposal in a couple of days after doing some research.

Back home after a few phone calls I talked to a distributor who seemed to have exactly what I needed which was an X-Y Table driven by stepper motors that could be interfaced to a computer. He gave me the specifications and the price on the phone and mailed the catalog. Based on this information I prepared the quotation for Mary Anne to fully automate her testing, including the X-Y table. With the system I proposed, Tatiana

would only have to place the piece of fabric to be tested on the X-Y table, and the software, which had not been written so far, would automatically perform all 100 tests over a 6 hour period, and then transfer the data to the HP computer. I gave them a price of $22,000 for all this which was a lot in those days, but a bargain considering the amount of time I would be saving them. Within two weeks I had the order for my fourth system! And this was the first repeat order for Sintech from the very first customer within 6 months of the first sale. Just thinking of this made my adrenaline flow, and the motivation and energy to perform followed in abundance. This one was even more exciting because the system would be fully automated and computer controlled with the technician not even having to touch anything for the entire duration of the test. Its success accelerated my plans for a robotic testing which Sintech would pioneer the following year.

I went ahead and ordered the X-Y Table for $2000 and hooked it up to the IBM PC. Luckily it was as easy as the product literature had claimed it would be. Within a few weeks I was at Albany International installing the testing the new software. Like the other lab technicians I had been fortunate enough to deal with so far, Tatiana was a big helper and supporter. She would sit with me like mother hen and watch as I wrote most of the code on-site by modifying the software that I had already developed. Within 5 days I had it up and running. It was really exciting because one would simply put the fabric on the X-Y Table, adjust the Instron tester, calibrate the system and leave it alone. Six hours later the 100 points were all tested and the data transferred to the HP computer which then output a very nice colorful plot of the compression profile.

Tatiana loved it. It was her baby as much as it was mine. She was relieved of six hours of monotony every day that she could now devote to other more interesting work. It also doubled her productivity because at the end of the day before going home she could start testing a second piece of fabric in the night and get the results the next morning. Mary Anne was initially very happy with it also, but then she raised a serious objection. She compared the results with tests they had done manually and she was convinced that they were different. She argued that X-Y-Table was not sturdy enough. Even though the needle applied a force of only a few pounds, the X-Y Table would deflect a little bit. Since we were measuring distances to the thousands of an inch, even a very slight deflection of the table would cause a significant error, or so she claimed. I was stumped and did not know how to convince her that the deflection of the table would be miniscule. I tried to argue that the X-Y Table that she was using also had more or less the same amount of deflection. She was not convinced and said that their table was probably sturdier because it did not have to be driven by stepper motors. I quickly concluded that it was futile to argue with an aspiring PhD researcher, and I simply had to find some other way to satisfy her.

I went home very worried that day. Maybe all the work and all the investment I had made would go to waste. There was no way I could make the X-Y Table sturdier. At home I did not want to think of the problem. I decided to mow my lawn to change my

mind. But even while doing that on a sloping yard with patchy grass, my thoughts kept wandering back to the X-Y Table and the problem I was facing. In fact the rectangular pattern I was making with the lawn mower on the grass reminded me of the pattern the probe made on the fabric during the course of the test. Deep in these thoughts and isolated from the rest of the world something clicked in my mind and in a flash I had an idea. I could run the test on the table without any fabric. That would give me a deflection of the table at each point. I could save the deflection at each point in the computer and subtract it from the actual results to give the compression of the fabric alone[19]. It was such a simple solution! Next day I got up early and dashed to Albany International and started working on my idea without telling Mary Anne and Tatiana what I was up to. It took me no more than ½ a day to modify the program and come up with a separate compliance program that measured the deflection of the system at each position of the X-Y Table and save it in the database for subsequent use. Then I showed the results to Tatiana and Mary Anne. It was an instant hit and the fourth Sintech SIMA system was up and running.

Now Sintech demos to prospective customer were even more impressive. We had a fist class conference room. After the introductory presentation we could take prospects to see two systems in operation in adjacent rooms. One was performing 100% quality control on the heat shield tiles of the NASA Space Shuttle, with reports for each batch of fabric going directly to NASA. The second was a fully automated system that performed a 100 tests on a piece of fabric without any human involvement, saving an enormous amount of time and money. Steve and Tatiana were always there to say great things about the systems. It was the best testimonial Sintech could get, and there was not a single prospect who was not thoroughly impressed. Over the next two and a half years we took tens of prospective customers to Albany International. Indeed every sale made by Sintech till the fall of 1986, and many afterwards, were partly attributable to the demos at Albany International. And all this was happening right under the nose of the Goliath of the industry four miles from their fancy corporate headquarters.

Soon after we returned from Chicago, I got a call from Joe Piccolo of Davis & Geck for whom I had made a presentation the previous fall. That was my first sales trip during which I was followed by a hippie and had to say a little prayer on the side of a country road in rural Connecticut. He said that the company has a suture manufacturing plant in Puerto Rico. The plant was looking to buy two computer systems to automate their testing. I had made a good impression on Joe and his team, and they felt that I could provide the software for the Puerto Rico plant. So Joe had recommended me to the plant manager. The plant manager was also on the line and asked that I come and visit them in Puerto Rico and make a presentation to his staff and management about our capabilities. I was very happy that they had remembered me and the fact that they were calling me now was proof that I had made a strong impression. However I was very

[19] Calculating and adjusting the deflection of the test system was a pretty common practice in the industry. However at the time I was unaware of it and it was a new idea for me.

concerned about the cost of a sales trip to Puerto Rico which may or may not result in business. I figured that being in the Caribbean the cost was probably pretty high. As it was I had plenty of sales to keep me busy those days and I did not want to take the risk of a speculative sales trip. So I told them the truth that Sintech was a small company and I could not justify the cost of making a sales trip to Puerto Rico. I was sure that that would be the end of the conversation as well as the prospects of doing any further business with Davis & Geck in the future. To my great surprise the plant manager said that he understood, and it was not a problem. Davis & Geck would pay for my trip! I had never heard of a big company paying a tiny vendor for a sales trip, and that too to a resort location in the Caribbean. But now I had nothing to lose and readily accepted their offer. If nothing else, this would be an all-expense-paid vacation in sunny Caribbean where I had never been before in my life.

On October 25, 1983, as US troops were invading the Caribbean island of Grenada not too far away, I flew to Puerto Rico, the first of my numerous trips to the Caribbean which I now love to visit. A company car picked me up at the airport and took me to the beautiful Cerromar Beach Hotel & Resort. As I walked up a set of stairs to the open air reception and registration area the cool fresh ocean breeze from the pristine aquamarine bay encircled by the wings of the hotel on three sides greeted me. Suddenly I felt blessed by the heavenly vista. This was somehow a reward for all my hard work and the endless hours of labor that had gone into the making of Sintech. The countless long nights of labor in the dank basement now became a small price for this and the numerous other gifts I was to gain from the success of Sintech. After checking into my room I went out to the beach for swim in the warm waters of the Caribbean. There for the first time in my life I saw abundant and beautiful wildlife in the clear blue water, a dazzling display of color scattering amidst the nooks and crannies of the coral determined not to be seen. That first experience with marine wildlife at Cerromar Beach gave me the strong desire to become a scuba diver, a hobby that I started a few years later when Sintech was established and I could afford to take the time off to vacation in the Caribbean and other diving locations. But for now I enjoyed the swim in the refreshing water and only thing missing to make it perfect was the company of Fatima, the beautiful surroundings making her absence even more acute and on the verge of loneliness. I resolved to bring her there on a future trip.

I spent two days in Puerto Rico as a guest of the company, and made presentations to various groups of employees about the features and capabilities of the Sintech SIMA system, and discussed their test requirements. It was an excellent opportunity to bond with the lab managers and lead technicians, and the order was essentially secured in these meeting. I had the evenings free to swim in the Caribbean or just relax on the sandy beach while sipping fresh, hand-picked pineapple and guava juice the memories of which still stimulates my taste buds after all these years. Upon returning to Boston I prepared a quotation for two systems worth a total of $122,000 and mailed it to them. It took a few months, but early the next year Sintech got its largest order from D&G which was almost equal to the entire annual sales of the company in the first year!

Whenever the memories of that trip rekindle and surface above others in my heart I always wonder if the prayer of the hippie made while humbly kneeling on the grassy patch along the country road in Connecticut had something to do with my success at Davis & Geck.

Early one Saturday morning while I was still asleep after another long week of work I heard the phone ringing. Not wanting to wake up, I begged Fatima, who was also asleep, to please get up up and answer the phone. She mumbled something in protest and grudgingly picked up the phone, expecting to speak to a relative or friend from Pakistan who had mixed up the time zones. The caller introduced himself as a buyer from Pratt & Whitney Aircraft in East Hartford, Connecticut, and asked to speak to a Sintech salesman. Suddenly Fatima was all alert and put her hands on the mouthpiece and told me excitedly who was on the line. I jumped out of the bed at the name, and told her to say something to buy some time while I quickly washed my face. She asked him to hold while she located the salesman in our "large office" and then she would transfer the call to his extension on our phone system with only one line! Quickly I splashed my face with cold water and drank a sip or two to clear my throat. Then Fatima “transferred” the call to my extension by handing me the phone. I introduced myself and the caller informed me that Pratt & Whitney wanted a demo and presentation of the Sintech SIMA system advertized in the ASTM Magazine. When could I come to Hartford for that? Giddy with excitement, but not wanting to sound too eager, I told him that I was tied up the early part of the following week but was free on Thursday or Friday. So we settled on the date and time. There I was in my pajamas, sitting on the edge of my bed on a lazy Saturday morning with my wife trying to get back to sleep, making appointments to demo the Sintech system to one of the world’s largest jet engine manufacturer! So much for the claim that a two-person-and-a-wife-company cannot sell capital equipment to corporate America!

On the appointed day I drove down to East Hartford, lugged my bulky IBM PC from the car to a large building in the bowels of a noisy jet engine manufacturing complex. There I was introduced to Phil Santangelo, the senior lab engineer who had a striking resemblance with the actor Robert DeNeiro. I gave him and a couple of his technicians my standard demo and he was most impressed with the real-time interactive graphics on the IBM PC which I had only recently implemented. He showed me his test machine which was an antique Tinius Olsen. It did not have any electronics; instead it had a large needle like an old weigh scale to indicate the load. He asked me if I could hook-up the SIMA system to that! Of course I had never done that before. But I sensed that Phil was only interested in the interactive graphics capability which he had just seen. Without hesitation I told him that an old machine like that cannot be controlled, but certainly I could figure out a way to acquire data and do the graphics display and analysis like he wanted. So was born the Sintech SIMA Data Acquisition-only system on the spot in the test lab of Pratt & Whitney Aircraft. He then asked me a few additional questions. By then Phil and I had become friendly and we talked about Instron and the other

companies in the business. He confided that the lab had $10,000 left in their annual budget which they had to spend before the year-end. Could I provide him the system for that price? I had never hooked up to a Tinius Olsen before, but quickly realized that if I was just acquiring data and not controlling the machine, the work would be much easier and software simpler. So I said yes as long as he provided the IBM PC. He then asked for a list of features of the Sintech software which were unique so that he could convince the purchasing department to issue a no-bid contract instead of having to go through the time-consuming bidding process. I willingly obliged and sent him a list later via mail.

Two weeks later the buyer called me again on a Saturday morning, but this time I was alert and expecting his call. He gave me a verbal purchase order and said that the written order will be in the mail on Monday. I had secured my 5th order of the year from very prestigious company which had the potential to be an excellent reference customer. Now I had the challenge of how to hook to an old machine that was never designed for software and automation. I poured over the vendor's literature and found that they offered an adaptor that converted the rotation of the dial into an analog signal, which is exactly what I needed. That enabled me to deliver the system in less than 3 weeks. Phil was thrilled with his ability to plot the data graphically on the screen of his IBM PC, something which he could not do even on the very expensive Instron computer system he had in another part of his lab.

A month after I installed the system I got a call from Phil in the morning. He said that the SIMA system was not working and he needed a service call immediately. The accounting people were asking him if the system was working so that they can pay Sintech. I asked him what the problem was but his only answer was that it just does not work and he does not see any data on the screen. Little did he realize that I was the only Sintech "serviceman". So I made up an excuse and told him that I myself planned to be in the East Hartford area that day and will stop by to see him. Then I quickly got dressed and made the ninety minute trip to East Hartford. Phil received me at the reception and took me to the broken system. I started the computer and asked him to calibrate the system as that is the first step in the testing process. “What calibration?” was his reply! So I reminded him again that the system must always be calibrated before it can be used. We proceeded with the calibration and then did some testing and everything worked perfectly!

Phil was all apologetic and embarrassed at having called me in panic and not following the instructions. It was about lunch time and some of his work buddies came by and said it was the special day. I had no clue what they were talking about and they had sheepish grins on their faces as if sharing an embarrassing secret. Phil asked me to join them for lunch and said he would make it worthwhile for me. I thought he was offering me lunch as compensation for the inconvenience he had caused me. Why refuse a good meal and an opportunity to further build relationships with a customer

who has other test machines in the large lab which would all need automation some day? I did not have any other business anyway, so I agreed.

We drove in Phil's car with his two other buddies in the back seat. Pretty soon I realized that we were in a very rundown area of the city and I was wondering what type of restaurant he was taking us to. Perhaps it was a East Hartford specialty. The locals always know where the best eating joints are, I figured. Phil stopped the car in front of a large, seedy looking old house with a gaudy, red and green neon sign flashing even in broad daylight. The parking lot was half empty and the place was dilapidated and depressing. As soon as we went in the front door I was shocked to see a topless waitress who greeted us. That is when I realized that we were not in an eating joint but a strip joint! Phil and his buddies started laughing at the look on my face. I told them the honest truth that I had never been to a strip joint before in my life, did not want to now, and that this was a very big sin for Muslims. Phil said that it was also a sin for Catholics like him but insisted that the "lunch special" of the day was really good and I had to experience it once in my life. I did not have any choice. So we sat in a dingy, smoke-filled room with a small stage in the middle and ate terrible food with a crowd of middle aged men gawking and hooting at the disgusting convoluted gyrations of an exotic dancer with loud music blaring in our ears. That trip in the service of Pratt & Whitney Jet Engines still stands out as the weirdest customer service call I have made in my life. Every time while boarding a commercial jet, if I find out that the engines are Pratt & Whitney's by reading the insignia painted on them, I hope that the parts in those engines were not tested in East Hartford on the day of the "lunch special"!

I still vividly remember the voice at the other end of the phone call in October which said in a heavy, Latino-sounding accent "My na-me is Mar-gie Ill-a-ri-na. I am calling from Cer-tain-tee-d Cor-po-ra-tion". Turned out that she was an immigrant from the Philippines. Margie was interested in the SIMA system for her Instron machine used to test fiberglass. We talked for a while and I answered her questions about the system and its price. She was interested in buying but first wanted to see a demo. I invited her to visit Albany International. A couple of weeks later she came to Boston and I took her through the presentation and demo at Albany International which had now become routine for me. Margie was particularly intrigued by the second system at Albany International which was conducting the automated compression test on the fabric without the operator having to do anything. At lunch she kept talking about how much money the system was saving the company and her desire to have fully automated testing in her lab. I did not say much to her at that time, but made a mental note that she would be an excellent prospect for a robotic system which was in my product roadmap for Sintech. I was not aware at that time, but Margie also visited Instron the next day as they were right up the street from Albany International and it was ideal opportunity for her to see what the Goliath had to offer while the offering of David were fresh in her mind. Visiting both companies together in one trip became a common practice for many prospective customers, and a big advantage for Sintech. Instron attracted many more customers who then got to see Sintech and compare.

A month later I had my sixth order, another victory for David over the evil Goliath. CertainTeed was located in Wichita Falls, Texas, a place I had never heard of before. The week before Thanksgiving I flew to Dallas for the first of numerous trips to Texas, and then drove to Wichita Falls in a rental car with SIMA system in the trunk. In Wichita Falls I stayed in a cheap Motel 6 in a room with the stale smell of secondhand smoke strong enough to give me a headache. In the morning I drove out to the company's fiberglass plant after a breakfast at McDonald's where a sweet old Texan lady sat across from me and insisted on calling me "Honey". Taking me for an Indian, she told me all the nice things about her Indian doctor. She was typical of the many nice and kind-hearted people I encountered in my sales trips across the US, and later across the globe with Ultimus. These strangers enriched my life in their own way and enabled me to cope with the many hardships of long trips alone to remote parts of the world.

In the brisk cold breeze of the morning I could seek smoke rising from the chimney stack at the CertainTeed plant looking like a medieval castle far away across the flat green fields of Texas. For a moment I was wondering what I was doing alone in this far off place. I knew no one for hundreds of miles. Lonliness and a little bit of fear overcame me, till I gathered my resolve by reciting verses of the poetry of Iqbal for inspiration as I drove down the country road leading to the plant.

Margie met me at the plant and introduced me to her lead technician named Claire. She was in her late thirties with a heavy Texan drawl and dressed in jeans and a denim jacket. With safety helmets and goggles, they walked me through the plant to the lab located in the back corner of the building. The building was noisy and reeking with the unique, pungent smell of some chemical, and I always associate that smell with the plastics plant all across the US that I have been to since. As soon as we entered the lab the atmosphere changed as it was much quieter and not as smelly. The Instron machine was standing in one corner with the desks of the technicians in the other two corners, one of them belonging to Claire. Her desk was adorned with photos of her two adolescent children and her husband dressed in a cowboy outfit. A large cowboy hat was hanging from a hook on the wall with a colorful scarf. Next to it was a wooden frame on which were mounted the heads and rattles of five or six rattlesnakes of various sizes, leading me to tell them the story of how I at age 6 jumped barefoot over a live cobra in the verandah of our home in Pakistan thinking it only to be a "live rope". Her small bookshelf contained a number of ASTM manuals and other books about plastics. A jar of candies sat on top of the bookshelf.

After settling down I started the installation by first setting up the IBM Computer and installing the interface card inside. Then I connected it to the SIMA box and plugged the interface cables to the patch panel on the back of the Instron with a spaghetti-like maze of multicolored wires. This was the first time that I was installing the Variable Speed Option for which Instron charged $3,500 and provide a whole box of old analog electronics. I offered the same and charged $500 because it was only 3 chips worth $2

plus software in the SIMA system; a good example of the dramatic technological change from mechanical and analog electronics to software and digital electronics that Instron was struggling to cope with, and Sintech was leveraging. Installing it required plugging a small cable connector at a different location on one of the chassis of the Instron machine. In haste I plugged the connector backwards, shorting the power supply with another signal. When I turned on the power to the Instron, all the lights on the front panel lit up momentarily like a Christmas tree and then died. I had burnt down the electronics of their $75,000 machine with Claire standing there watching me do it! Sheepishly I looked at her and exclaimed "What was that?" even though I knew exactly what I had done and she had no clue other than that it happened right after I finished installing the small cable. Nonplussed, she tested a few things on the machine and the power circuit, to no avail. Then she said that it looks like there was a problem with the Instron machine and she would call their Instron service engineer. I knew there and then that here was customer who would be a Sintech champion and wanted me to be successful. She could easily have blamed me of damaging the machine in my haste, but she was prepared to give me a break realizing that such mistakes are made. She exemplified customers who engender loyalty, and one is motivated to go out of the way to serve them. From that day on, I was more determined than ever to make Margie and Claire successful and winners in the eyes of their management.

Now there was nothing for me to do but wait and hope that the damage to the machine was not very serious. The day was a total loss as far as the installation was concerned. I tried to make the best use of the time by training Claire on how to use the software and it's various features. I also made some modifications to the software based on their requirements. At the end of Claire's work shift at 4PM I went back to the cheap motel for a brief rest before going out to eat alone. It was depressing evening with my mind dwelling on the accident and the uncertainty of what would happen next. The atmosphere of the cheap motel with the smell of second hand smoke, and the TexMex fast food I ate alone that night at a small joint across the street did nothing to help my mood.

The next day I was back at CertainTeed bright and early. The Instron service engineer showed up and fixed the machine by lunch time. He did not ask Claire any questions about what I was doing that had caused the problem, and was actually curious about the system. Sintech was still a new and small company and most Instron employees outside of their main office in Boston had not yet realized that we were becoming fierce competitors. In a couple of years when the rivalry became cutthroat and Sintech started making serious inroads into the Instron installed base, the company issued a memo that anyone connecting a Sintech SIMA system to the Instron machine would void the Instron warranty and Instron could not guarantee that the machine could be properly calibrated. We had to fight this memo in many competitive situations. However it turned out not to be as potent a threat as it initially appeared. The Instron machines of this type were old anyway and outside their warranty period. Instron was almost a monopoly with 80% market share, and many customers were unhappy with their high

prices for services, accessories and spare parts. These customers did not like a vendor threatening them for using a competitive product which was innovative, cost-effective and offered by a vendor who they sympathized with as the underdog. Compared to Sintech, Instron was a thousand times larger. But when compared to customers like Kimberly Clark, 3M or Dow Chemical who later became typical Sintech customers, Instron was also a small company. These big companies resented being pushed around by a small company. Without us knowing, Sintech became an ally to many of these companies in addition to being the underdog that they rooted for.

I reconnected the SIMA system and was extremely careful with the Variable Speed Option. By the end of the day, while I had made a lot of progress, it was clear that I would be unable to complete all the work and train the technicians by the end of the following day when I was supposed to fly back. I discussed this with Claire and she agreed to make arrangements for me to work the night shift to make up for the lost time. She also volunteered to be there in the lab as the company policy did not allow a vendor to be in the plant unsupervised. At the end of the day Claire went home for dinner with her family and brought a serving for me as my dinner that night, a gesture of hospitality that we Pathans never forget. I enjoyed a homemade Texan dinner that night, a far cry from the oily TexMex fast food the night before. This Texan lady with her southern drawl and conservative outlook had not much in common with me except our humanity and that we both wanted the system to be installed successfully. Throughout my time at Sintech I have been blessed to have known numerous customers like Claire, who have rooted for my success and collaborated with us in different ways. I have never understood the reasons for their generosity other than that they genuinely liked me and the Sintech products, had a big stake in the success of what they purchased, and all instinctively rooted for the underdog. I worked till 3AM that night, with Claire helping me verify the performance of the system. When we left the plant in the early hours of the morning the system was working perfectly and the only thing I needed to do the following day was train the other two technicians. Before leaving Wichita Falls, Margie and Claire took me out for lunch. Among other things we again discussed the possibility of developing a fully automated testing system, and it was clear that Margie was intrigued by the idea. I knew that in Margie and Claire I had the first prospects and perfect champions for RoboTest which was in my business plan for Sintech but still only a vague idea.

It was now the December of the year of Sintech's birth and first encounter with the real world. The year was heralding its passage into history by serving the last cold sunsets in it's inventory. Light snow was falling in spreading darkness when I reached home after a day-long sales trip in my car. The sight of my humble home made me happy and satisfied. From the lights in its windows and the smoke rising from the chimney I knew that the family was getting ready for our typical dinner. Instead of going inside and playing with the niece and nephew, which I enjoyed doing when I came home, I decided to walk the driveway for a few minutes to get some fresh air now and then mingled with whiffs of smoke from fires burning to keep the neighbors warm. Wrentham forest

surrounding our house was quiet and peaceful. Snowflakes were floating in the air like cotton fluff trying to defy gravity. When I looked up I felt the sensation of being lifted silently into the sky on the wings of an angel, and the joys in my heart yearned to become prayers of gratitude. I counted my numerous blessing because the year of birth had been a magical one. I had sold six systems, exceeding the predictions of the Instron marketing manager by 300%. Every one of the customers was an excellent reference and remained so throughout my time at Sintech. These small victories against heavy odds was an early and convincing testimony that little Sintech could compete with mighty Instron on the latter's turf, and win by changing the game from mechanical to software. Sintech recorded $135,000 in sales in the first year and a profit of $35,000, yielding over 100% return on initial investment. In stark contrast to the negative net worth at the start of the year, the company now had some real cash in the bank. We had successfully transitioned from the SuperBrain to the IBM PC and ready to ride the coattails of the phenomenal PC revolution. We had our first fulltime employee. Sintech had run its first ad and in a small way unnoticed by most of the world, its brand was born as a pioneer in computerized mechanical testing.

I could keep counting the blessings but then Fatima came out to join me for a walk in the neighborhood, and together we savored our small victories. A small American dream was realized; a reaffirmation to those who knew us that the United States was indeed the land of opportunities. Only in America a young, fresh immigrant with no sales experience, no resources and no network could do what I had been able to do. In this beautiful land that I had adopted, opportunities were created for me by simple, decent and big-hearted individuals who were our early customers. They took the risk, staked their reputations and their company's money on a new product made by an unknown startup because they believed in us and in the innovative quality of the product without concern for our foreign accents, unpronounceable names, strange customs, and the minuscule size of our company. With the knowledge of their support the dreamer from Pakistan found the determination to transform his American dream into a small American enterprise.

Bloodied in Indiana

It was early Monday morning on a bitterly cold January day in Fort Wayne, Indiana. Light snow had fallen the night before as Sudhakar Kamath and I watched the Super Bowl in a cheap Holiday Inn. We were in a rental car that we had picked up from Detroit Airport the day before and driven down to Fort Wayne. This trip was the "practical training" for Sudhakar, the first applications engineer I had recently hired at Sintech. His job was the field installation of the systems and training the customers. Sintech was growing and I looked forward to having someone off-load me, as I was doing everything at that time. In fact, that week we had scheduled two different installations that provided an excellent opportunity for training Sudhakar.

These customer installation trips were extremely stressful in those days and I was the only one who could do the installation. Sintech was very small with five employees including myself, my wife Fay, Sudhakar and two junior engineers. The customers were some of the largest companies in the US. They were very demanding, especially when buying from start-ups. The software was highly customized to their unique requirements based on specs which are always vague, giving the customer the benefit of the doubt. It was always unclear how long an installation would take because of unanticipated problems and ambiguity between what is and is not included in the spec. I often used to spend days and nights alone in the customer labs resolving problems and tailoring the software to their exact needs. When there was a software or electronics problem I was on my own. There was no one to call for help. Sintech had no savings and we lived on the money received from one sale to the next.

We were driving along a divided highway to the customer's plant just outside Fort Wayne. There was mild but steady traffic. I was driving on the left lane and neither of us had fastened our seatbelts. No one was expecting anything out of the ordinary. I was not at all concerned about the fact that a Pakistani and an Indian, neither US citizens, were alone in the conservative suburbs of Fort Wayne, hundreds of miles away from anyone we knew. After all this was the US, the land of opportunity. Two ants, stressed by the anticipation of a new installation, were running about their business in the pure whiteness of the rolling farmlands of Indiana blanketed with snow. We were mercifully unaware of the possibility that at any moment we could be wiped into oblivion.

Suddenly, out of nowhere I saw the car ahead turn sideways and start skidding and wobbling. We had hit a patch of ice covered by snow on the freezing road. Sudhakar braced himself for a collision and uttered some words of caution. In a split second I yanked left to avoid the car in front and the traffic on the right. Our car hit the guardrail dividing the highway and spun around and stopped sideways in the left lane, inches away from the car in front that had triggered the event. I was closer to the barrier and the impact lifted me up and I hit the steering wheel with my body and the windshield with my nose. Sudhakar was on the passenger seat further from the impact, and had

more momentum as we hit the guardrail. His forehead hit the windshield with such force that the glass pulverized and created a finger-sized hole. He fell back on his seat and blood flowed profusely on his sweater and lap. Badly shaken but uninjured, I got out of the car to come around and help Sudhakar. As I stood up outside and looked behind I saw a red pick-up truck in our lane breaking and skidding as the driver attempted to stop without hitting Sudhakar's side of the car and pushing it over me. For a moment I froze and gripped the door of the car. I have no memory of fear or panic as there was no time for either. More memorable were the rude remarks of the truck driver after he managed to stop short of impact. By the time I walked over to the other side and opened the door, Sudhakar was in shock and shaking uncontrollably. I had no idea what to do, and I am afraid of blood. My instinctive reaction was to pull his head to my shoulder and try to calm his convulsing body without touching the gaping wound on his forehead oozing blood. His blood was now on both of us.

Moments froze into what seemed like hours as I held Sudhakar in my arms. It was surreally peaceful and quiet. I remembered the dream I had as a child of ten when I was stabbed to death by a man on a bike as I walked home from the Convent of Jesus and Mary School in Sialkot. My murderer rode his bike towards me with a butcher's knife in his hand, stooped low like a polo player on a horse aiming for the puck. There was a lot of commotion in the crowd and I was screaming as he stabbed me in the stomach. Then there was the silent stillness of sudden death, like now. I was in heaven. Pain dissolved quickly leaving the quietness of solitude. It was dark and very comfortable in heaven. I strained my eyes to see what was around me in the peaceful place ready to meet the angels of God. As my eyes adjusted to the darkness the place started looking oddly familiar. Soon disappointment took hold of me as I discovered that I was in the comfort of my bed at home. No heaven for me quite so soon. For a few moments the white, snow covered fields of Indiana were quiet and peaceful as my dream. In the shock I was blocking the noise of passing traffic.

Slowly the hubbub of the accident scene brought reality back into focus. A young lady stepped out of the car in front. She was visibly pregnant and crying even though nothing had touched her car. The truck driver went over to console her. And there alone was a Pakistani Muslim entrepreneur helplessly holding in his lap the profusely bleeding head of his Indian Hindu application engineer ready to go into convulsions in a banged up car with a pulverized windshield on a highway along the snowy fields of Indiana. This is also how American dreams are made.

The police arrived followed by an ambulance with sirens blaring. The pregnant lady got most of the initial attention. Some town folks who knew her stopped by and comforted her. I was asked to step aside and talk to a policeman on the roadside. The ambulance crew gave emergency aid to Sudhakar, strapped him on a stretcher and took him away. Soon the pregnant lady's husband showed up and drove her away and I was left alone with the police to go through the cold formalities. No one was hurt other than Sudhakar. I was badly shaken and beginning to feel sore in the winter cold. The front left of the car

was mangled and the headlights destroyed. But the car was drivable. After making their report the police left me alone on the roadside to cope with the rest of my day.

I started the car and drove down the highway to the first exit leading to a small country road where I could park safely. There I stopped the engine and just sat in the car and stared at the white fields of snow, randomly pockmarked with black spots where plants yearned for the sun. By now the flow of adrenaline had stopped and my body was beginning to ache. On a cold day I was facing cold reality. If any one of the three vehicles involved had been just a little faster the outcome would have been catastrophic. Blood was all over my clothes. Sudhakar was in some unknown hospital in an unknown condition. We were already late for the appointment with the customer. Uncertainty, fear and doubt crept into my thoughts. Should I just call it a day and cancel the trip? Where would I go after that? How long will it take Sudhakar to be released from the hospital? Will he have some permanent disability? How much would the medical bills be? Would the car insurance cover the damage? Will the customer cancel the order from an unreliable Pakistani entrepreneur and his Indian engineer-in-training, both with funny accents who worked for a five-person company? Will Sintech, which had less than $5,000 in the bank, survive this accident? I was alone in a strange place. There were no cell phones in those days, and no one to call.

Loneliness entered my world with the freezing cold. I quietly started crying. I thought of my beautiful young wife back in the office going about her work. I recalled her happy green eyes and the dimple on her cheeks adorning a radiant smile. I recalled with joy the memories of her fondness for me when she was a child. I dared not call her in my sadness on a day that had started horribly. Was she not reason enough to forget my state and continue with the business that she had sacrificed for in her love? I thought of my parents and the harrowing tales of the Partition of British India and the sadness it spawned among Muslims and Hindus. The blood I had seen today was a mere speck compared to the carnage they witnessed and the lives it ruined. Pain is only relative and my life was blessed with so many gifts. I thought of the endless blue sky in the remoteness of East Pakistan bowing to meet the undulating green rice paddies. Humanity toiled in those fields at the very moment when Bara Imam's[20] jeep received the cryptic wireless Morse-code message: "Rashid awarded CENTO/METU scholarship. Proceed to Ankara as soon as possible". Were those peasants in the rice paddies not toiling to paint the verdant fields of my happiness for one of the most cherished moments of my life? I thought of the pregnant lady who had briefly crossed paths with us today. Although a nameless stranger, how much sadder my world would have been if our cars had collided?

Slowly but surely the spirit came back with the determination of the boy who would not give up. This was another memory that would live in the gardens of my heart. God in

[20] "Bara Imam", or big chief, was the code name of my father, Brigadier General Nisar. A. Khan, who at that time was Director General of East Pakistan Rifles, the national guards responsible for border security.

heaven had saved the earthworm for another day, and now the earthworm and the world around it had to go about their business to excel at the purpose of their lives. My first customer of 1985 was waiting, and the only purpose of my life that day was to serve the customer. Surely one accident, a close call with death, and a bloodied trainee would not hold up that purpose. My calling was to make the best mechanical testing software in the world, and that was what I was going to do next. I started the car and drove away from the snowy fields of Indiana with a harvest of new memories.

I showed up at the Phelps Dodge Company two hours late. The receptionist gave me a curious look but said nothing when she saw blood on my clothes that I was trying to hide by positioning my tie and buttoning up my sports jacket. I explained the situation to my contact who offered to postpone the installation. However I insisted on proceeding and asked for permission to put on a sweater to replace my coat and tie and hide my bloodied shirt. He probably had never encountered a determined Pakistani before and all the crazy things we go through. During the day I proceeded with the installation, training the lab technician and resolving the software problems that were typical. Sudhakar called from the hospital at midday to my great relief. He was a bit dazed with 18 stitches on his forehead that explained the bleeding, but was otherwise fine. A little while later he showed up at the customer site. This time the receptionist freaked out to see a second engineer from the same vendor with a massive bandage on his head! I finished most of the installation, but Sudhakar did not get much of any training as the poor guy sat quietly in the corner under sedation.

That night we drove back to Detroit in the banged-up rental with the front left headlight hanging out and dysfunctional. To block the freezing wind I put a masking tape on the passenger-side windshield where Sudhakar's head had punched through. Sudhakar flew back home to Boston. The next morning I was back alone on the road to Fort Wayne to complete the remaining work at Phelps Dodge. I maintained the schedule for the rest of the week as planned and returned to Boston on Friday. Sudhakar's training was the only casualty.

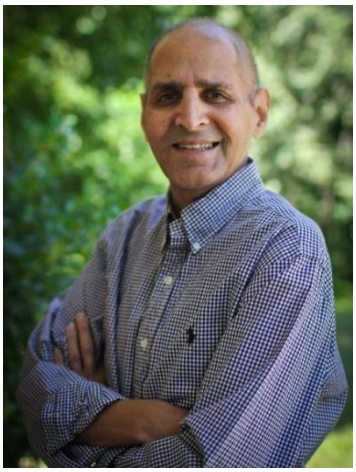
Back in the office the next week I learned something else about starting a business and the role of dumb luck in our lives. When Sintech was incorporated in 1983, I had used the services of a small business lawyer. I was a student in his class on Small Business Entrepreneurship at the Harvard Business School (HBS) a couple of years earlier. I figured that if I used an HBS professor and a practicing small business lawyer to help me with the start-up of a new business he would make sure that the new company complies with all the laws and regulations. Wrong assumption! After the accident in Indiana we discovered to my horror that our medical insurance did not cover the medical cost of the accident. A US company is supposed to have workman's compensation insurance that covers work-related accidents such as ours. Neither our lawyer nor our accounting firm of ex-Arthur Anderson CPAs had ever informed us about this, or bothered to check during their reviews! We were lucky that Sudhakar had one tough head and neck. He did not suffer any serious injury and recovered fully in a couple of weeks. He only claimed a

new sweater to replace the one bloodied in the accident. I would have gladly bought him a hundred! Sintech was literally inches away from death on the highway in Indiana.

About the Author

Rashid N. Khan

A Pakistani-American Entrepreneur



Rashid N. Khan is a serial entrepreneur now on his fourth successful start-up as the Founder and CEO of Chatty™ Solutions (www.chattysolutions.com). The company develops and markets Chatty Apps, an innovative software-as-a-service (SaaS) for the rapid development of powerful, cross-platform mobile user-interfaces for SaaS applications and Web forms, enabling them to run like native apps on smartphones. Chatty Apps extend SaaS applications and Web forms to mobile users. Using a patented technology combining business rules, flow charts, a formula engine, extensible data model and the chat/instant messaging paradigm, Chatty App's support multiple smartphones with a single app, allows switching between smartphone and laptop/desktop even in the middle of an app, protect against data loss if connection is lost, and easy integration of all types of mobile devices with the IT ecosystem by leveraging Web Services and Services Oriented Architecture (SOA).

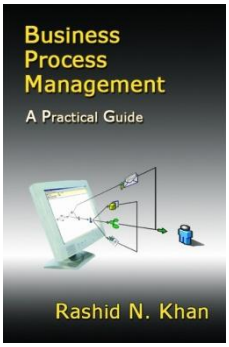
Rashid specializes in bootstrapping companies with little or no capital using his own model perfected over three decade of intense entrepreneurial experience. Chatty Solutions is based on his model that requires a long term vision, hiring and retaining excellent dedicated employees, tight control on cost, avoidance of the "opium" of venture capital, minimum of 10x competitive advantage, and unyielding determination to be the best in its field through constant innovation in product as well as business practices.

Prior to Chatty Solutions, Rashid Khan was the founder and CEO of Ultimus Inc. (www.ultimus.com) a pioneer and leader in business process management and workflow automation. Ultimus was established in 1994 without any outside investment, with the long-term vision of bringing workflow automation to every desktop. Under his leadership, Ultimus became a leading provider of Web-based business process management solutions that allow companies across industries to enhance profitability through improved worker productivity. The Ultimus BPM Suite is being used by more than 1800 customers including Dell, Sony, Microsoft and Compaq, and has won many industry awards, including the *e-Week Excellence Award*, *CRN Editor's Choice Award* and *PC Week'sBest of COMDEX*. The company employed more than 300 people in

eighteen offices across the globe and consistently achieved profitability and excellent growth in revenue, earning Ultimus positions in the prestigious *Inc 500*, and *Deloitte & Touche's Technology Fast 500* in North America five years in a row. Ultimus is also ranked among the leaders in the BPM industry by Gartner Group, Forrester Research and the Butler Group.

Prior to establishing Ultimus, Rashid was the founder and CEO of Sintech Inc., a pioneer and leader in advanced software for mechanical testing. He founded Sintech in 1982 when his net worth was negative, and bootstrapped the company to become a leader in its industry. After six successive years of rapid and profitable growth, he sold Sintech to MTS Systems Corporation (www.mts.com) in 1989, where he worked for five years as the youngest Vice President and General Manager of this publicly traded company (NASDQ: MTSC). During his tenure he took his division through ISO 9000 certification. This experience made him aware of the need for business process management and workflow automation, which was the germination of the idea that became Ultimus.

Frustrated by the slow pace of innovation and bureaucratic inertia in a large company such as MTS, Rashid, without the approval of his executive management or the MTS Board, created a "skunk works" team of key employees with strong domain expertise in all functional areas of computer-controlled mechanical testing. Working in evenings and weekends, the team created an entire new product line of low-cost computer controlled test machines under the brand of QTest. The project, which was highly successful and became the fastest growing product line, was developed through the voluntary effort of the key employees who were rewarded only when aggressive revenue targets were achieved. The project was a classic example of innovation, "intra-preneurship" and thinking outside-the-box for new product ideas and business models.



Rashid received two Bachelor's degrees from MIT in Computer Science and Political Science. He received a Masters degree in Computer Science from the University of California at Berkeley, and an MBA from the Harvard Business School. Rashid is an innovator who has been awarded 4 key technology patents by the US Patent Office. Two additional patents are pending. He has published numerous technical papers and business articles, and his first book titled *Business Process Management: A Practical Guide* was published in late 2004.

Rashid was born in Pakistan in 1952 and lived there till he finished high school. He then received a prestigious and highly competitive full scholarship from CENTO (the Central Treaty Organization that was the short-lived counterpart to NATO) to study at the Middle East Technical University (METU) in Ankara, Turkey. From there he transferred to MIT and moved to the US in September 1972. He was first married in 1979 and has three beautiful, grown-up daughters from the first marriage lasting 28 years. He

divorced in 2008 and remarried in 2009, and was blessed with another beautiful baby girl from the second marriage in 2011.

Together his four daughters provide the motivation and desire to record and preserve his life history so that his children will remember their roots. He started writing his autobiography titled “In the Gardens of My Heart” in 1997 when he was extremely busy with the Ultimus start-up. He assumed that he had 25 years to complete the book and there was no pressure for time. Writing would be his retirement project after successfully exiting from Ultimus. However, unplanned and unforeseen events which lurk hidden in the twists and turns of life caught up with him. Despite the fact that he had been very healthy throughout his life, he was diagnosed with pancreatic cancer in 2010 while in the early stages of bootstrapping Chatty Solutions. He no longer had the luxury of time to devote to his book. After much deliberation about his limited options and realizing the unpredictability of his situation he decided to publish the book online. The idea is to publish one chapter every 2-3 weeks and share as much of it as possible without waiting for it to be completed in its entirety. The result is this website and the incremental but untested approach for writing a book.

Rashid lives in Raleigh, NC with his baby daughter and wife with whose loving care he fights this disease every day. In this struggle he is supported by his grown-up daughters, and numerous relatives, friends and business colleagues all over the world to whom he feels greatly indebted.
