

Of Love and Exploration: an Autobiography

Christopher E. Brennen
Pasadena, California

Dankat Publishing Company

For Doreen and Barbara

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ISBN-0-9667409-9-8

Preface

This idiosyncratic and episodic collection of stories reflects a life filled with love and adventure, both cerebral and physical. I have been extraordinarily blessed to have loved two exquisite women and, amazingly, to have been loved by them. At the same time I tried not to miss any opportunity for challenge and for adventure. If I have a regret, it is that in the pell-mell rush to achieve and experience, I sometimes did not wait to adequately consider what was really important, namely my relationships with those close to me. Herein I have tried to acknowledge those mistakes. I have always believed that exploration is a way of life and whether in science or in the outdoors one mode of exploration enriches the other. In the words of some anonymous poet:

*“I have traveled through great beauty
To some measure of understanding
You cannot ask for more than that.”*

As a teacher throughout my working life, another lifelong quest has been to instill in my students, the belief that as scientists and engineers we should never forget that it is our responsibility to ensure that what we do and what we build are used for the benefit of humanity and not for its destruction. This belief that concern for humanity should always remain the guiding principle was most eloquently expressed in a quote I came upon many years ago:

*“Concern for man himself and his fate must always form the chief
interest of all technical endeavors..... in order that the creations
of our mind shall be a blessing and not a curse to mankind. Never
forget this in the midst of your diagrams and equations”*

The speaker was Albert Einstein. The occasion was an address in 1931 at the California Institute of Technology. That sentiment is a powerful and important principle that should be part of every technical education.

History also tells us that peace does not come easily, that it takes vigilant international cooperation. In this regard I made it my policy to place all that I have learned on the internet to be freely available to all who wish to use that knowledge. This policy was founded on two coupled beliefs. First that the most

effective way to roll back the limits of knowledge is to share it as widely and freely as possible. And second that through the process of sharing knowledge we achieve a mutual respect and cooperation that is to the benefit of all mankind. For this reason we must do all we can to resist all attempts to place censorship on that marvelous new means of communication and education that we call the Internet.

Many of the friends and companions who enriched my life appear in these pages. Hopefully, they are not displeased by their appearance. While it is not possible to acknowledge all of them and all of their gifts, there are a special few to whom I wish to pay particular homage. First and foremost I recognize my unmeasurable debt and infinite gratitude to those two women, Doreen and Barbara, to whom this book is most humbly dedicated. My daughters Dana and Kathy also deserve very special mention for they held me up through some extraordinarily difficult times. Thanks are also due to my other daughters Susan, Kim, Niki and Keri for their unwavering support at some critical moments. Outside the family a group of great colleagues and students at the California Institute of Technology played a very important role in my life and in the adventures embodied in these stories. Ted Wu and Allan Acosta were mentors without equal and the debt I owe them is immeasurable. Most rewardingly, my PhD students became my academic children and I hope that I managed to plant some seed of exploration and invention in each and every one of them. Some like Doug Hart, Garrett Reisman, Clancy Rowley and Mark Duttweiler also became kindred explorers and these pages are riven through by their roles and their friendships. Others without that academic connection also became soul mates through shared experiences in the wilderness. Of them, Troy Sette, Scott Smith, Randi Poer and John Perry merit special thanks for few men can have been blessed with such thoughtful and kind friends.

This book is dedicated to the two exquisite women with whom I was blessed to share my life, to Doreen and to Barbara.

Christopher Earls Brennen
California Institute of Technology, November 2013.

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Chapter 1

FLIGHT OF THE EARLS

*“We have rights drawn from the soil and the sky;
the use, the pace, the patient years of labour,
the rain against the lips, the changing light,
the heavy, clay-sucked stride, have altered us;
we would be strangers in the Capitol;
this is our country also, no-where else;
and we shall not be outcast on the world.”*

From “The Colony” by John Hewitt (1950)

The “Flight of the Earls” represents a watershed moment in the history of Ireland, and more specifically of the northernmost of the four provinces, the ancient kingdom of Ulster. Today, that part of Ireland is mostly occupied by the political division known as Northern Ireland. It is where I was born and where I grew up, a member of that peripatetic tribe that Americans call the “Scotch-Irish”. It is appropriate to begin with a little history, a parchment for my being.

It is one of the ironies of the recent tribal and political problems of that province that Ulster was the last part of Ireland to be subjugated by the English. The English conquest of Ireland began about 1100AD when a Norman soldier of fortune by the name of Strongbow was invited over by a minor Irish chieftain who sought a special advantage over his local rival. Gradually the English established dominance over the entire southern three-quarters of the island, the provinces of Leinster, Munster and Connaught. However, the proud and fierce Northerners presented a serious impediment to the English. Up until the reign of the powerful Queen Elizabeth I, the English had tried fitfully and unsuccessfully to complete their conquest of the island. They had tried both frontal assault and the back door approach of seeking to appease and bribe the powerful lords of the North. Preeminent among these were the O’Neills, the kings of Ulster and descendents of the ancient High Kings of Ireland. In the preceding centuries,

great O'Neill leaders like Owen Roe O'Neill and Turloch O'Neill successfully resisted English encroachment. The O'Neills held most of the interior of Ulster. The northern coastal strip was quite isolated and more readily reached by boat from the western islands of Scotland. These coastal parts were the dominion of the O'Donnells, closely related to the MacDonalds, rulers of the western islands of Scotland. To this day the MacDonald is known as the Lord of the Isles (my mother-in-law was a very proud Macdonald). When they were led by leaders of vision, the O'Neills and O'Donnells could occasionally cooperate to their mutual advantage. More frequently they squabbled to no-one's advantage save that of the English.

Nevertheless, until the reign of Queen Elizabeth, the tribal O'Neills and O'Donnells ran Ulster as in ancient times, only slightly influenced by the nearby English. But Elizabeth had other ideas. First she tried to win over the boy who was heir to the O'Neill title, by raising him for ten years in England. That boy, whose name was Hugh O'Neill, grew up to become "the O'Neill". Queen Elizabeth gave him the English title of the "Earl of Tyrone" but, to the Irish, this meant little compared with being "the O'Neill". His seat was the ancient town of Dungannon where my first wife's family lived for generations. Hugh was a shrewd politician both in the courts of England and in the fields of Ireland. So effective, in fact, that Elizabeth began to fear his power. Unable to curtail his independence and influence in any other way, she ultimately found it necessary to demand that her English army in Ireland march north to subdue O'Neill by force of arms. In defense, O'Neill gathered his own forces and persuaded his sometime allies, the O'Donnells, and other clans to join him. The armies clashed on the banks of the Blackwater river just ten miles south of Dungannon near the village of Benburb. A violent battle ensued, a battle that has gone down in history as the Battle of the Yellow Ford. The English army was massacred in one of the few victories in Irish history, ironically a victory by a Northern army. And for a couple of years it meant that O'Neill held sway over almost all of Ireland. Eventually, however, the greater resources of the English had to prevail and O'Neill was defeated near Kinsale on the southern coast of Ireland. He, his ally Red Hugh O'Donnell (the Earl of Tyrconnell), and a host of minor northern chiefs were forced to submit and swear fealty to the British throne. In yet another irony, they little knew at the time they submitted to the English generals that Elizabeth had already died and that, if they had held out just a little longer, they could have negotiated much better terms with Elizabeth's Scottish successor, James the First, who needed Irish support.

For a while O'Neill, O'Donnell and the final remnants of the ancient Irish aristocracy returned to their Northern homes. But they soon chafed under English dominance and were tempted into hatching a scheme to go and raise an army in Spain (England's enemy at the time). The plan was to return to Ireland with Spanish support and to retake their old land and dominion. And so, on September 14, 1607, Hugh O'Neill, Red Hugh O'Donnell and a host of their supporters including the leadership of all the Ulster clans embarked in Rathmullen, County Donegal, on a ship bound for Spain. The embarkation point was a small castle whose ruins on the banks of Lough Swilly lie in a

beautiful, wooded setting that still evokes a sense of Celtic sadness. The Earls failed in their quest for the proposal never quite suited the plans of the Spanish monarch. They never returned and their loss marked the end of ancient Celtic leadership in Ireland. Their departure is poignantly remembered as the “Flight of the Earls”.

Always a political opportunist, King James knew an opening when he saw one and embarked on a vigorous plan to finally and completely subdue the stubborn northern province. Thus began the “Plantation of Ulster”, a bucolic phrase for a vicious and relentless pogrom to destroy the native population of the northern province. The English armies savagely drove the natives from their lands, handing out free gifts of the rich farmland to English soldiers and lowland Scottish adventurers alike. Only “acceptable” settlers (in other words Protestants) were so endowed; and their descendants now form the bulk of the Protestant majority in Northern Ireland. Unlike the grand landlords who dominated southern Ireland these settlers were mostly small farmers very like those who carved out their homes in the interior of the United States.

The native, Catholic population who survived the English armies fled to the mountains and the bogs where they barely managed to survive. Thus the Plantation laid the foundation of the present troubles in Northern Ireland for the anger and resentment of the dispossessed native population persists to this day. Capitalism provided some relief as it has done for many minorities in other parts of the world. When Belfast began to develop thriving shipbuilding and linen industries, a supply of cheap labor was needed and poor Catholics were permitted to settle in Belfast and in Londonderry, the only other city of any size. But they were mostly confined to mean and barren slums. In fairness, one should point out that there developed similar Protestant slums for the appetite of 19th century capitalism was no discriminator.

Meanwhile the newcomers (mostly Protestant lowland Scots), though they were in the majority in Northern Ireland, developed a siege mentality that their descendants retain to this day. The Ulster Protestant poet John Hewitt may have best captured this mood when he wrote :

*“We have rights drawn from the soil and the sky;
the use, the pace, the patient years of labour,
the rain against the lips, the changing light,
the heavy, clay-sucked stride, have altered us;
we would be strangers in the Capitol;
this is our country also, no-where else;
and we shall not be outcast on the world.”*

And as time progressed other ammunition added to the polarization of these populations of Ulster. When the rest of Ireland gained its independence in the 1920s, it was an almost completely Catholic country, for the English overlords in the rest of Ireland consisted of a small number of aristocrats who held vast estates farmed by the natives. Most of these aristocrats evaporated with English dominance. The newly independent nation of Ireland formed itself as it should, in accordance with the will and beliefs of the native population who

had somehow survived all those centuries of Norman rule. And this included a significant obeisance to the Catholic church and to its headquarters in Rome. Such influences further fueled the suspicions of the Protestant northerners and their fears as to what would happen to them in a united Ireland. John Hewitt was also eloquent on this trepidation when he wrote:

*"I fear their creed as we have always feared
the lifted hand against unfettered thought
I know their savage history of wrong
and would at moments lend and eager voice
if voice avail, to set that tally straight."*

It is no exaggeration to see a direct connection between this fear and the determination of the founding fathers in the United States to place a clear separation between church and state.

My family and I are descended from Protestant settlers, proud and stubborn pioneers, whose most famous sons and daughters went on to become explorers and soldiers in every corner of the globe. A century after their arrival in Ulster, many moved on to settle the interior of the United States and play major roles in the foundation of that country. For these Protestant northerners, it is a source of great pride that the declaration of independence of the United States was written down by an Ulsterman, Charles Thompson, that it was first printed by an Ulsterman, John Dunlap, that it was first read in public by an Ulsterman, Colonel John Nixon and that for a month its only signature was that of John Hancock, whose ancestors came from County Down. Many other famous sons and grandsons were soldiers, from Stonewall Jackson to Jeb Stuart to George McClellan to Ulysses S. Grant. This military tradition continues through the 20th century for the two greatest British generals of the Second World War, Alexander and Montgomery, were both Ulstermen. And I enjoy teasing my more macho Texas friends by reminding them that more Ulstermen than Texans died defending the Alamo. But I stray too far.

I grew up in the heartland of Ulster, in a fertile region to the west of the large lake, Lough Neagh, that dominates the center of the province. To the west the poor, predominantly mountainous land is mostly Catholic. To the east lie the rich farmlands occupied those several centuries ago by the protestant settlers and retained by their descendants to this day. Consequently this heartland was a crucible for the recent struggles. My first wife, Doreen, was born in Coalisland and grew up in Dungannon where our eldest daughter was born. Nearby, in the ancient village of Donaghmore, my great-grandfather, Bernard Brennen, was the local schoolteacher (more about him later). I grew up in a village about 20 miles north in a place called Magherafelt, where my second wife, Barbara, was born. No family could escape the fragments of tragedy that are the consequence of extremism whether in Belfast, Beirut, or Sarajevo. Early one morning in 1992, IRA gunmen intercepted Doreen's cousin Gordon Hamill while he was delivering milk in Dungannon and assassinated him.

The countryside is a rolling landscape of small farms enriched by persistent light rain. Despite its reputation it is a gentle place. Even when one includes

the victims of terrorism the rate of violent crime is substantially lower than in any other comparable region of the United Kingdom. And it is orders of magnitude lower than that of New York City or any other urban area in the United States. It is also a cultured and gentle place with secondary schools and universities which are among the best in the world. I was born in Belfast just several hundred yards from the birthplaces of the great physicists, William Thomson (Lord Kelvin) and Osborne Reynolds and only a mile or so from where James Galway first picked up the flute. When I was about four years old we moved to the village of Magherafelt and there I grew up a few miles from where Seamus Heaney was dreaming of the beauty and power of words that ultimately led to his Nobel Prize. Sometimes I think I was very lucky to grow up in such a enabling community and yet also know how fragile that gentleness can be.

Chapter 2

BARNEY

*“No matter how dark the tapestry God weaves for us,
there’s always a thread of grace.”*

Hebrew saying.

From an early age, my parents impressed upon me the uniqueness of our family name and, by implication, fostered a sense of superiority over the other residents of our village. No other family in the Irish telephone directory spelled the patently Irish surname of Brennen with an “e” rather than an “a” as the penultimate letter. And to this day this continues to be the case, though many such spellings occur in the United States due to Ellice Island carelessness.

The “unique” spelling needed an explanation and the story (which seemed to be embellished with every telling) was that my great-grandfather, Bernard Macaulay Brennen, had actually been a Frenchman and therefore quite superior. He had reputedly emigrated from Brittany to Ireland in the middle of the 1800s. After acquiring an Irish wife, Susan Dorothea Quin, in Cork he had settled in the small village of Donaghmore, County Tyrone. My father enjoyed recalling this French ancestry for it gave him not only an excuse for the otherwise Catholic surname but even a degree of superiority over his Protestant neighbors. The story was that Bernard had changed from some French name that was similar to Brennen in order to fit in better but wanted to leave a contrast with the common Irish Catholic name, Brennan. How my father and his family managed to get away with such an unlikely story still boggles my mind.

The story of Bernard’s later years has more solid historical backing. He and Susan were modestly successful as the local school teachers in Donaghmore. They became pillars of the local Protestant community and Bernard became an elder in the local Church of Ireland. His seemingly Catholic surname, which would otherwise have caused him to be deeply suspect, was explained away by his French origins. These also explained the French waistcoats he wore and the cigarettes he smoked (the locals smoked pipes, cigarettes being still regarded



Bernard and Dorothea Brennen.

as a foreign custom). Thus Bernard and Susan lived a comfortable village life. They had a large family of twelve children, seven of whom lived to maturity. One of these was my grandfather, Cecil Brennen.

Many years later I embarked on a project to construct our family history. A key part of that effort was an attempt to find my great-grandfather's actual origins. With some clues provided by the older members of my family in Ulster, I was able to locate Bernard and Susan's marriage certificate. The wedding took place in Kinsale near Cork on July 5, 1874, and certified the bond between "Macaulay Brennenn" and Susanna Dorothea Quin. My great-grandfather's father is listed as Edward Brennenn. Here it needs to be noted that when one peruses these old records from the 19th cent, it is very clear that some Christian names were definitively Protestant and some were clearly Catholic. Thus the religious affiliation can be quite accurately gauged by either the fore name or surname. Both Bernard and Edward were Catholic names. And so we can immediately recognize in the name "Macaulay Brennenn" an effort to disguise my great-grandfather's probable Catholic origin. The first name is given as the robustly Presbyterian "Macaulay" and the odd ending to the surname strongly suggests the beginning of the French legend. Later he gave up on Macaulay for he was otherwise always known as Bernard. But the odd end to the surname remained.

Later, I was able to find the earlier marriage records of two of Edward Brennan's daughters, Anna and Eliza Jane. These weddings took place in the village of Taughblane about halfway between the towns of Hillsborough and Dromore in County Down, Northern Ireland. Eliza Jane's marriage in 1863 was

witnessed by her brother, “Bernard Brennan”. This seems to clearly indicate Bernard’s geographic origin. No effort was made to disguise the Irish name Brennan. No pretense was possible in his own home village. The fact that both sisters were married in an Anglican church, St. John’s Kilwarlin, is not as significant as one might imagine today. In those days only marriages conducted in the established church were recognized by the government and persons of all religious persuasions bowed to that imposition.

And so it became clear quite early in my research that Bernard (or “Barney” as he would have been known in his native culture) had perpetrated an elaborate but fairly harmless fraud in order to further his ambitions. Clearly he was a bright young man of very humble origins. Further research in the church records of St.Patrick’s Church of Ireland in Donaghmore revealed another part of the story. It appears that Bernard was able to obtain a junior teaching position in a small private school in Donaghmore at quite a young age and began to rise in the estimation of the local community. He must have portrayed himself as Protestant for he was also appointed to some position of responsibility in the St.Patrick’s congregation. Indeed his name appears as signatory to several entries in the vestry minutes. He must also have accumulated some savings for just a few years later he left Donaghmore and moved to the big city of Dublin.

In Dublin, he somehow managed to enroll in a teacher training course for the new system of “National Schools” that the government was trying to establish in order to provide a measure of regulated primary education to the children of Ireland. How he supported himself during this time is unclear. But he took advantage of his new surroundings in several other ways. Dublin society in the middle of the 1800s had a natural affinity and admiration for everything French and so Bernard acquired some French affectations, in particular a liking for French fashions and for the French habit of cigarette smoking. There he also met the woman he was to marry for Susanna Dorothea Quin was also in Dublin training to be a teacher. Shortly thereafter Bernard and Susan were married in her home town of Cork.

Bernard and Susan must have returned to Dublin shortly after their marriage for in 1875 their first child was born at 14 Lower Wellington Street, presumably their residence. On the birth certificate Bernard lists himself as Macaulay Brennan. But that stay was very brief for in 1876 they moved back to Northern Ireland, and, after brief assignments in two rural National Schools, he was appointed the master at the National School in Donaghmore. No doubt the positive impression he made during his previous stay there helped to gain him the position that he was to hold for the rest of his career. And so it was that they prospered in Donaghmore. They raised a talented and successful family, suffered through the premature deaths of a number of children but lived an otherwise comfortable life in that small community. In surviving photographs, Bernard is a portly, bearded figure of clear authority and Susan seems the very essence of respectability. They are both buried in marked graves in the small graveyard surrounding St.Patrick’s Parish Church in Donaghmore.

But the story does not end there. Indeed what had been the curious and dubious legend of my “French origins” came back into my own life in a very

real and important way. Just before I went to university I fell in love with a beautiful young woman by the name of Doreen Kerr. Doreen came from a large family who owned a tailoring business in the market town of Dungannon. Stoutly Protestant, the family was presided over by the patriarchal figure of William Robert Kerr, Doreen's grandfather. He and his wife Mary Matilda lived in a home above the family business in George's Street, Dungannon. Several years later when Doreen and I wished to marry, I was required to seek William Robert's permission to marry his grand-daughter.

And so it was that one evening, I made my way through the lonely streets of Dungannon bound, with some sense of foreboding, for George's Street and an audience with William Robert Kerr whom we referred to as "the old boy". Soon, I found myself alone in the formal living room with the old boy, who had been given some forewarning of the nature of my business. The meeting did not get off to a good start. He asked me my name and I spelled it out placing excessive emphasis on the penultimate letter. The emphasis was completely lost on William Robert whose concern was reflected in his furrowed brow. He then asked me about my father and I proudly recounted my father's medical career and tried to convey some impression of his standing in the admittedly small village of Magherafelt. He then asked about my grandfather. I could tell him little about Cecil for he had passed away when I was very young. Finally, in desperation I remembered that my great-grandfather had come from Donaghmore just a few miles away. As I described what little I knew of Bernard, William Robert's face suddenly cleared and brightened. Now animated, he leaned forward with a smile crossing his face and said with relief and pleasure "Oh - you mean the Frenchman". I was home and dry after that.

And so the legend made me an accepted member of the Kerr clan. And in this instance the legend proved stronger than the truth. One wonders how often that is the case in human affairs. Legends, once born, have a life of their own particularly when they serve an important purpose for those who recount them. So I ask myself whether or not it was appropriate or useful for me to seek out the truth. I fervently hope that it was useful though I find it hard to become 100 percent convinced.

Chapter 3

ROBERT EARLS

*“For since by man came death,
by man came also the resurrection of the dead”*

I Corinthians, 15:21.

Sometimes you cannot quite let go of a story. There seems to be nowhere to go and nothing that can be learned. It all seems irretrievably lost in the mists of time, a span of nearly 80 years in this case. And yet you cannot quite forget it. You keep picking at it, forlornly hoping for a lucky break. And then suddenly, unexpectedly, the log jam breaks beyond your wildest imagination and a whole human drama is unlocked. And so it was when I finally learned the tragic story of my great uncle, Robert Earls.

Robert was born on Dec.20, 1876, the second son of my great-grandfather, James Earls, a teacher and lay preacher, and his wife Margaret Dick. They lived in the rural community of Islandmagee, a peninsula on the coast of County Antrim in Northern Ireland. Photographs of James in his later years show a gaunt man with a long white beard and intense, almost piercing eyes. One suspects that he was a hard task master, a demanding father. James’s eldest son John was my grandfather. He was a great success and, after training as a teacher, rose to become the Principal of Belfast Technical College and a member of the upper middle class society in Belfast in the early part of the 20th century.

Many years ago when I first became interested in my family history, I learned of John’s two brothers, my great uncles Robert and Thomas Earls. I was told that both had emigrated and I surmised that they may have done so in part to escape from the twin shadows of their father and elder brother. Thomas emigrated to South Africa. I found it relatively easy to uncover his story and to make contact with his descendants in South Africa and elsewhere. Robert was a different story. Like John, he had trained as a National School Teacher and, after his father retired from the position of teacher in the local Islandmagee

National School, Robert was appointed to that position. But that appointment lasted only one year. In 1903, he left to seek his fortune in distant lands.

When she was in her eighties, I persuaded my great aunt Anne, Robert's much younger sister, to write to me and tell me what she could recall of her youth and her family. Of Robert she wrote:

"Robert was my second brother and trained as a teacher but I think he preferred an outdoor life. I was rather in awe of him. He taught analysis of compound sentences which I liked doing. I remember when I was in Carrick(fergus) Model (School) as a pupil teacher we were doing the exam. He called to Dublin to the training college. The sentence began "The barn where we played etc." I put it as an adjective clause qualifying the noun barn. There were nine of us, pupil teachers in Carrickfergus Model. All the others had just seen the word "where" and put adverbial clause. I was the only one that was declared by the elder teachers to be right. Later I transferred..... To come back to Robert, he emigrated to South Africa and taught in a tent. He wrote me letters which were beautifully expressed. In my humble opinion he should have been a journalist."

When I originally received this letter I imagined that Anne had confused her two brothers and wrote South Africa instead of Australia. I should have known that the old dear was sharper than that!

For years, I tried to find any trace of him in Australia. As Anne noted, family legend said that he had taught school there, perhaps in a tent. I tried, without success, to find him in any list of teachers. It was also said that he had a son William, born in Sydney. I could find no trace of William Earls. And so it seemed that the story of Robert Earls was lost forever in the mists of time. Occasionally, I would type the name into various search engines and genealogical web pages in the hope that some clue would emerge. But to no avail. I tried to access the records of births, marriages and deaths in New South Wales, but Australia is very strict about not releasing such information except to people who visit their Registry Offices in person. One could purchase certificates by mail, sight unseen, but at a cost that precluded the kind of scatter-gun technique I had deployed successfully in other cases.

Another of John Earls' grandchildren, my cousin with the same name, John Earls, had emigrated to Brisbane in the 1960s. For several years, I tried to persuade him to visit the New South Wales Registry Office to see if he could turn up some clues. John was willing and interested but somehow the opportunity to perform this mission never quite materialized.

And then one day I came across the first small opening. In the year 2001, the New South Wales Registry Office placed on the Internet, lists of names in its earliest recordings of births, marriages and deaths, covering the years up to about 1930. And in the list of deaths for the year 1926, I found the name, Robert Earls. No other information and so the registration could easily have been someone from a different family. Parenthetically I should note that I had found several large Earls families in New South Wales, but almost all were Roman Catholics who had emigrated from Clare and Galway in Southern Ireland. But I thought I would take a chance anyway and so I wrote out a check

for a “replacement” death certificate and mailed it to Australia.

Several weeks later I received an official looking envelope from the New South Wales Registry Office and my excitement grew as I tore it open. As I read, I knew I had finally made some small contact with my long lost great uncle. The certificate told me that Robert Earls, an 50-year-old laborer, born in County Antrim the son of James Earls and Margaret Dick had died in Mulwaree Shire, New South Wales, on 24th June, 1926. It listed him as unmarried so it was unlikely there were any identifiable descendants; I concluded that William was the figment of someone’s imagination. What was most startling was the place of death: the Kenmore Mental Hospital in Mulwaree Shire. And he was apparently buried in the cemetery of that mental hospital.

I had to know more. First I contacted my cousin John, who perused his maps and found Mulwaree Shire near Goulburn about 120 miles inland from Sydney on the road to Canberra. Then I took to the internet and came across a story of a family history buff in Australia who had also traced an ancestor to the Kenmore Mental Hospital. He revealed that, upon contacting the authorities in Goulburn and, later, upon visiting the Kenmore Mental Hospital, he had been given a very interesting collection of papers and personal possessions of his long dead relative. Somehow these records had been kept safe and sound for almost 60 years! I began to dream that somehow, even though Robert had been dead for almost 80 years, there might be some record of his demise in the Australian bush. And so I rushed off a letter to the Goulburn Health Service in the remote chance that some more information might be forthcoming.

Several weeks later I received a reply from the Medical Superintendent in Goulburn. He wrote that he had been able to locate Robert’s file. From that file it appeared that Robert had fallen upon hard times. In 1922, in Cootamundra, New South Wales, he was found on the road talking to himself and was taken into custody. Considered to be suffering from melancholia with delusional ideas he was transferred on May 8, 1922, from jail to the Kenmore Mental Hospital. When admitted his personal possessions were a halfpenny and a swagbag containing a portion of an old rug, a billy-can, a jam-tin, a knife in a leather sheath with belt, a pocketknife, a small pair of scissors in a leather case and an old canvas bag containing repairing material. And that’s all. For whatever reason he had come to the end of his resources and his wits. The Superintendent wrote that there were other papers in Robert’s file but that I would have to come to Goulburn in person to claim them. And I would have to present evidence of being Robert’s next-of-kin. The first requirement was highly unlikely and the second was impossible since I was not the next of kin. But I wrote back anyway, asking for clarification of what would constitute acceptable evidence of next-of-kin. I never received a response, presumably because the Superintendent could not think of an answer. Not really surprising; I could not imagine an appropriate answer either.

But I had a quite extraordinary ace up my sleeve. For my cousin John Earls, now a Queensland resident, was in fact the next-of-kin. He is the eldest son of the eldest son of Robert’s elder brother and, since Robert had no children, is therefore the rightful legal heir. And he lived in Australia. And, quite

remarkably, it transpired that he was planning to visit the Goulburn area on other business in just a few months time! It seemed that fate was conspiring in a quite remarkable way to bring Robert back to his family after all those tribulations and all those years.

By this time John was also fascinated by the story. He wrote to the Superintendent asking again for clarification of the question of proof and stating his intention to visit in a few months. John pointed out his next-of-kin relationship, and drew the Superintendent's attention to my web pages containing the Earls family history including what little we knew of Robert. I even urged John to sign himself Dr. Earls (John has a Ph.D.) in the hope that would sway the Superintendent (John rightly ignored that advice). And still there was no reply. With just a few weeks to go before his visit to Goulburn, John even tried telephoning but with equally little success.

Then, just days before he was due to embark on his trip, a large registered package was delivered to John's home in Queensland. All the papers from the file of the late Robert Earls. A veritable gold mine of information. Robert Earls had risen from the grave and returned to his family.

So here is the story of Robert Earls, pieced together, incomplete, with many questions remaining and several intriguing mysteries:

Robert Earls was born on Dec.20, 1876, in the small hamlet of Ballymoney on the peninsula called Islandmagee, part of the coast of County Antrim, Northern Ireland. He was the second son of James Earls, the first principal of the tiny Ballymoney National School that had been erected in 1861 on the grounds of the local Methodist church. The building also included a small residence for the use of the teacher. The assistant teacher was Margaret Dick whom James married on May 8, 1874. James rapidly became an influential member of the local community. He took a great interest in the Sabbath-school of which he was the superintendent. When any difficulty arose regarding a pulpit supply he was always ready to step into the breach when he would facetiously remark "*that he was always put into the gap when nobody else could be had*". His reading and exposition of the scriptures were always listened to with pleasure and profit since he was possessed of an exceptionally resonant voice and a convincing manner of presenting what he had to say to his hearers. He was also an ardent temperance advocate and was one of the founders of the Good Templars Lodge which was opened in a new hall at Whitey's Hill in the year 1873. Several family legends attest to James's strict observance of the Sabbath. No cooking was allowed in his house on Sunday; the meals had to be prepared on Saturday and were eaten cold on Sunday. Furthermore he did not shave on Sunday. One story tells of him being interrupted during shaving on Saturday night. The interruption lasted until after midnight so James took the service the next morning with one side of his face shaved and the other unshaven.

As his family grew, James needed a larger home and he acquired the lease on a site at "*Lunnon*" in the townland of Mullaghboy about a hundred yards north of the church and school. With the help of his brother William he built a two-storey house with a shop attached on this site; also included were separate

accommodations for his widowed mother and unmarried sister, Jane. The shop became a successful business conducted by his family including his sister Jane.

It seems clear that James was a demanding father and it must have been especially stressful for his children in the small school their father conducted. Later on when broader learning was needed, Robert, along with his elder brother John, attended evening classes at the precursor of the Larne Technical School. This meant spending the night at the house of their uncle William Earls in Pound Street, Larne, getting up at 5.00am the following morning, crossing on the ferry to Islandmagee and walking to his father's school at Ballymoney in time for classes there.

Two serious incidents during his youth clearly had a major effect on Robert's view of life.

First, when he was just 16, his mother, Margaret, died in August, 1893 at the age of 41. His Aunt Jane who lived in the same household also died about the same time. As a result Robert's sister Jane had to give up her teaching career to look after the family. Within a year, to add to the emotional strain, his father, James, remarried to Isabella Taylor who owned a farm in Upper Gransha, Islandmagee. After the marriage James moved to Gransha in order to look after that farm. Meanwhile his first family continued to live in Mullaghboy in the house with the shop attached. James would have an early dinner there before returning to Gransha for the night. Thus the 1901 Census lists James, Isabella and their two children in the Gransha Farm while Robert and his sisters, Jane, Letitia and Maggie are listed as living in Mullaghboy.

His brother John calls Robert, "*reserved in his manner and also somewhat reckless*". The latter characteristic may have played a role in the second major incident. Shortly after his mother died, when he was about 19, Robert was handling a homemade bomb made from a glass bottle when it exploded unexpectedly. Robert lost his left eye as a result (on reading the accounts below, one cannot help but wonder if John were present when this accident occurred). Despite this major setback, Robert continued with his training to be a teacher, acquiring his diploma from the Marlborough Street Training College in Dublin. When his father retired as principal of the Ballymoney National School in 1899, Robert succeeded him.

His youngest sister Anne, who was a great admirer of Robert's, commented that though he was trained as a teacher, he preferred an outdoor life. This wander lust clearly came to the fore in 1903 for he gave up his position in the Ballymoney School and headed for South Africa where, at least for a time he taught in a tent. He wrote to Anne, letters which were "beautifully expressed". Anne thought he should have been a journalist. He remained in the Transvaal, South Africa, for some years but then had some difficulty with a school inspector over a 6 months leave he had requested. As a result he took his good service gratuity and left teaching.

Apparently he then went to South America, intent on profiting from the rubber boom. We know little of what happened in South America, but he lost all his money and returned to his family in Ireland entirely destitute. This sojourn in Ireland was brief for in 1910, he emigrated to Australia, arriving (he

said) in Sep.1910 aboard the steamship “Norfolk”. However, when I checked the shipping records, the only record of the “Norfolk” that I could find is its arrival in Hobart from London on Mar.28, 1911. On the other hand, the “Suffolk” arrived in Queensland on Sep.16, 1910. Why Robert would have lied about either the vessel or its arrival date is unclear.

Whatever the circumstances of his arrival in Australia, the next 17 months of his time there are undocumented. In 1912, when he was inventing a previous history in Australia for the staff at the Kenmore Mental Hospital, Robert mentioned living and working in many places in New South Wales. Most of the towns and villages he mentions (Wagga Wagga, Junee, Cootamunda, Young, Murringo, Grenfell and Forbes) lie along or near a 100 mile stretch of highway and railroad in south central NSW, west of Sydney and northwest of Canberra. But he also mentions visiting a “brother” and “nearest relative”, William Charles Earle living at Ashford, Inverell. Inverell is a mining town much further north in New South Wales, almost at the Queensland border. A number of years ago I had identified a possibly protestant Earls family living in New South Wales, a family that as far as I know is unrelated to our family. One member of that family was William Charles Kerr Earls. He was indeed connected to Inverell, and was married nearby, in Glen Innes. In his invented prior history Robert also mentions working at Quirinidi, between Inverell and the aforementioned group of towns in south central New South Wales. Clearly then Robert knew of William Charles Kerr Earls, and may well have visited him. Perhaps he was given this name and address by a family member before he left Ireland; this would suggest that William might, in fact, be a distant relative. Moreover, in the family history notes she provided to me many years ago, my aunt Irene Calvert recorded that Robert had a son in Sydney by the name of William Charles Kerr Earls. Clearly this was incorrect; indeed, William was older than Robert. But how the name came to be in Irene’s records is anybody’s guess.

It does seem that Robert wandered the roads of New South Wales for those 17 months, perhaps sinking further and further into mental illness. Then in February, 1912, while he was rooming in Lea’s Coffee Palace in Gurwood Street, Wagga Wagga, Robert suffered a severe psychotic episode and was taken to Wagga Wagga jail. One of the two doctors who examined him describe him as “... *suffering from delusions, says the Executive Council is sitting to decide whether he is to be hanged or sent up for life. He sees people with lanterns at night and hears them speaking to him. He is addicted to masturbation*”. Two doctors certify that Robert is insane and “*wandering at large*” and order him to be transported to Kenmore Mental Hospital for the Insane near Goulburn, New South Wales.

Robert was admitted to Kenmore Hospital on Feb.21, 1912, where he was examined both physically and mentally. He claimed to be just 24 years old (he was actually 35), single and a native of New South Wales. He fabricated a family history, said he did not know his parents location in Sydney and that his father used to drink heavily. As described previously he names William Charles Earle of Ashford, Inverell, as his nearest relative. Perhaps he was ashamed of his predicament and wanted to avoid his family in Ireland from being contacted.

When he left Ireland he had promised not to contact them or return until he had made good. He also invented a ten year history of employment in a host of locations in New South Wales.

The report includes a list of Robert's valuables retained by the clerk when he was admitted to Kenmore. The sad, complete list is: 1 watch chain (silver), metal medal, silver coin, two shillings cash, finger sp..., pencil, handkerchief. The list of private property is "clothes in wear", 1 Billy can, 1 Jam tin, 1 knife in sheath, 1 canvas bag containing repairing material, portion of a rug, 1 pocket knife, 1 pair scissors, one halfpenny cash.

The report on his physical condition states: *"This is a fairly unwashed(?) young man with blue eyes, light brown hair, height 5ft 10 1/2 in, weight 156lbs, left arm(?) 1/8 inch longer than right, palate highly arched and testicles atrophied.* The report on his mental state notes: *Does not know the day, month. Knows the year. States he has been here 3 days (5). Knows the nature of his surroundings. Does not know why he was sent here but says he must have been insane - states he was arrested for being a spy. The Executive Council will say if he was guilty or innocent of being an anarchist or spy. Imagines he heard two people outside the jail talking to him. Sleeps and eats well. Is willing to stay here for a while. He is slow and dull in his mental processes and sometimes requires to have questions repeated. Would not be too sure if he abuses himself or not."* The diagnosis was *"Dementia Praecox (Paranoia)."*

Robert spent the next eight years in Kenmore Mental Hospital. For the first month or so he was relatively well behaved; though cheerful he was inclined to laugh without apparent cause. He thrived physically and his weight increased from a skinny 136 lbs upon admission to 160lbs in September 1913. But his mental state appeared to decline. He frequently used "filthy" language and had to be disciplined. In Feb., 1913, he escaped but was recaptured four days later. Moreover, he continued to suffer from delusions. Just after his recapture, he tells the doctor that, in the daytime, he sees the Sacred Star of Heaven, a star the doctor cannot see. He also claims that he is Jesus Christ come from Heaven and has spirits inside him that speak. Six months later, it is discovered that he has been drinking the vinegar stored in the small pantry in his ward. And a couple of months later he struck another patient during a quarrel. In the first few years he seemed to do best working in the garden and at the hospital cricket ground, but about 1918 he was transferred to the kitchen though he continued to behave irresponsibly and, sometimes, boisterously. Then on Mar.26, 1920, he made good his escape from the kitchen and from Kenmore Hospital.

We do not know what he did for the next 5 months though it seems likely that he wandered the roads and rails. He made his way toward Sydney and in September 1920 was taken into custody for vagrancy; appearing before the court in the Sydney suburb of Liverpool, he was sentenced to 3 months for vagrancy and sent to the penitentiary at Long Bay where he threatened a fellow prisoner with an axe. Perhaps for this reason he was sent to the Reception House in Darlinghurst, Newcastle, for mental evaluation. From there he was transported back to the Sydney area and admitted to the Gladesville Mental Hospital. There he seems to have comported himself well, eating and sleeping

well. Because he exhibited no aggression and seemed to improve in mental health, he was discharged from Gladesville on April 30, 1921, after just a four month stay.

He seems to have been able to avoid trouble for the next 10 months but in February 1922 appears before the court in Singleton (about 40 miles inland from Newcastle) where he is *"deemed to be insane"* and is again remanded to the Reception House in Newcastle. Again that institution discharges him, this time after just a month's stay. But it is only a brief reprieve for on May 5, 1922, he is taken into custody by the Cootamundra police for *"jumping and dancing about on the road, frightening people."* Though he protested that *"he had done no harm to anyone"* he is examined by two doctors who certify that he is insane and sign an order sending him back to Kenmore Mental Hospital. One of those doctors reports that he talks constantly and that his language is *"interlaced with filthy expressions; his tone is monotonous and there is no meaning to his talk. On speaking to him, he speaks rationally but without pause and constantly repeats himself and is all the time looking round for somebody or something"*.

Thus on, May 9, 1922, Robert is admitted to Kenmore Mental Hospital for the second time. The report on his physical condition describes a *"tall spare man going bald with dark brown hair, mustache and beard going grey. Blue eye; the left eye is lost (a result of an accident). Teeth in front good but deficient in molars."* The list of his possessions is almost identical to the list when he was first admitted to Kenmore, a fact that is a little odd.

This time Robert provides a personal history which is quite accurate. He must have given up any attempt to try to hide his predicament from his family in Ireland for he gives them his brother John's address in Belfast. But his mental condition has clearly not improved. The doctor writes: *"Knows where he is and what the place is for but does not think he is mentally affected. Was arrested near Cootamundra. May have been shouting as he walked along. Admits that he uses bad language. Says he is a navvy and picked up the bad language amongst the navvies. Would rather be a navvy than teach in school because he has less worry. He says he goes off like steam and talks to himself. Cant help himself. Does the same when he is in the bush. (Talks about) old people and places that crop up in his memory. Has never heard "voices". Came out here because he thought there was free land out here. Would not take on anything but laboring work as there is no money in the country. He rather meanders along in his replies to questions but his answers are rational."* This time the diagnosis is *"Melancholia del."*

Robert was to spend the next and last four years of his life in Kenmore. He continued to be a difficult patient, noisy and boisterous, sometimes aggressive. He must have finally realized the seriousness of his condition for sometime between August and November 1922, he wrote to his family in Ireland. And the package of material we finally excavated from Kenmore in the year 2002, contained a letter written by my grandfather, John Earls, to the Kenmore Hospital. That letter is worth quoting in full. John Earls writes from his affluent Belfast home at 31 Ravenhill Park, Ravenhill Road, Belfast. The letter is addressed to the Medical Officer in Charge, Govt. Insane Asylum, Goulburn, N.S.W. and

reads:

Dear Sir,

A letter has come to hand from my brother Robert Earls in which he states that he has been since May last a patient in your Institution. Neither I nor any of his relatives or friends in this country have had any previous communication whatever from him since he left here for Australia about 12 years ago. Though glad to hear from him after such a long period of time we regret to learn that he is suffering from mental derangement. He says that he has been committed to the Govt. Insane Asylum "as suffering from fits of violent irritation without apparent cause". His letter, however, is somewhat confused and unnatural and I am therefore taking the liberty to ask if you would be good enough to let me know something of his personal condition, and the chance of his recovery. His father died a few months ago and I am his only brother in this country. I should be glad to know also how he came to be committed to the asylum and whether you know anything of his present circumstances. He asked in his letter if we knew of any hereditary tendency to insanity in our family, and says that he has heard of his grandfather having been affected in some way during a religious revival. I have never heard of any insanity in either my father's or my mother's family. The incident he refers to must have been during the great religious revival of 1859 when hundreds of people all over the country were "stricken", as it was called, or fell prostrate in a swoon. I don't know whether or not he had given you any detailed account of his own personal history but with the hope that it may be helpful to you in dealing with his case I shall mention some facts regarding him. He is 47 years of age in December next, I being just a year older. In his boyhood there was nothing remarkable about him except that he was inclined to be reserved in his manner and also somewhat reckless. In his youth he met with a rather serious accident which resulted in the complete loss of one of his eyes. The accident was largely due to his own recklessness in handling a "home-made" bomb which had been arranged to explode by means of a fuse and had failed to do so. This accident, in my opinion, distinctly affected his disposition. Apart from the loss from the point of view of sight, I believe he felt keenly about having to wear an artificial eye, especially as the scars to the socket of the eye made it difficult to get an eye to fit. Indeed, he seemed to be very sensitive as regards this defect and I think it had the effect of souring his disposition and of making him less sociable. When this happened he was preparing to become a teacher and he eventually qualified for the profession. After teaching for a short time at home he went to S. Africa somewhere about 20 years ago. After following his own profession there for some years he went to S. America about the commencement of the rubber boom. This venture however proved unsatisfactory and he had to come home. After being undecided whether to try Canada or Australia he eventually decided for Australia for which he sailed 12 years ago. From that time we never heard of him till now. He did not even write to say he had arrived. Two incidents in his career affected him in a very marked degree - one was the loss of his eye and the other was his S. American experience, in which he lost all of a considerable sum which he had saved in S.

Africa and arrived home again practically penniless. He was of an independent disposition and I think that, rather than be dependent on anyone, he determined to go to Australia and not communicate with any one unless he "made good". He is a well educated man, widely read in the best English literature, and an excellent writer himself, especially of descriptive matter, I gather from his letter that he has lived a laborious outdoor life in Australia, in perhaps uncongenial surroundings. Being cut off entirely from all his friends, his life must have been in many respects a lonely one which would probably develop his tendency to unsociability. If, in addition, he has, as seems probable, had to face the hardships and anxieties of a precarious livelihood, the strains imposed upon him partly by circumstances and partly by his own natural somewhat obstinate nature would seem to me to account for his mental breakdown at his present period of life. Whether my conclusions are right or wrong, the facts I have given may be helpful to you in dealing with his case. The information I have given is of course confidential and I think he would probably resent my writing to you about him if he knew about it. You should therefore not let him know I have done so. I have written to him and made as light of his illness as possible and have done my best to disabuse his mind of the idea that his condition is due to hereditary causes. The following are some facts regarding our family strain. Maternal grandfather lived to 82, grandmother to 93. Father just died at 85. 3 maternal uncles alive aged 84, 83 and over 70. Maternal aunt alive aged 85. All in full possession of mental faculties. Father's sister alive at 83. I shall be greatly obliged for any information you may be good enough to send me. And I shall be very pleased to give you any information you may desire.

*I am, dear Sir,
Yours faithfully,
John Earls*

On Dec.13, 1922, the Medical Superintendent responded to John Earls letter though the letter is strangely addressed to Mrs. John Earls:

Madam,

Robert Earls was admitted to the Reception House for Mental cases in Sydney on 19th Nov. 1920 and three days later was transferred to Gladesville Mental Hospital which is just out of Sydney, was discharged from there on April 30th 1921. He was admitted here on 9th May 1922. At Gladesville he was at times sullen and resented being spoken to but improved. He came to Kenmore suffering from Melancholia with delusional ideas and had been found on the road talking aloud to himself. He was quite friendly at first but became quarrelsome with other patients. He said that he was a laborer though trained for teaching but preferred to do laboring work. He is doing a little work at present and is more friendly but there is no idea at present of discharging him. Your letter has thrown much light on his case and will be very helpful in further treatment.

*Yours faithfully,
Medical Superintendent*

Perhaps motivated by Christmas, John Earls writes again to the Medical Superintendent on Dec.28, 1923:

Dear Sir,

If my brother Robert Earls about whom I wrote to you about a year ago is still a patient in your institution I shall be glad if you will be good enough to send me a report regarding his condition. I am sending him a letter by the same post as this and if he has left the hospital and you know his address perhaps you will have it forwarded to him; or if you do not know his address please have it returned to me. It contains a small sum of money.

I am, dear Sir,

Yours faithfully,

John Earls

and the Medical Superintendent responds to this second letter on Feb.13, 1924:

Sir,

Robert Earls. I am sorry to say he has not improved mentally and is laboring under delusional ideas and, at times, calls out as though talking to some imaginary person. He is well conducted if left to himself and in good bodily health. We shall hand him the letter when it comes. Money is usually kept in the office for patients and they can draw on it as they desire.

Yours faithfully,

Medical Superintendent

Finally, the Medical Superintendent, writes again on Jun.26, 1926:

Dear Madam,

I regret to inform you that your brother Mr. Robert Earls an inmate of this institution for the past four years passed away on Thursday June 24th 1926, after an extremely acute illness. On Tuesday 22nd. June he became suddenly ill with a double Broncho-Pneumonia and Pleurisy which proved fatal after 36 hours. His end was, however, both pain free and peaceful. He was interred in the Hospital Cemetery,

Yours faithfully,

Medical Superintendent

And so, after the excitement of the search, the story comes to a very sad conclusion. Despite many unanswered questions (the interaction with William Charles Kerr Earls for example) one is left with my grandfather's depressingly dispassionate letter. Was there not more that could have been done to help this poor soul who suffered such debilitating losses in his critical teenage years? Perhaps back then mental illness was so little understood and there were so few remedies that people were more accustomed to shrugging their shoulders and moving on. But surely Robert's illness was clear before he set out for Australia. Was he then encouraged to go? My grandfather's letter seems more intent on denying any genetic defect than on providing help to Robert. Indeed the letter contains a deliberate lie, for another sister in that same family was confined to a mental hospital in Ireland during puberty and spent the rest of her life there. But we probably judge too harshly, viewing the case from the perspective of our era. Robert was, after all, cared for in those Australian hospitals in a way that was

superior to the way in which we care for the many homeless who wander the streets and roads of modern America.

PS: I wish to express my thanks to John Earls for obtaining the Kenmore file and to Alison Earls for copying it onto a CD. Thanks also to the Kenmore Hospital staff for the extra effort in unearthing the file.

Chapter 4

BEGINNING

Don Pedro: " for, out of question, you were born in a merry hour".

Beatrice: "No, sure, my lord, my mother cried; but then there was a star danced, and under that was I born".

From "Much Ado about Nothing" by William Shakespeare.

My father, Wilfred Macauley Brennen, spent most of his boyhood in the midst of the vast expanse of row upon row of red brick tenements that supplied the essence of the ship-building and linen-manufacturing industries of a grimy and sprawling Belfast at the beginning of the 20th century. Throughout the world some infinitesimal fraction of the youth who are born into such urban poverty manage to escape upwards. My father's escape was, I believe, due to the same providence that characterizes so many of these fortunate ones. Namely a combination of genetic accident plus a mother with driving familial ambition and a cast-iron belief in relentless formal education. It was not until I had passed the age of twenty that I located the small terraced house in which my father spent his formative years as the second of six children of Cecil and Anne Brennen. He was christened Wilfred Macauley Brennen to commemorate an uncle who died young and his mother's favorite poet. From an early age he was inculcated with a belief in the uniqueness of his family, a belief that he duly passed on to his own children. No other family in the Irish telephone directory spelled the patently Irish surname with an "e" rather than an "a" as the penultimate letter. To this day this appears to be the case. The story of the family name and the way in which that story grazed my life is described in an earlier chapter.

So the soot and grime of the burgeoning industrial city of Belfast provided the backdrop to my father's youth. He rode a precarious train of merit scholarships first to a reputable Belfast grammar school, the Royal Belfast Academical Institution, where he seems to have studied mostly Latin and Greek and then



Left: Cecil and Anne Brennen about 1945.
 Right: Wilfred and Muriel Brennen wedding in 1939.



Left: James & Margaret Earls & family about 1893.
 Right: John & Mary Earls about 1928.

later to Queen's University, Belfast where he studied medicine. Any interruption in the merit scholarships would have meant relegation from these elite institutions since he had no other means of acquiring the necessary financial support. No doubt this contributed to the single-minded determination that drove my father for the rest of his life. But he was not just a bookworm. Despite his small stature he was a good rugby player and captained his school's team when they won the Ulster School's Cup in his final year. He also enjoyed participating in the regular theatrical productions that the school opened to the public. In the audience for several of these productions, a young teenage girl sat with her father. She took special notice of the handsome young man playing Cassius.

My mother was the youngest daughter of an upper middle class family and

lived her early life in the comfortable surroundings of the Upper Malone Road, Belfast. Her father, John Earls, had become the principal of Belfast Technical College and, therefore, a significant figure in Belfast society. He was a member of the board of governors of the Royal Belfast Academical Institution and felt it his duty to attend their public theatrical productions. My mother's mother, Mary Arnold, was a wistful beauty who is difficult to separate from her tragedy. Indeed, in her early teens, my mother was to be torn from her comfortable surroundings by a devastating double tragedy. First her mother developed a thyroid condition and was sent to Glasgow for treatment. There she died at the young age of 48. This loss and the agonizing uncertainty that preceded it were traumatic for my mother. And she had barely recovered from this loss when her father died unexpectedly during an appendectomy. For the few remaining years of her immaturity, my mother lived with her unmarried aunt, Anne Earls for whom she had a special, lifelong affection. My mother tended "Aunt Anne Earls" in her last years.

Despite all these problems my mother graduated from Victoria College, Belfast, and therefore arrived at Queen's University by a more elite route than my father. My mother's sister, Irene, the subject of a later chapter, also arrived at Queen's about the same time. A mutual interest in drama led my father to an acquaintance with Irene and through her with my mother. Though Irene moved on to a degree and a career that included a stint as a member of the Northern Ireland parliament, my mother's university education foundered on an inability to conquer Latin.

My parents were married under the penumbra of the second World War and I was born about two years later, four days before Pearl Harbor. I have some vague recollections of the terraced house at 6 University Terrace, Belfast where I spent most of the first four years of my life. It is probably only through the reminiscences of my mother that I recollect sitting huddled under a cast-iron table (called an *Anderson table*) while Belfast was being bombed by the Germans. The naval refitting yard in Belfast Lough was an important strategic target for them though this hardly accounts for the phosphorus incendiary bombs that rolled off the high pitched slate roof of our house to burn themselves out harmlessly on the road outside our front door. Shortly thereafter my mother and I were evacuated to a cottage in the country while my father remained to practice his craft in the war zone. Fortunately he was too old to be called to active service. His youngest brother Cecil did, however, join the British Army commandos at the age of eighteen and was involved in the landings at the Anzio beachhead in Italy. There he was caught in a German/American cross fire, riddled by machine gun bullets and knocked unconscious by an anti-personnel mine. Last seen hanging from a barbed wire fence he miraculously survived to spend the rest of the war in a prisoner-of-war camp in Germany. Cecil was one of the heroes of my youth for these exploits though I always felt uncomfortable with the consequences for he returned from the war to become a Presbyterian minister.

In 1943 my brother Michael joined me in the world. He remained my companion throughout my youth despite the usual childhood fights that seem no



Market Street, Magherafelt.

more than a superficial testing ground to me now. Michael and I faced the same juvenile wars, reveled in the same escapades and, later, tasted the same first touches with the opposite sex. But I race ahead again. When we were three and one respectively my father was recruited by the village of Magherafelt, County Derry, to come and build a hospital to serve that rural area. He was to start with the 100-year old remains of a workhouse and a number of Nizzen (Quonset) huts constructed during the war. As a part of the deal the village would arrange to fix up a large Georgian manor-house on its outskirts for my mother and father to live in. And so, in 1945 we made the move to Magherafelt. My first definite recollection is of the huge trucks into which all the things I knew in life were being unceremoniously stacked, a most troubling development. But I also remember running at full speed through the marvelous grounds that surrounded our new home. In retrospect, it was a glorious place in which to grow up and when I think of it today, a lump still forms in my throat.

In the summer of 1946, my second brother Colin was born. I dimly recall the sense of reassurance I experienced when my mother returned from the hospital. There she was in her dressing gown, amazingly unchanged by the horrendous contortions to which, I was led to believe, she would be subjected. Colin grew smaller in stature than my robust brother Michael. Being, in addition, three years younger meant that his inevitable lot was to struggle in our rather large wakes for most of his life. It is to his great credit that despite this considerable burden he carved out an individuality of his own.

The fields and forests around our house and the village of Magherafelt formed the playground of our youth. We built castles in the sky and ramshackle tin huts in earthen corners by crumbling stone walls. We roamed the drumlin-rolling fields as fleet-foot Robin Hoods secure in our mastery of the natural environment. We knew every hawthorn bush and barbed-wire fence, knew every

cow shed that could serve as a castle and climbed the walls of abandoned quarries resonating with Celtic mystery. And nearly always we returned in time for tea. We explored the ragged edges of our fear and daring. The threat of the slightly alien groups of Catholic boys we rarely faced head on, preferring to keep our make-believe world free of the nastiness we sensed in the adult community. Once or twice we were cornered, forced to fight back-to-back only to sense at that moment when the final punch or kick, the coup de grace, was to be delivered a certain fundamental humanity that would deflect the blow. And we sensed this not only in ourselves but also in the total strangers with whom we rolled in the mud. Strangely we would never admit to such feelings but would insist especially to our friends that the final outcome was some sort of arranged surrender or truce. In such fashion did we build within ourselves the barriers we felt were necessary to survive in the society that had spawned us, barriers it would take many years even to dent in later life.

Chapter 5

THE STORY OF CRANAGH DHU

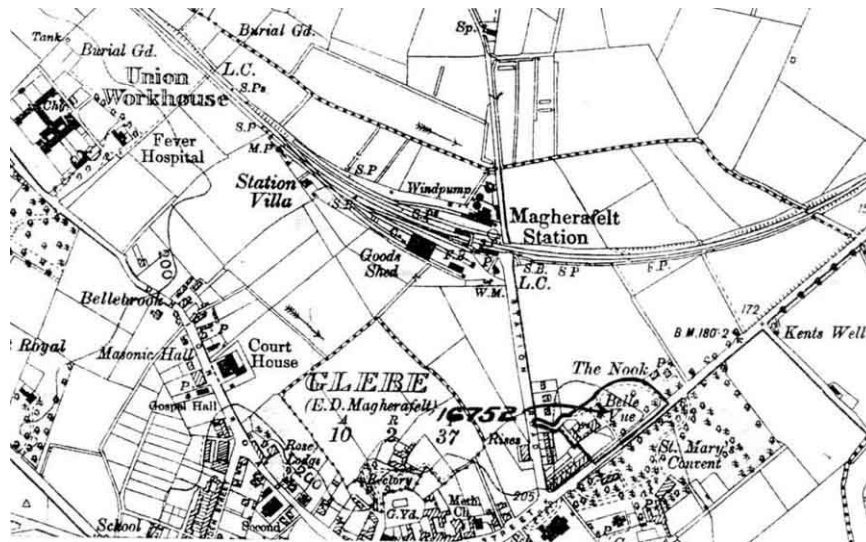
*“Dark house, by which once more I stand
Here in the long unlovely street
Doors, where my heart was used to beat
So quickly, waiting for a hand.”*

From “In memoriam, A.H.H.” by Alfred, Lord Tennyson.

The house in Magherafelt which Wilfred and Muriel Brennen called “*Cranagh Dhu*” and in which they spent most of their life has a number of stories associated with it. We recount here what we know of its history and some of its legends. From the “*History of Magherafelt*” by W.H.Maitland we learn of the Vesey family who lived in the house in the 1800s. The Rev.Thomas Agmondisham Vesey was appointed the rector of Magherafelt in 1807 and lived in the Glebe house or Rectory until 1844. His son was Dr. John Stuart Vesey who was appointed the first Dispensary Medical Officer of Magherafelt on Nov.20, 1851, and also became Medical Officer of the Magherafelt Workhouse. In both the 1846 and 1856 Ulster Directories the physician and surgeon John Vesey, M.D., is listed as living on “*Castledawson Street*”, *Magherafelt*. It is therefore possible that he had built and occupied “Cranagh Dhu” as early as 1846. Then, in the 1863-64 Directory he is listed as residing at “*Railway View*”, *Magherafelt*, which is almost certainly “Cranagh Dhu” for the latter overlooked the local railway when the railway was still intact. If this identification is correct then this 1863 mention is the earliest record we have found so far for the house. It does not appear in the 1833 Ordnance Survey map of Magherafelt nor is it mentioned in the 1833 Ordnance Survey Memoirs of the town. Furthermore it is not included in the list of the four principal residences in Magherafelt compiled by Thomas Fagan in 1836. It follows that the main house must have been constructed after 1836 and before 1863.



Cranagh Dhu in the winter.



Map of Magherafelt showing Cranagh Dhu as Bellevue.

John Vesey died on Oct.8, 1874, at the age of 59 and was succeeded as Medical Officer by his son, Dr. Agmondishane Blathwayt Vesey. This second Dr. Vesey lived at the house in question which he called "Bellevue"; the location of the house is shown in the map which follows. Dr. Agmondishane Vesey was very much a local favorite, a country gentleman and an enthusiastic hunter. He died on Mar.12, 1901, at the age of 53. Dr. Agmondishane Vesey's successor as Medical Officer, Dr. A. Hegarty, did not live at "Bellevue" but at "Ardrath" opposite the Workhouse.

The Ulster Directory is an annual publication that provides basic information primarily for businessmen. For each market town it lists the principal officials and businesses. In addition it lists prominent gentry and their homes. Thus, we found the residents of "Cranagh Dhu" by looking for "Bellevue", Castledawson Road under the section on Magherafelt. A.B. Vesey of "Bellevue" is listed in the 1901 Directory. After 1901 it is clear that the house was either rented or vacant until it was purchased by my father in 1946. The Ulster Directories for this period tell us the following regarding the tenants. Edward Montgomery, M.D., lived in the house from 1902 until 1907. Perhaps Dr. Montgomery took over Dr. Vesey's medical practice. Then, for three years, from 1908 to 1910, an Edward Smyth occupied the house. He was followed by A.H. Greenacre who lived in "Bellevue" from 1911 until 1914. Such a succession of brief tenancies suggests the house was beginning to decline. However, in 1915, Wilson Gamble moved in and lived there until 1925. Wilson Gamble was a very prominent member of the local community. From 1901 to 1931 he is listed as a grocer and publican, the proprietor of a business and posting establishment in Rainey Street, Magherafelt. He was also a Justice of the Peace and the treasurer of the local Masonic Lodge from 1902 until at least 1907.

Information on the ownership of the property during this period was also obtained from the office of the Land Registry of Northern Ireland on River Road, Belfast. The house and grounds were originally part of a much larger property of 23 acres, 1 rood and 386 square yards, first registered in Folio 1772A on May 16, 1895. The ownership of this large property prior to 1921 is unclear though we might guess that it belonged to the Vesey's at least until Agmondishane Vesey's death in 1901. What is clear is that in 1921 the property was purchased by James McKenna, a merchant of Ballymoney Street, Ballymena, and that McKenna rented out the house during the period 1921-1944. However in that time frame, parts of this large property were sold off.

We presume that Wilson Gamble rented the property until his death in 1931 though the Directories provide no listing for "Bellevue" for the period 1926 until 1932. It may be that the house fell into some disrepair during this time. Afterwards it was occupied; the Directories for the period 1933 until 1937 list as the tenant, Mr. J. O'Reardon, the manager of the National Bank in the Diamond in Magherafelt. Mr. J. O'Reardon was succeeded as manager by Mr. J. Farrell both as manager of the National Bank and as tenant of "Bellevue", where the Farrell family took up residence in Nov. 1937. (The Directory editors list the surname as "O'Farrell", perhaps in order to identify them as Roman Catholic.) An account of the Farrell family's residence in the



1904 view down Lovers' Walk, Castledawson Road.
Cranagh Dhu is on the left.

house was provided to me by the son, David Farrell, after he read an earlier, inaccurate account of mine. David and his brothers enjoyed growing up in the large grounds with plenty of space to play.

On Sep.27, 1944, the house, "Bellevue", and the remaining land were sold to Robert J.A. Loughlin, a farmer whose address is given as "Bellevue", Magherafelt. From the records of a separate transaction involving Folio 1772A and the recollections of David Farrell, we know that the new owners, retired farmer James A. Loughlin and his wife Sarah Loughlin, lived in old railway carriages (with seats removed) that they placed on the property in late 1944. Parenthetically we note that Robert Loughlin seems to have borrowed money from a Dr. William Johnstone of "Oakfield", Maghera, in order to make this purchase. The railway carriages were a temporary residence while the Loughlins built a more modern home about fifty yards away on Station Road. They moved into this more modern home where they continued to live until the early 1950s. (This house on Station Road was occupied by the McKeown family from the late 1950s until about 1980).

Partly because of the death of one of the Farrell sons in December, 1944, and partly because they may not have welcomed the proximity of the new owners, on Jan.31, 1945, the Farrells moved to a town house on Broad Street in Magherafelt, between the houses of the lawyer, Mr. Hastings, and Dr. Kerlin.

On May 22, 1945, and prior to the Farrells departure, the house and the 2 acres, 1 rood and 19 perches on which it stood were transferred to Folio 16752 as part of the process of purchase of that part of Folio 1772A by a consortium consisting of farmer Hugh E.Thompson and his wife, Lily Thompson, both of



Left: Cranagh Dhu from the road. Right: The rebuilt rear of Cranagh Dhu.



Left: South side of Cranagh Dhu. Right: 1991 Renovation.



Left: 1991 Renovation. Right: Dedication Plaque.

Ballindrum, Moneymore, James Johnston, Presbyterian Minister of the First Presbyterian Church, Magherafelt, and Thomas S. Fazackerley, Headmaster of Rainey Endowed School, Magherafelt. It is clear that this consortium purchased the house in order to fix it up and offer it to my father, Wilfred M. Brennen, as part of the inducement to move from Belfast to Magherafelt to take charge of converting the Workhouse to a modern hospital. My father was registered as the new owner on July 26, 1946, and he and my mother renamed the house "Cranagh Dhu", a name that was largely of my mother's making. It means the dark (or wooded), prominent place.

At the time of their move to Magherafelt in 1945 my parents, Wilfred and

Muriel Brennen were shown this large, grey, three storey Georgian house on the outskirts of the village. It stood on a wooded hill surrounded by about two and a half acres of land with many trees, chestnuts, rhododendrons, and large beeches. There were entrances from both Castledawson Road and Station Road. The house faced northeast; at the front there was a large lawn and a sweeping driveway lined on one side by rhododendrons. On the southeast, raised above the Castledawson Road with steps down to a gate, was the garden with flower beds, a vegetable garden and an apple orchard. Behind the house on the southwest was a courtyard defined by crumbling stone walls. Under about a foot of gravel we found what seemed to be an old cobblestone surface in this yard. On the side of the courtyard opposite the house stood old stables and an old two storey structure that now served as a garage, hayloft and coal shed. This structure may well have predated the main house; more about that in a moment. To the northwest, the main house looked down toward the railway line and the railway station.

The house, however, needed modernization at the time my parents were shown it. During their tour of inspection they met the tenants at the time, the Farrell family. Despite wartime scarcity, materials were scraped up to renovate the house prior to occupancy by the Brennen family. Electricity was added and new bathrooms were built at the rear of the house. This addition spanned the ground and first floors and included new pantries added onto the kitchen. During these modernizations our family lived in Nissan (Quonset) huts in the grounds of the hospital-to-be. Not many substantial changes were made to the property during the Brennen years, 1946-1989. However the Castledawson Road was widened in 1959 and a thin slice of land (and many trees) were purchased by the government in order to effect those road improvements. As part of this deal a stone wall was built along the length of the property line.

After my father's death in 1987, my mother eventually sold the house to the Royal British Legion Housing Association (Northern Ireland) Limited who became the registered owners on Jan.3, 1989. The British Legion plan was to convert the property into a home for disabled veterans. However there were some delays in effecting this plan and during this time the house became derelict again. During the troubles in the 1970s the British Army had constructed a base in the field immediately north of "Cranagh Dhu" and during one attempted I.R.A. bombing of this base, all the windows facing that base were blown out and had to be boarded up. However, eventually, the conversion plans were carried out. As well as renovating the big house a number of other smaller homes were constructed on the property and the whole complex was opened by my mother in a ceremony on Jul.3, 1992.

Apart from this documented history, there are a number of legends and stories associated with the house that merit the telling. When my brothers and I were young we sensed that some of the older locals were apprehensive about approaching our property. Though the stories varied they all implied a degree of hauntedness. More specifically the old structure that served as our garage was the object of particular apprehension. It was said that this building had at one time been an inn and a stopping point for stage coaches; this was consistent

with the cobblestone surface in front of the building. One story was that a stagecoach on its way to Magherafelt was once robbed and all of its occupants murdered. Yet the horses, knowing their way, pulled the coach with its gruesome contents up to the inn. The shock of this sight on a dark winter night was still reverberating after more than a century. It is however equally possible that the entire incident only materialized in some over-eager Irish imagination.

Chapter 6

A CAREFREE PLAYGROUND

*"We could never have loved the earth so well
if we had had no childhood in it."*

From "The Mill on the Floss" by George Eliot (1860).

When I look back I recognize that I enjoyed a glorious, carefree boyhood for the fourteen years that I spent growing up in the village of Magherafelt. During that time I lived in the big gray house on a wooded hill that my parents christened "Cranagh Dhu" and there I grew up with my mother, my father, two brothers and sister. Between the ages of about 7 and 14 most of my existence was focussed on that house and its immediate surroundings. The two and a half acres around it provided a wealth of childhood environments in which to reign, build and devise adventures.

Far from the house, beyond a hayfield, the driveway curled around to reach the road and this bottom end of the driveway went through a tunnel of horse chestnut trees and rhododendron bushes. Every year we would enjoy harvesting the inedible horse chestnuts in order to collect from within the green husks the beautiful round nuts with a great big white dimple. We called them "conkers" and used them for various games. A popular pastime was to drill a hole through a chestnut and feed a short length of string through it so that you could swing the chestnut to collide with a rival's chestnut. The winner was the chestnut that did not split apart but remained intact. Boys boasted of their "champion conkers" though all eventually dried up and cracked.

The horse chestnuts were, of course, inedible, indeed they were reputed to be somewhat poisonous. We did have one sweet chestnut tree on the front lawn though it did not produce nuts of edible size. Indeed they were little, tiny nuts that didn't even look like chestnuts (indeed I wonder today whether it really

was a sweet chestnut tree). There were quite a few large beech trees around the house and we could and did eat the beech nuts though they were small and it was a lot of trouble to peel off the skin. However, they were quite tasty. Of course the garden itself was a valuable source of food. There were lots of apple trees almost all of which produced rather bitter apples that were only really useful for cooking. However there were one or two trees that produced very tasty fruit. My parents used to try to store apples by laying down a bed of newspapers on the floor of one of the empty attic rooms in order to lay the apples upon it. It always seemed to me a useless exercise for the apples would almost always rot and we would be left with the task of gathering up all these rotten apples and disposing of them; that charade was repeated over many years. Slightly more successful was the effort to make cider from the rotten apples using great big earthenware vats. The apples had to be mashed up in grinder and that part I quite enjoyed. The garden also contained one pear tree though the climate was not warm enough for it to produce edible fruit. We did have lots of raspberries, gooseberries, rhubarb, sometimes some strawberries, peas, broad beans, lettuce, cabbage, turnips and my least favorite of all vegetables, parsnips (in other lands they are appropriately regarded only as cattle fodder). This produce, particularly the potatoes, represented a substantial fraction of our food.

We had very few of the playthings and resources available to the modern child for, in the aftermath of the Second World War, there was little available but the necessities of life. However, we did have a broad landscape and the freedom to roam it. In doing so we made use of whatever materials were available. I remember four great sheets of what must have been aluminum (hard to be sure what metal they were) - 4ft x 8ft sheets that were endlessly reused sources of building material - whether for a hut or a race track or a bicycle ramp. We were constantly carrying those metal sheets from one project to another. My mother said she remembered me making my brother Michael carry these sheets of "tin" from one side of Cranagh Dhu to another, claiming that I was the one with the ideas and Michael was the brawn that carried out those ideas. I am really not sure that's very fair, or very accurate, but I guess it was probably symptomatic of our relationship.

I remember one particular game that we played for many, many hours; it involved racing model cars down a sloping ramp made from the tin sheets. One of the relatively few toys available to children of that time were the cast iron model cars and vehicles made by the Dinky Car Toy Company. We could purchase a few of these in the local grocery store, a place called Stewarts. About 1950 the Dinky Car Company produced a series of models of the Grand Prix racing cars of the time. These were a source of great excitement for me for I had followed Grand Prix racing with some fervor and knew all the stories of Alberto Ascari, Juan Manuel Fangio, Stirling Moss, and Mike Hawthorne among others. I still have the scrapbook in which I pasted all the newspaper articles and memorabilia that I could find, including a laboriously typed out story of the Marquis de Portago's fatal accident during the Mille Miglia. On one occasion my father took me to a Tourist Trophy race, an annual international event for



The Dinky racing cars.



The tricycle about 1946 and one generation later.



Left: A liferaft pool. Right: A rubber dinghy.

sports cars that was held at the Dundrod circuit not far from where we lived. There I managed to get Mike Hawthorne's autograph only a few months before he died in a car accident.

But back to the Dinky toys: I think there was a model Ferrari, a Maserati, an Alfa Romeo, a Cooper-Bristol, an HWM and a Talbot. We had one of each.

We set the sheets of tin up on an inclined slope in our back yard and would race the cars down this slope. We oiled the axles trying to get the maximum speed out of each of these little toys. Mine was the red Maserati and, to this day, every time I see that name or, better still, a car of that make, it gives me a special thrill.

Another endless outdoor activity that I remember was building “huts”. These were rudimentary shelters built in various corners of the grounds. The sheets of “tin” usually formed the roof of these hideaways. There was an old cooking stove I remember that had obviously once adorned someone’s kitchen but had been retired long before we acquired it. We would install that stove in these hideaways and start wood fires in it, just to delight in the warmth and light of the fire. There was also a chimney that we somehow managed to attach to the stove to prevent smoke asphyxiation.

Bicycles also played a large part in our games and in our travels about the Magherafelt region. The very earliest was a rugged little tricycle that has now served at least three generations and has become a legend in itself, an iconic symbol of our family tradition. Where it originally came from I do not know for it was “used” when we first acquired it. Some of early photographs from the mid-1940s show my brother Michael and I riding it. It was then passed down to my brother Colin and to my sister Paula who were photographed sitting on it. Some years later it traveled across the Irish Sea to become the proud possession of my daughters Dana and Kathy before it returned again to Ireland for Colin’s children to enjoy. Now it is passing on to a third generation. But perhaps most remarkably my second wife, Barbara (about whom much more later), was photographed sitting on it when she was a teenager and again, some fifty years later, when she and I visited Ireland together shortly after our marriage. Quite remarkably, it is still serviceable and increasingly treasured as a family icon, a reminder of our heritage. We soon graduated to bicycles and had various racetracks laid out in the grounds of Cranagh Dhu. The sheets of “tin” were used to create smooth, banked turns in critical locations along the chosen race course. I remember two yew trees at the entrance to the garden that had grown so that the space between them was very narrow, perhaps only 18 inches. We would pass through this gateway at high speed and swoop down the narrow path in the center of the garden. Sheets at the bottom of the garden formed a banked turn that could be taken at high speed before hurtling through a narrow doorway in the stonewall that surrounded the backyard. If you misjudged that doorway the consequences could be very painful. I also remember that we spent many hours reworking the bearings, chains, etc. of the bicycles in attempts to improve their performance. That was almost certainly my first education into those basic mechanical components, the bearings, gears, chains and sprockets. I remember an old bicycle of my mother’s that was light, fast, and manoeuvrable. It was my favorite and I recall painting it white with the remnants of a can of shiny house paint.

There was one occasion when we foolishly placed the finish line for a race at the top of a steep slope at the edge of the front lawn; the slope dropped down steeply to the barbed wire fence at the road-side edge of our property. In the

lead at the end of the race, I charged over the finish line and straight down this slope into the barbed wire fence, ripping a gaping wound in my thigh and receiving a host of lesser cuts. All of these my father had to stitch together in the local hospital. The scar on my thigh is still quite visible, a reminder of my youthful foolishness.

We had a part-time gardener to tend to the two and a half acres of land surrounding Cranagh Dhu. His name was John Bradley and we were the bane of his life. A gentle old soul, we sometimes so taxed his patience that he would chase us around the house though not with any hope of catching us for we were nimble and fast and he wore hob-nailed boots. Prompted by my father's initiative and encouragement, John, on several occasions, tried to keep bees and beehives. It was one of my father's notional fads, that were frequent and usually of quite brief duration. Maybe he imagined that as one of the things a "country squire" should do. There were other fads that fitted into this category but more of those later. I do remember on one occasion I thumped one of these beehives with a hammer and was swarmed upon by the bees, receiving perhaps 30 or 40 bee stings before I managed to outrun them. That was a very painful experience; indeed I may have been briefly hospitalized in the aftermath.

Looking back now I realize that my father's fads often left some very interesting bits and pieces in their aftermath. We then used these bits and pieces for other purposes. When I was about 8 or 9 he acquired a large inflatable liferaft, probably army or navy surplus. This we inflated and filled with water to use as a paddling pool in the backyard. It provided hours of summer fun and was the closest thing to a swimming pool that we had any access to though it wasn't nearly deep enough to swim in. About the same time he also acquired a smaller rubber dinghy that we took with us when we went on summer holidays and used extensively for paddling in various rock pools.

We lived about four miles from one of the largest lakes in Europe by the name of Lough Neagh. However the shores of the "lough" were either marshy or rocky and not very attractive for recreation or swimming. There was one rocky little harbor within easy reach where we occasionally went swimming (I didn't learn to swim until much later, in part because of the lack of any facility in which to learn). Not far away from that rocky harbor was a place where a small local company mined sand and gravel for building purposes. Toward that end they employed a dredging barge and cut great holes in the shoreline. This created a network of deep pools with many wooded islands. They also used an old wooden boat for getting around among these pools and islands. On a weekend when they were not working we would use that little boat and paddle around exploring that watery maze. My fascination with this activity was accentuated by my favorite children's book, "Swallows and Amazons" by Arthur Ransome that featured adventure stories of children exploring a lake with small sailboats. The dredged maze was my adventureland and I remember it with much fondness.

Behind the big house in which we lived was an old stone, two-storey dwelling, whose haunted legend I have written about elsewhere in the story of "Cranagh Dhu". In our day it was used primarily as a garage though it had obviously



Left: The Garage. Right: The stable from the garage.



Left: The MG with wartime headlight covers.
Right: A cart that was to become a “cart”.

been a dwelling of some kind in the distant past. It formed the rear boundary of the wall-enclosed backyard but we assumed that it predated the main house and that it constituted the remains of an old “inn”. Indeed beneath the more modern gravel surface of the backyard in front of this “inn” were the remains of a cobblestone courtyard. The large opening on the ground floor had been recently cut in order to convert the building into a car garage. In order to provide structural support for the wooden floor above the garage, two large steel I-beams were installed above this carport. I remember the workmen installing those I-beams, the like of which the village had probably never seen before.

The spacious second floor of the “inn” had two parts to it. One had reasonably sound floorboards that you could walk on without danger of falling through. Since the large steel I-beams would have supported a fair-sized ship, when I was about 13 or 14 my father purchased a billiard table that was installed in that part of the loft. We spent many hours in titanic billiards or snooker competitions in that loft, games that usually featuring myself, my brother Michael and our neighbors David and Willie McKeown.

The other half of that second storey had a much more dubious wooden floor, rotten with woodworm. Indeed, in many places the floor boards had fallen

away leaving only the joists. In our early years my parents used that half as a hayloft. The upper half of the large grassy area in front of the main house was mowed and maintained as a large lawn, about 60 yards wide and 30 yards long. The equally large piece of grassland further from the house was allowed to grow without mowing. Come autumn, the long grass would be harvested for hay and stored in the hayloft. Once that was freshly filled we would have a glorious time jumping, rolling and hiding in the hay. There was always some slight danger of falling through the floorboards if things got a little too lively but I don't remember any serious accidents of that nature.

Below the hayloft on the ground floor was the coal shed, a dank and dark place where the coal that heated the house was stored. As a teenager one of my morning chores would be to fill the coal buckets (usually four or five in number), and carry them up to the back door of the house in preparation for their use in heating the house during the day. That duty of bringing in the coal every morning was one my brothers and I were assigned in rotation, week by week. This was no problem in the summer but in the winter when the ground was covered in snow, filling four or five of buckets and carrying them up to the back door of the house in the freezing cold was a miserable chore.

The coal shed had a little window (or rather an opening) that looked out onto an area beyond the walled backyard that we called "the dump". This was where most of the garden waste was left to rot away in order to make compost. There was also a very old, partial stone wall around this dump. About a year or so after we moved into Cranagh Dhu (about 1946) my father, fancying himself as the local squire, had a solid brick stable for a horse built in one corner of the dump. For a while (perhaps about a year) he kept a horse there. When that fad passed (or my father realized how much trouble it was to care for a horse) the horse was returned to the local farmer from whom the horse had been purchased or leased. The farmer's name was Kielt. The family lived not far from us along the Pound Road and were much more serious about their horse ownership. They had a jumping circuit in one of their fields. Parenthetically I might add that one of the Kielt sons, Eugene, now runs a very nice bed and breakfast just a stone's throw away from "Cranagh Dhu" and there I have enjoyed his hospitality.

In later years the stable became another of our playgrounds and we used it for numerous purposes. I remember one year when there was an outbreak of frogs (there seemed to be frogs everywhere). We gathered up as many of these frogs as we could and corralled them in the stable, attempting to fill the whole floor with writhing frog. It was a quite disgusting sight and, of course, stank to high heaven. However they didn't last there very long; I think my mother discovered what we were doing and opened the door to release a flood of frog.

The stable came into prominence again when we were teenagers. For reasons I cannot recall my father was given four small piglets and decided that it might be fun for my brothers and I to raise these to full-size. The plan was that they would eventually be taken to market and sold. One of the small pigs didn't survive the first winter but the other three made it. They were initially housed in a shed adjacent to the main house since that was a little warmer than the stable. But when they were large enough they were moved to the stable. Even

it became barely large enough, for the pigs grew to a surprisingly large size. They were rambunctious beasts to say the least and they had to be fed every morning. Consequently another daily chore that my brother and I were assigned was the feeding of the pigs. This might sound simple and easy but it was really a disgusting chore, even worse than the coal buckets. First of all we had to mix their food. This consisted of taking a great big bucket, putting some meal in it and then dumping on top of that meal all the food scraps from the previous day. Everything was lumped in there. We then had to add water and mix it up. The only way to do this was by hand for there was no way to turn a stick or ladle in this gooey mulch. Once this disgusting feat was accomplished, we then carried this great bucket down to the stable. The pigs, being much smarter than they looked, knew what was coming from yards away and made all kinds of ruckus, banging up against the door and churning around like crazy in the mire that covered the entire floor of this pigsty. It was almost impossible to get in through the door of the stable without getting one's legs coated with muck from the pigs. Great speed and agility were needed to get the bucket of slops dumped into the trough before you sank too far into the manure. That was one chore that we fruitlessly did everything we could to avoid. It was a great relief when, in the end, the pigs were sold at market. They fetched a fair sum, something like 150 pounds apiece, a real fortune for us boys. However, after the costs were subtracted we only got a small percentage the proceedings.

Let me return to the garage and tell a little of the various cars that appeared in it over the years. When my father was young he really fancied an elegant sports car and, while we still lived in Belfast, he acquired an unusual MG. The story was that it had been used as an army staff car during World War II. I believe my father noticed it in the back of a mechanics garage in Belfast, a garage that was owned by a friend called Stanley Harvey. At the time it was coated in camouflage paint. My father had it refinished and what emerged was a beautiful and elegant soft-top roadster with long flowing lines. My father drove it during the last part of World War II while we still lived in Belfast. Because of the German bombing of that city it had to be equipped with partial shades over the headlights. When we moved to Magherafelt it came with us but, by that time, it had begun to age. About 1948 my father acquired an even fancier car, a black Jaguar sedan that, next to a Rolls Royce, was one of the most elegant cars in the land. The MG was left to decay in the garage, and decay it did. The wheels went flat and other indignities were imposed upon it for we used it for a variety of other playground purposes. Eventually it was sold to a man named Ritchie who lived in Magherafelt. He brought it back to some semblance of roadworthiness though not to its original elegance. Indeed, I hope it still exists somewhere. I often thought it was a great shame that it did not really survive being stored in the garage at Cranagh Dhu.

Sometime during the 1950s it became clear that my mother needed her own car and a little, black Morris Eight was purchased for her. I don't remember much of that vehicle even though I must have traveled many miles in it. The only notable recollection I have is of the occasion when my mother was not paying sufficient attention as she sped down our curving driveway and managed

to knock the postman off his bicycle. Fortunately he was not seriously hurt.

Eventually the Jaguar suffered the same fate as the MG for, at some point, my father realized that he needed a more practical vehicle for the family and so purchased a Hillman Minx, a small, ordinary coupe that he and my mother drove for some years. The Jaguar, in its turn, was allowed to decay in the garage. Eventually that too was sold though my recollection of what exactly happened to it has faded away. The vehicles that were left in the garage also suffered because, for a significant period of time, my parents kept bantams. These small hens roosted on top of the I-beams in the garage, directly above the cars that were therefore constantly bombarded with bantam shit the whole time they resided in the garage. Moreover we did various things with those vehicles that probably did not do them much good, like jacking them up and then hitting the jack so that the car crashed down to the floor.

Another youthful activity that persisted for a long time was the building of “carts”. What we referred to as a cart was built from two sets of old “pram” wheels and axles (a “pram”, short for perambulator, was a baby carriage), lots of two by fours and many, many nails. It was basically a wooden soapbox that was steerable but not powered. We would love to have powered them but we had no access to lawn mower engines that might have served that purpose. However, the carts were steerable and we used to race them down the hills around and near the house. Sometimes we would reach what we thought were quite high speeds but they probably did not exceed 15 mph. There were a number of accidents, of course, but no real injuries beyond skinned knees and elbows. The carts were constantly being built and repaired for they were more fragile than we were. Wheels sometimes broke and we would have to scramble around the town dump in order to salvage a new set of wheels. Cart construction, racing and tricks took up alot of our time and energy. One daring trick that I remember was riding the carts through a rhododendron bush at the bottom of the front lawn. One side of this bush was over-hanging so that you could aim the cart for that side and, with a little luck, fly all the way through the bush and emerge relatively unscathed on the other side.

My parents were very enthusiastic about Scouting and the Boy Scouts. My father was much involved with the administration of the Boy Scouts and eventually rose to become the Chief Commissioner for Northern Ireland, yet another activity that frequently took him on trips to London. He strongly supported the organization in Magherafelt, both the Boy Scouts group known as the “Three Spires Group” and the Cub Scouts for younger boys. My mother was (somewhat reluctantly I suspect) roped into being the Cub Scout Master. With all this it was inevitable that my brothers and I would be enrolled in these activities. When I think back I remember almost nothing of what we did as Cub Scouts. The only thing that springs immediately to mind is the occasion when I fell while climbing a tree and severely injured my left arm, suffering a frightening compound fracture of the humerus as well as other lesser fractures. Rushed to hospital, it was my father who put the arm back together.

At the age of about 11, I graduated to the Boy Scouts proper and for years enjoyed the vigorous physical and outdoor activities that were arranged for

us. We were organized into patrols of 6 or 7 boys each with a name and each with appointed leaders. Mine was the “Curlew” patrol and I eventually rose to become the Patrol Leader. I remember disappointment when my brother Michael was placed in the other, rival patrol whose name I have forgotten. The weekly troop meetings consisted of opening formalities involving lining up in patrols and reciting the Boy Scout dictum. This would be followed by some learning activity such as knot tying or survival shelter construction and then by some vigorous game, the part I usually enjoyed most. In addition we worked on acquiring badges that denoted proven accomplishment in some sort of activity, physical, academic or service oriented. Eventually when you had acquired enough of these badges you could become a Queen Scout (equivalent to an Eagle Scout in the USA). I almost got there but not quite; I think stronger interests took over when I reached puberty.

Most of all I remember the camaraderie that developed through all these outdoor activities. Each summer we would head off to some local forest or beach area for Boy Scout camp. The Troop owned some old army surplus tents that were barely waterproof and had no sown-in groundsheet like modern tents. Each patrol was assigned to one of these tents and at night the 6 or 7 of us would lie side-by-side in our sleeping bags. We cooked our food on an open wood fire that presented a major challenge to light on a cold and wet Irish morning; I remember surreptitiously sneaking in a few firelighters to help with that chore. But, in the end, these experiences not only provided me with useful outdoor survival skills but also taught me much about how to be a constructive part of a group and how to be sensitive to individual needs and limitations.

All of these outdoor activities also left me with a lifelong desire to explore out beyond the known whether in my wilderness adventures or in my scientific investigations. Each new experience in the natural world or in my intellectual endeavors would simply feed my thirst for more new sights and new concepts. In that respect, my youth was rich indeed and I remember it with great affection.



The Three Spires Boy Scout Troop about 1954. Back row from left: Douglas Getty, Gordon Ward, Ralph Morrow, Bryan Johnson, unknown, unknown scoutmaster, Christopher Brennen, James Forsyth, Iain McKay, Alistair Simpson, Michael Brennen, Jim Getty. Front Row from left: Basil Forbes, unknown, Derek Kennedy, Scoutmaster John(?) McIntyre, older gentleman, Peter Burton, unknown, unknown.



Left: Brennen family at a Scout celebration.
Right: Rope work at a Boy Scout summer camp.

Chapter 7

CHILDHOOD HOME

“To know who you are you have to have a place to come from.”

From Carson McCullers.

Though much of my youth was spent roaming the outdoors, the Irish weather meant that we often had to seek refuge inside the great grey house, particularly since we had little of the protective outdoor clothing that people enjoy today. Even inside, comfort was not easily obtained for the heating technology in the grey house was quite primitive. When it was first constructed in the mid-1800s, the only heating system available consisted of fireplaces that were built into almost every room. However, the expense, fuel and manpower required to keep these grate fires burning meant that it was impractical to heat more than one or two rooms by this means. The kitchen was necessarily warmed by the cooking stove but it was seldom that more than one other fireplace was in use. By the time of our occupancy, the house had been equipped with electricity (but not gas). Consequently we made use of electric heaters in some of the other rooms. However, the bedrooms on the second and third floors were rarely heated and the temperature there, in the coldest weather, often dipped below freezing. On those nights, ice would form on the inside of the glass window panes. So it was that our activities in the house tended to be confined to just a few of the rooms on the ground floor and that range of activity would shrink in the depths of winter.

To set the scene, I should describe the overall structure of the house we called “Cranagh Dhu”. Like most of the dwellings of its vintage, the house was a cube with a sloping, slate roof. The stone walls were almost three feet thick at the base and this helped to insulate the house though the gaps around the doors and windows offset that advantage. When it was renovated for my parents in the mid-1940s, wartime scarcities had meant that second-hand materials (particularly for the floorboards) had to be scavenged from other locations to complete the job. The rooms on the first and second floors were finished with



Left: The stairs and front door.
Right: Wilfred & Muriel Brennen in his chair in the living room.



Muriel Brennen in her chair in the living room.

carpets, curtains and lighting fixtures but the third floor where we, the children, and the maid were to sleep could only be very sparsely furnished and decorated. The floor plan of the original house was quite simple, four rooms in each of the corners with hallways and stairs running down the long axis. Moreover, the 1940s renovation had added a scullery, pantry, cloakroom and toilet to the ground floor at the back. Above this on the second floor, a bathroom and toilet were added. All of this new plumbing required a water supply tank that was installed on the third floor.

On the ground floor, the two largest rooms on either side of the front door were the most formal in the house, that on the south side being used as the living room with the dining room on the north side. The former was the most meticulously maintained and almost always the warmest in the house while the

latter was rarely heated. The two rooms on the ground floor at the back of the house were the kitchen on the north side and a general purpose room on the south that we called the breakfast room. The latter was where we, the children spent most of our time, where we did our homework and other indoor projects. It was also most frequently heated. On the second floor, the two rooms at the front were my parents bedroom and a guest bedroom that we called the “spare room”. The two at the back were a children’s bedroom (where my sister Paula slept for many years) and a room that my father equipped as his office complete with bookshelves and desk. In later years when it became clear to my father that he rarely used his office, I was allowed to adapt it as my bedroom. The third floor rooms occupied the space under the large sloping roof and therefore had substantial sloping ceilings. Those four rooms were basically bedrooms, one of which was used in the early days as the maid’s bedroom. Later when the maid was a local girl who lived at home in Magherafelt, that room was used as a playroom and equipped with a table tennis table. My two brothers shared one of the other third floor rooms, I slept in another (before moving downstairs) and the fourth was used for storage. We often wondered what lay in the sealed space below the apex of the roof, imagining a large, dark and unknown void, equipped perhaps with ancient treasure. But when the roof was removed during the renovations of the year 2001, I realized that the space was much smaller and more prosaic than I had imagined.

One summer when I was about 15 years old my parents spotted a house for sale on the coastal road between the resort towns of Portrush and Portstewart. It faced the sea and with a narrow golf course between the road and the sea, the view from the house was quite spectacular. The house was named “Silver-bay” after the rocky shoreline bay it overlooked. Just across the road from the house was the tee of the fourth hole and the sixteenth green of the Municipal Portstewart Golf Course. Many evenings we would sneak across the road and play three or four holes before the stewards discovered us. Just beyond the fourth fairway on the rough ground between the course and the seashore stood the remains of a small, Second World War observation post. Paula referred to this as “The Tardis” since it reminded her of one of the locations in the famous British TV series “Doctor Who”.

The seller seemed most anxious to make a deal and so my parents were able to purchase the three-bedroomed, two-storey house for a mere 7000 pounds. Forty years later with only minor improvements that house would be worth over a million pounds. It was a remarkably perspicacious deal. I remember well the great excitement with which we scraped together adequate furnishing with which to equip this vacation home. Bunk beds would be needed if we were to have sufficient sleeping space and so I fabricated two sets of bunk beds from the remains of a number of old single beds. In the years that followed those bunk beds were to see yeoman service well beyond the original intention. Thus, for my last two or three years of high school I enjoyed spending at least part of the summer at this house located close to the center of teenage activity in the resorts of Portrush and Portstewart. Indeed, as I relate elsewhere, it was during the last such summer that I met my wife Doreen on the streets of Portrush.



“Silverbay” from the front and painted pink.



Back of “Silverbay”: “Tardis” in the left distance and driftwood collection.

My mother loved this house and the years she spent the summers there were among the most idyllic of her life. Later during my father’s disability it became hard to spend even a day there. I do remember the poignant day when, at his special request, we made the effort to transport my father there for one last visit. In the aftermath of his death the following winter, my mother was faced with difficult decisions as to how to most equitably divide his estate between three sons while also providing indefinite support for Paula (see that chapter). In doing so she made the fateful decision to place her new bungalow in Magherafelt in the joint names of my brother Colin and myself while giving Silverbay to my brother Michael. Somehow the real estate advice she obtained made this division seem equitable though it was hard for me (or Colin) to understand that arithmetic. Whatever its logic at the time, subsequent developments made the arrangement singularly unfair with Michael, the richest of the three brothers, receiving an outlandish share. But the inequity did not end there. It was my understanding and that of my mother that after the conveyance, my mother would be allowed to reside in the house for a reasonable period anytime she wanted. The idea was to permit her to continue the summer residence that she loved. However, Michael and his wife Lesley seemed to have other ideas for, after the arrangements were completed, my mother never slept another night in Silverbay. Indeed, one summer when I brought my son Patrick back to Northern Ireland to meet all his relatives, my mother, Patrick, Paula and I had to rent a much inferior house in Portstewart in order to spend a week there. Regrettably,

my mother never allowed Colin or I to make an issue of this with Michael; she was afraid of the family rift that it would inevitably have caused. Today Silverbay is still in Michael's possession and when we drive past it on visits to the seaside, we sometimes stop and, if no-one is home, we surreptitiously peek through the windows to remember those few halcyon summers.

Chapter 8

FATHER

“Children begin by loving their parents; as they grow older they judge them, sometimes they forgive them”

From “The Picture of Dorian Gray” by Oscar Wilde (1891).

There is both danger and reward in dragging about in the psychology of one's past. For me that journey began a number of years ago when my son, Patrick, had some problems as a young teenager and we had to seek family counseling. Doreen, Patrick and I attended weekly sessions of one hour in length for about six months. For me, the most painful part was the recollection of my childhood and my relationships with my mother and father. Despite the pain I believe I came to a new realization of myself and, through that, a new knowledge of my relationship with my son. I think Patrick also benefited and thereafter we moved toward a better relationship.

When I reflect on my childhood, my thoughts often seem excessively critical of my parents. Judged by any standards we were remarkably privileged and so it seems very unfair to look back and criticize. But it is still necessary. Perhaps, despite the unfairness, it is simply the way it has to be. Perhaps every generation needs to be supercritical of its parents, for only in this way can we come to an understanding of our own shortcomings and our own emotional heritage.

My father left the world in a way he would have least liked, debilitated in stages by a series of strokes, almost a vegetable at the end. With marvelous resolve and great emotional strength (perhaps endowed by the necessity of surviving in order to care for Paula) my mother looked after him throughout these terrible years and, in the end, said goodbye with a dignity very few could have mustered. Half a world away, I could provide little help. It was usually my brother Michael who would be delegated to call me when another medical emergency arose; his medical training provided me with a source of reliable information.

My father's medical decline took several years and I visited home on a number of occasions during that time. Consequently there were several opportunities to communicate with him those thoughts and feelings that, from time to time, I would resolve should be communicated. Apart from a few words, those communications never took place and yet there were many moments in private when I would craft in my own mind the words I would like to use. One of the hardest things I ever did was to leave him lying in the Mid-Ulster Hospital to begin my journey back to California after one of those visits to the village of my youth. The last thing I ever told him was that I loved him and it was desperately hard for me to articulate those words. Not because I did not love him but, I think, because he had implicitly taught me never to reveal such emotions. And to this day, the fact that he never told me that he loved me, causes me considerable pain.

It is more difficult to speak about my mother not only because she lived to a ripe old age and to a time when I had resolved some of these issues. But also because she, herself, had been the victim of emotional deprivation having lost both her mother and her father while she was still a teenager. Perhaps for this reason she was not comfortable with any showing or expressions of love or emotion though, in her case, I always knew how she felt.

Those years of my father's decline became for me a period of introspection and self-analysis, an odyssey that it has taken me 20 years to bring into perspective. Was this emotional journey self-indulgent? It probably was but it did have two important, unexpected but beneficial consequences that I will get to in due course. I should begin at the beginning.

When I was young I revered my father. It was not until the beginning of his decline that I even began to think about my feelings toward him. Before that he was an almost surreal, superhuman figure to me. I took enormous pride in his success and in the family's standing in the community in which I was raised. Looking back I must admit that I probably thought that we were genuinely superior people. Even when more mature consideration during my teenage years revealed the error in that way of thinking, there remained the remnant thought that we were expected to achieve greater things than our classmates. Much of what I did was motivated, in part, by a desire to gain my parent's approval. But as a child and young adult I saw very little of my father. He was a very busy man and even when not doctoring in the hospital, he was almost always involved in some volunteer organization or personal hobby. This left precious little time for his family. Though, in his defense, that was the rule rather than the exception in the rural culture into which I was born. The mother ran the household and looked after the children and the father returned home for his meals and his sleep. However in making the transition from a farming culture, the society had mostly lost the traditional father/son relationship formed when they worked together in the fields. It was only beginning to recognize the emotional scars brought about by the lack of paternal attention and guidance. But all of that is theory in retrospect. The fact is that my father was so busy with other things that he rarely ever came to any of my rugby games and only occasionally would he come to my theatrical productions. My mother didn't come very often



Wilfred Brennen as a young man and giving a speech.



Wilfred Brennen about 1945 and about 1950.

either, but then she had to manage a large household. However, she did at least come consistently to watch the big games and to see me in various theatrical productions.

Though I constantly pushed the observation into the back of my mind, it seemed to me that no matter what I did it never resulted in any expression of affection from my father. To this day, when I reflect on a lifelong desire for affection I trace its origins to these roots. There was a time not many years ago when I harbored considerable resentment and even anger toward him. This anger often focussed on idiosyncratic recollections. I remember resenting how little time he spent with us, my brothers and I. He seemed to be too busy working on his own reputation and on seeking approval for himself from a wide range of contacts in many spheres ranging from the Boy Scouts to Marriage Guidance to the Board of Governors to whomever would listen to his boastful stories. I would also remember with resentment his refusal to play games with

us; somehow that epitomized for me his refusal to exist on the same level as us. But, then, I began to see the same faults in many of my interactions with my own children and began to remember him less judgmentally.

That phase of anger was, of course, heightened during his terminal illness by the burden it placed on my mother. In the immediate aftermath of his death when the anger should have begun to wither, it came to an ironic climax. In the days after he died I took responsibility for sorting through his papers and made two discoveries, the first of which uncovered some understanding of emotional legacies and the second of which enlarged the anger. First, I came across a collection of his poems. One, in particular, is relevant here for it was written shortly after his mother, my grandmother, died. I remember her as a tough old Ulster Scot, quite religious and austere; she would have been constitutionally opposed to any gesture of affection. The poem reveals the depth of my father's anger at her:

MOTHER

*Aroma around you, eyelids thick with wax
But could the cursed crew with their cursed art
wipe out the mouth
The tired, tired mouth
With a quiet smile of knowing
Christ! Can't you tell me, tell me
What it is you know
I want to know
I feel a rending
My bowels are torn in shreds
There's something I must know
Must say to save mankind
Tell me, with your blasted knowing smile
Tell me
Or I'll bash your silly smiling motherly mouth in
Oh! but it wouldn't bleed
Your jaw would just drop
In soundless maniacal maddening mocking yell.
And I'd go mad, tear my throat out by the roots
With my digging fingers
Curse Hell and Heaven
And not know - not know
Oh tell me, tell me what you know to say
For Christ's sake, can't you tell me, tell me.
Calmed again by your same quiet smile
as when you sat watching your groping son
At work when you still lived
In this hellishly-mawkish nickel-fitted coffin
You lie
And know*

*After these years
I bow my head
I'll live, I'll work, I'll be a man,
And all the other senseless idiosities
I'll dutifully do, kidding myself I know
Stifling my soul - since you
Won't tell.*

I think that the legacy of this upbringing was that he feared real emotional interaction with those close to him and preferred the more tenuous interactions that he could take or leave as he pleased. Perhaps this was the inevitable result of his own emotional deprivation at the hands of his mother. But it also meant that he deprived us of an important part of our own development. We needed to know that he had real feelings of joy, pain, pride and sorrow. The fact that he appeared impervious to such human feelings, created a dangerous illusion and model for us.

The second discovery occurred in the immediate aftermath of my father's death. During earlier efforts to try to bring some order to his affairs, I had been primarily focussed on his business papers. I had encountered packages of personal letters in their original envelopes and tossed all of these in a box for later disposal. I barely glanced at the envelopes. There were many in hands that I did not recognize but I did notice several in one barely legible script. Though I opened one of these it was difficult to read and so I quickly gave up and moved on to other papers.

However much I might have anticipated the event, my father's death on Feb.26, 1987, was still a major shock to all of the family. Though I was on the flight from Los Angeles to London when it happened, I arrived at the great house several days before the funeral. With time to pass, I busied myself completing the job of sorting his papers. Late one night with my father lying in his coffin in the room below me, I finally opened the letters in the barely legible hand and began to read. During the subsequent midnight hours in the lonely study in the great dark house on a cold and wintery February night, I pieced together the story of an affair he had shortly after my birth. It was wartime and the affair with a woman named Billi was carried on in London during visits made on St.John's Ambulance Brigade business. Though episodic in nature it lasted about four years, until the end of the Second World War. In other writings I documented this affair through quotations from Billi's voluminous and slightly crazy letters as well as some other meager evidence I came across. Consequently, I will not dwell here on the details. But his obviously casual treatment of the whole matter troubled me greatly and shed a whole new light on the frequent visits to London throughout his working career.

After his funeral I decided to take possession of the letters and other connected evidence for I did not feel it would be constructive to allow them to fall into other hands. In the fifteen years that followed I did not disclose or discuss the matter with anyone other than Doreen - with two minor caveats. During a time when my brother Colin was going through some considerable emotional

difficulties caused, in part, by his troubled relationship with our father and by his related feelings of worthlessness, I had a dialogue with him in which I talked quite frankly about my difficulties with our father. In order to illustrate my conviction that Colin had been a much better father to his sons, I alluded in general terms to our father's affairs. And my continuing curiosity about this other aspect of my father's life led me on one occasion to question my aunt Irene about affairs my father might have had - she showed no knowledge and so the matter was dropped. But my secrecy has also troubled me. I have lived my life largely with an abiding belief in the value of the whole truth, and I have continued to wonder whether other offspring might have benefited from the whole truth.

Thus it was that I was raised by my mother whose influence on my life and feelings was so all-encompassing that it is difficult for me to bring into perspective. I loved my mother very dearly. She gave me whatever upbringing I had. She took unquestioning pride in my accomplishments and gave me constant encouragement. But having lost both her mother and her father while she was still a teenager, she was not comfortable with any expressions of affection.

I went on to college and to an academic career, too busy to give much thought to the deeper levels of my relationships with my parents. What I did learn from my father and mother was the value of success and the value of seeking approval from a wide range of people within the community. What I failed to learn was the value of the love of those close to me and the need to express that love and its emotions. The consequences are that I have always craved the affection I was denied. More importantly, it also means that I had little education in how to interact with those I love on an emotional level. Thus I grew up with a set of values that were distorted in that they attached excessive importance to career success and social standing and too little importance to the emotional lives of myself and those around me. Then came my own children and the perspective they brought to emotional relationships within a family. Slowly but slowly, I have come to some understanding of the emotional legacies, abilities and disabilities we all carry. Some of those insights came to late to help my own children though I would like to believe I passed on an improved version of the emotional genes. But some of it will go to my grave and some will go beyond. For I see in my own children some faint remnants of the same malaise. But I also see new horizons in the eyes of my four grandchildren. I feel confident that I can end my days on a positive note by imparting a healthier emotional legacy of love and caring to those four lovely young people who will carry my genes into future generations.

Chapter 9

PAULA

“And for the rest of your life, you will say, “Yes, that’s where I was supposed to go. That’s what I had planned.” And the pain of that will never, never go away, because the loss of that dream is a very significant loss.

But if you spend your life mourning the fact that you didn’t get to Italy, you may never be free to enjoy the very special, the very lovely, things about Holland.”

From “Welcome to Holland.” by Emily Perl Kingsley.

In May of 1949, my mother gave birth to her fourth and last child, a girl whom my parents named Paula Gay Brennen. Paula was a victim of Down’s Syndrome. In the terminology of the time she was a Mongoloid, a name that is no longer used today because of its obvious racial connotations. Though Paula’s condition was immediately apparent to my father, it was some months before my mother became fully aware of the problem. Indeed she initially ascribed Paula’s passiveness and lack of appetite to the fact that she was female. It is hard for me to imagine the mental agony that both my mother and my father must have gone through at the time. My mother’s hair turned from black to silver in a little more than a year. From much later snatches of conversations I know that they not only suffered the traumas of “If only” and “Why us” but they also had to face the very real uncertainties of the effect on their three healthy sons. My father, in particular, must have wrestled with the possibility that adverse future effects might dictate that he should remove Paula from the family environment. Fortunately his fundamental belief in the strength of the human spirit prevented him from making such a tragic mistake.

I suspect that the reader unfamiliar with the circumstances has already concluded that this chapter is a tragedy. Of course my parents would rather Paula had been a normal, healthy girl. And no one could deny that this genetic

accident caused my mother and father great pain. But the story is not a tragedy. The ending is quite different from that which anyone could have anticipated at the time. Indeed my own personal perspective is that the rest of the story is a triumph of the human spirit. Her life was a canvas filled with the colors of love. And so it is with tenderness in my heart, not pain, that I tell this, Paula's story.

The chronology of her life is simple fabric. Though more susceptible to the common aches and pains Paula grew up healthy and strong in the robust world of her three older brothers. Whenever possible she was included in the rough and tumble of boyish games and reveled in the praise for her modest athletic accomplishments. Backyard cricket was one of her favorites and allowed full reign to the majestic fantasies that are so much a part of that sport as they are of baseball. Later on, at the age of about fifteen, my brother Michael managed to teach her to swim, a feat which, at least in that time and place, was regarded as almost impossible. Paula gloried in this new found skill and went on to compete in the Irish Special Olympics, where, incidentally, she also won several gold medals in the cricket-ball throw. So, while she was young and active, she experienced the joys of companionship in competition. Yet she could put the joys of victory and the agonies of defeat in perspective by holding out her hand at the end.

In other more complex activities she would remain on the side-lines content to participate in the feelings of others. Then she would never judge, indeed I am not sure that she was capable of judging. Rather she would empathize with the feelings of those for whom she cared. And the simple humanity of her transparent feelings were there for all to see, written large in her eyes, her smile and her tears. I think I also speak for my brothers when I say that it was easy to love Paula. Part of the reason for this was selfish for the love would never make demands and would never be qualified by filial competition. The other part was stranger, more mystical, for one could recognize in Paula much that was gentle and good in life. It was almost as though evolution had produced this genetic defect to remind the rest of us, by contrast, of man's inhumanity to man. And so there grew in each of us, Michael, Colin and myself a special feeling for those less blessed than ourselves, a sense of responsibility for human-kind. It immeasurably enriched my life and, I believe, that of both of my brothers. That this part of Paula's triumph was second-hand diminishes it not one whit in my eyes.

But there was a larger arena in which Paula's life was a triumph. To describe this I must digress to outline the social conditions in the rural community in which we were raised. As a small boy, I thought that Down's Syndrome was exceedingly rare for I knew of only one other child so afflicted. That other child was a boy called Jackie, a few year's older than Paula. Jackie was the son of a local bank manager and his wife who lived on a street corner in the center of the village of Magherafelt. Jackie lived on the sidewalk and was molded in the age-old form of a village idiot by the attention of those who idled away their lives in that street corner forum. He learned how to play the fool for those who loitered aimlessly. And the end was sadder still. After his father died Jackie lived alone with his mother. Several years later his mother died in her sleep and



Paula with my mother and father.

it was several days before Jackie was found pinning away at his mother's bedside. I never learned what happened after that and I do not think I want to know.

In those days social services or facilities for the mentally handicapped were very limited indeed. There were no such facilities anywhere close to our village. However a school for mentally-handicapped children had recently opened as an extension of a mental hospital in the town of Antrim about 20 miles from Magherafelt. It may have been the first of its kind in Northern Ireland. So, when Paula was about eight or nine years old, my mother began to drive her there on a daily basis - a very long commute by the standards of the roads at that time. Paula appeared to enjoy and learn from this experience so a year or two later my mother and father decided to try to wean her from the family by having her boarded in that facility. It was a belated attempt to experiment with my father's earlier inclination to relieve my mother of her burden. I remember the emptiness of our home during that first week or so of Paula's absence. My mother resisted the temptation to visit her, resolving to overcome her maternal instinct. But when, about ten days later, she telephoned only to learn that her daughter was quite ill, nothing could stop my mother and father from immediately driving to Antrim to bring Paula back home. Apparently Paula had quickly declined during her stay at the hospital and, for the most part, refused to eat, bringing upon herself an illness, probably psychosomatic in origin. Worse still, there were strap marks on both wrists. On the way home my father, fearing advanced dehydration, stopped in Toomebridge to buy her an iced lollipop. Back in Magherafelt, the hospital physician and old family friend Bertie McConnell spent the night tending to Paula and may have saved her life. Thankfully, she did eventually recover her physical health completely. But a salutary lesson had been learned. Perhaps it was the only way in which the early doubts could have been resolved.

For my parents this incident brought into clear focus the lack of local facilities for the mentally-handicapped and, in particular, the need for a day school for the children. So they began to lobby without rest for some facility of this kind however modest. But where was the demand, the authorities asked? Fortunately, my father had acquired a fair knowledge of the local rural families due to his medical visits to their homes. He, almost alone, recognized that many

mentally-handicapped children were raised, lived and died in parentally-imposed isolation in the farmhouses and villages of our community. The country people kept their shame to themselves. Armed with such knowledge my mother and father began to be heard and it was a banner day in our family when a recently abandoned old two-room school building in the village was opened as the first school for the mentally-handicapped. At first only a few children attended and, of course, Paula was there, quickly relishing the fun and games. Gradually the numbers swelled as more and more of the country-folk recognized that the old stigma no longer existed. I recall the incredulity with which the community recognized the number of mentally-handicapped children who lived, previously unseen, within the walls of the cottages and farmhouses. And so began a movement whose inertia was unstoppable. A few years later a brand new facility was built to house, not only a school for the younger children but also a day-center for the adults.

But much more had changed than the existence of buildings. A radical change had occurred in the attitude of the entire community. No longer was it acceptable to hide these people in back rooms. No longer was their existence a stain upon the family for had not the doctor convinced them that it was an accident of nature that could be visited on any couple. Now they could love all their children without shame. More than this, it was no longer acceptable to treat those who did see the light of day as freaks and sources of amusement for street-corner loiterers. Paula, like many of the other children, learned many minor skills with which to contribute to the community. Many learned to count money and how to run errands for their parents. And in my village it was often a source of pride for me to watch the child and the village shopkeeper conduct with dignity that most mundane transaction, a simple purchase. Such was Paula's gift to the larger community. Of course, you may say, such reforms were inevitable. But in every field of human endeavor, someone has to be first, to provide the initial, the most difficult move. It is also, of course, a lasting tribute to my mother and father who overcame their personal feelings to change forever the fate of the mentally-handicapped in our community.

Paula lived with my mother and father in their large and increasingly empty house providing solace, comfort and companionship to my parents in their later years. After my father's death she and my mother moved to a modern bungalow in Magherafelt until my mother could no longer manage. During these later years my mother did something very wise. She cultivated a relationship between Paula and a local family of care givers who gradually inducted Paula into their family. When my mother had to move to a nursing home, Paula went to live with this family in their home just a few hundred yards from the nursing home. Paula would visit with my mother everyday and enjoyed an almost seamless transition in her life. After my mother passed away, Paula continued to enjoy the kind and warm environment of the lovely family of Nan and Charlie Stewart. She passed away quietly on Jun.15, 2010, at the age of 61, living more than twice the span that we were told to expect when she was born. In her own special way, she contributed to her world a gentleness and a love that will be long remembered.

Chapter 10

IRENE

“I’ve learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.”

Quotation from Maya Angelou.

In the 1989 movie entitled “Dead Poets Society”, the main character played by Robin Williams recites a poem entitled “The Ballad of William Bloat” that was written in 1926 by my uncle Raymond Calvert. The poem reflects the kind of black humor that is characteristic of the folklore of Northern Ireland and particularly of the city of Belfast, the scene of the tale. It was not intended as serious but was composed as a party piece. The occasion was a supper following a stage production in which Raymond was involved and it was traditional on such occasions for each member of the cast to do a “turn”. Indeed such was the tradition at any party in Ireland before the days of packaged entertainment in the form of record players, radios or television. I believe that my mother, my father and my mother’s sister, Irene, were probably also present on that evening. If not they certainly heard Raymond recite the poem on many subsequent occasions.

The poem has now passed into the folklore of Ulster and of Ireland. There is no better measure of this than to observe that it was recorded in the form of a song by the Clancy Brothers, who for so long during the 50s, 60s and 70s were almost single-handedly responsible for spreading Irish folk music throughout the world. The “Ballad of William Bloat” runs as follows:

*In a mean abode on the Shankill Road
Lived a man called William Bloat.
He had a wife, the curse of his life,
who continually got his goat.
So one day at dawn, with her nightdress on,
he cut her bloody throat.*

*With a razor gash he settled her hash,
 Oh never was crime so quick,
 but the steady drip on the pillow slip
 of her lifeblood made him sick,
 and the pool of gore on the bedroom floor
 grew clotted cold and thick.
 And yet he was glad that he'd done what he had,
 when she lay there stiff and still,
 but a sudden awe of the angry law
 struck his soul with an icy chill.
 So to finish the fun so well begun,
 he resolved himself to kill.
 Then he took the sheet off his wife's cold feet,
 and twisted it into a rope,
 and he hanged himself from the pantry shelf.
 'Twas an easy end let's hope.
 In the face of death with his latest breath,
 he solemnly cursed the Pope.
 But the strangest turn to the whole concern
 is only just beginnin'.
 He went to Hell but his wife got well
 and she's still alive and sinnin',
 for the razor blade was German made,
 but the sheet was Irish linen.*

Raymond Calvert was born in 1906 in County Down, the only son of a well-to-do Belfast stockbroker whose firm, Taylor Calvert & Co., he would eventually join and then inherit. From his early days he showed a great interest in literature and the theater and a considerable talent both for writing and for acting. He studied English Literature at Queen's University, Belfast. After graduating in 1927, he embarked on a career in the theater and it was at this time that he worked with Hylton Edwards and Michael MacLiammoir at the new Gate Theatre in Dublin as well as at the Arts Theatre in Cambridge. During this time he met my mother, Muriel Earls, and her elder sister, Irene Earls. Muriel and Irene were the younger daughters of a middle-class Belfast family, their father John Earls being the Principal of Belfast Technical College. Irene was a particularly dynamic young woman of considerable intellectual ability and strength of character. After high school, in 1927 she went to work at Riddells for five years before enrolling at Queen's University to study economics and philosophy. Meeting through theatrical interests, she was fascinated by the charismatic Raymond and they were married in 1934 before she graduated from Queen's in 1936. About the same time, the economic conditions endured during the Depression and the prospect of becoming a father, encouraged Raymond to accede to his father's request to help the family stockbroking business.

But I am getting ahead of my story which is not so much about Raymond as it is about Irene. She remains the member of my family for whom I had,



Muriel and Irene Earls in Belfast about 1938.

perhaps, the greatest admiration. Throughout her life she seemed plagued with personal adversity and yet, by great strength of character and considerable intellect, she rose above those adversities to contribute in major ways to the welfare of the communities in which she lived and to the family of which she was a part. After graduation from Queen's University, Belfast, Irene worked at various jobs; during the Second World War she was employed as a civil servant resettling refugees, including a large number evacuated from Gibraltar to Northern Ireland. By that time she had made many friends amongst the intellectual community in Belfast who urged her to run for a seat in the Northern Ireland Parliament. Thus it was that at the 1945 General Election, Irene became the second woman to be elected as a Member of Parliament in Northern Ireland. She was, therefore, a true pioneer, a woman born before her time. Indeed throughout her life she was in the forefront of the women's movement though she would never have identified herself in such terms. Instead her attention was fully absorbed by what she saw as badly needed social legislation and welfare reform. During her two terms in the Northern Ireland Parliament she worked tirelessly to effect such legislation and contributed in a major way to improving the circumstances of the poor and the sick in Northern Ireland. As a young boy I remember the awe in which I held the strange woman in those election posters, a woman who, unlike all the others I knew, would argue with men as if she was their equal. A woman who seemed to know much more than any other woman and who questioned me closely about what I was learning in school. I answered only briefly and with great trepidation. It would be many years before I came to understand what I heard and saw.

Irene's life with Raymond was coming apart as she neared the end of her second term as an M.P. Raymond had a very public affair with the wife of a prominent Unionist politician. In fact he went so far as to take her to the Opera. Given her role as an MP Irene felt she had really no alternative but to leave him

but she suffered greatly from the breakup of the marriage. In those days divorce was almost unknown in Ireland and Raymond and Irene were not divorced but legally separated. She was penniless after the marriage ended for this was long before the days of the kinds of legal settlements that protect women today. So after a period of recovery living in our home, Irene decided that she must go to work. She went to work for the Ulster Weaving Company and eventually became the Managing Director of that company. In this capacity she became the first woman to be elected the President of the Belfast Chamber of Commerce, the oldest such body outside the United States. She also served for thirteen years as a member of the Senate and Board of Curators of Queen's University, Belfast. In 1964 she decided on a change of jobs and became the Development Manager for the hotel chain owned by the Irish Transport Board. For this purpose she moved to Dublin and greatly enjoyed traveling around Ireland upgrading the level of hotel service. But one more adventure remained before Irene retired (though that word seems out of place when I think of her). About 1970, she applied for and was appointed to the position of manager of the households of Doris Duke, the tobacco heiress and richest woman in the world. Irene traveled to the United States to take up this position only to discover that the job was a nightmare. Doris Duke was a very idiosyncratic old woman who traveled around from one mansion to another in the company of her pack of ill-trained dogs and various other peculiar attendants. It was another disaster for Irene who stayed for only nine months, eventually quitting after she was bitten in the leg by one of the dogs.

After that experience she finally retired - and yet she did not. For one of the first things she did was to purchase a camper or, in the vernacular of the time, a "dormobile". This was another extraordinary thing for an old woman to do. And not only did she own it but she actually traveled around the British Isles sleeping in the thing! It allowed her not only to visit her relatives in all parts of Britain and Ireland but also to pursue one of her hobbies, namely researching her family history. As someone who also dabbled in genealogy and who was the beneficiary of all the information she gathered, I can attest not only to the meticulous care with which she carried out this research but also the vast amount of work she did. In these hobbies she cared little what others thought of the value of her activities. It was quite enough that she found the project rewarding and I reflect now that this firm confidence in her own judgment and value system was one of the characteristics that allowed her to accomplish so much during her life.

When I first wrote this piece on Irene in 1999, she was a very vigorous and active 90 years old. She lived alone in Dublin though she and my mother were frequently together. She was still very active and adventurous. Just a few years before she and my mother and my retarded sister, Paula, set off for a vacation in Cyprus. Moreover Irene was still committed to her social and political beliefs. One of my lasting visions of Irene is from the fall of 1990 when, dressed in a purple track suit and sneakers ("I finally decided to dress sensibly"), she walked the streets of her neighborhood in Dublin campaigning for Mary Robinson. On the 9th of November of that year, history was made and a new era opened when

Mary Robinson was elected President of Ireland. They were both remarkable people without whom Ireland would have been a poorer place. Irene taught me of the raw power of logic; she showed me that intellect when combined with conviction could accomplish change when it otherwise seemed impossible. And she left that special legacy with all who were privileged to know her.

Chapter 11

A CASTLE REVISITED

“A kind of change came in my fate...”.

From “The Prisoner of Chillon” by Lord Byron.

The Chateau de Chillon is a picture-book castle on the shores of Lake Geneva just east of Montreux, Switzerland. It is marvelously well preserved and today most of what you can now climb on, in and around is a restoration of structure dating from the 13th to 15th centuries. In its later forms, it guarded the approach to the route over St. Bernard’s pass into Italy. But, the site was, in fact, occupied during the Bronze Age and later fortified by the Romans. In a strange way it also represents several milestones in my own life, two moments almost forty years apart. And it played a dimly perceived role in my life during the half-century in between.

The historical name most closely identified with the Chateau de Chillon is that of a 14th century Prior of St. Victor’s in Geneva, named Bonivard. It seems that Bonivard spent four years chained to a particular pillar in the dungeons of the Chateaux de Chillon because he favored political independence for Geneva. This demise would hardly rank as unusual or even memorable; but it received substantial promotion in 19th century when Bonivard’s travails were immortalized by the poet Byron who inscribed his name on the offending pillar where it can still be seen to this day. And so the castle is famous for the nightmarish incarceration of Bonivard and for his eventual release by the Bernese army.

In July of 1957, I was fifteen and a half years old, a gangly, shy and bespectacled boy, uncertain about what lay ahead but with considerable hidden confidence in my own intellectual ability. Girls had recently emerged into my consciousness accompanied by all the usual panoply of sexual imaginings. But it would be many years before I would lose my virginity and that is not what this story is about. Rather this story is about the origins of nightmares, about innocent beginnings, about personal struggles and about unpretentious ends.

These are some of the multiple strands connecting two moments almost forty years apart.

I begin with the little I can recall of my first visit to the Chateaux de Chillon in that summer of 1957. It was the end of one of my middle years at the country high school in Northern Ireland that played such a formative role in my life. The Rainey Endowed School, a grammar school in the semantics of the British educational system of the time, was the pride of Magherafelt, the Northern Irish village in which I grew up. It was a time when the economy of Europe was starting to emerge from the shadows of the second World War. Already, national leaders were beginning to espouse grand visions for the future for a united Europe, albeit only the western half. And so, in step with this awakening, the educational horizons of “The Rainey” were broadening. The teachers were starting to consider foreign trips and the value they would have in our education. Thus it was that the school decided to arrange the first summer trip to a foreign land. The chosen venue was Montreux, Switzerland, on the shores of Lake Geneva.

We set out for Montreux on July 3, 1957, three teachers and about 30 students. Of the students, I recall Peter Burton, Derrick Crothers, Ivan Martin, Frank Johnston, Alistair Simpson, David Gillespie, Henry Graham, Iain McKay, James Forsyth, Elizabeth Evans, Anne Farley, Elizabeth Logan and Jennifer Egan, principally because they appear in some old photographs still in my possession. There was also a group of younger students. Today the journey would take just a few hours. However, in the 1950s, it was a major expedition taking several days. According to an account of the trip written for the school magazine by a fellow student, Elizabeth Logan, we traveled by car to Belfast where we boarded the overnight boat to Liverpool. I do remember sharing a tiny cabin deep in the bowels of the boat with a classmate, Derrick Crothers. And I remember the excitement generated by the thought that several of our female classmates were bedding down in an adjoining cabin. Not, of course, that anything remotely naughty could have happened for we were meticulously chaperoned by the three quite attentive teachers who accompanied us. The senior member of this trio was Dr. McFadden, a quite formidable, chain-smoking language teacher who was also vice-principal of the school. With something of a hunched posture, he had a well-deserved reputation for meanness. One of his favorite punishments was to rap the knuckles on the back of a student’s hand with a wooden ruler. This painful infliction was not just reserved for those who were guilty of misbehavior; it was often also used on those who committed innocent academic errors such as mispronouncing a French verb. I avoided Dr. McFadden as much as I could and cannot recall any interaction with him during the trip. The second member of the trio was Miss Rachel Carson, the vice-principal for girls and, I think, an English teacher. A small, stern woman who usually dressed in black, I remember her as remote and unfriendly. Indeed, the only one of the three whom I remember as human was Mr. George Wareham, also a language teacher. He had a fine sense of humor and used it to good effect in the classroom. Though we laughed at his jokes we also recognized that he was a very private man who lived alone and rarely socialized in the village

community. It was only much later that I began to suspect that he may have been gay and that his isolation was necessary because the community would have had little tolerance for such sexual preference. They were certainly not the three teachers we would have selected as chaperones for there were many others with a much more enlightened view of education and with greater empathy for young people. Indeed, I recall that I had considerable reservations about the trip because of the perceived lack of sympathy among the leaders. However, today I have no negative recollections of their supervision. Other memories, active and suppressed, dominate my thoughts.

Arriving in Liverpool the next morning, we caught the bus to the train station where we boarded the express bound for London. It is my vague recollections that this was a long train ride lasting, perhaps, four or five hours. Apparently we spent two days in London where we stayed at a place called Asburton House of which I have no recollection. After some sightseeing that included a boat ride on the Thames and a visit to Kew Gardens, we traveled by train to Folkestone and by boat to Calais, where we caught an overnight train to Basle in Switzerland. We changed trains there for the last leg to Montreux, where we were met by the owner of the pension at which we were going to stay, the Hotel Bouffet de la Gare. I believe the train station referred to was not the Montreux station but a smaller stop just to the west called Clarens. The hotel was a modest and basic establishment next to the railway tracks. I have some memory of wooden floorboards and airy rooms crammed with metal-framed beds. We ate in a refectory equipped with tables and benches. It was clean and adequate to our needs of the time.

From this base we ventured forth on a number of excursions during the week or so of our stay. Among these were a boat trip to Geneva, a bus ride up to the top of St. Bernard's pass on the Italian border and several trips by funicular and cable car into the mountains behind Montreux. But the excursion I would remember with most interest (though still dimly) took us a short distance along the lake shore to the Chateaux de Chillon. Strangely, Elizabeth Logan's account makes no mention of this excursion. But I do not fear an overactive imagination, for the castle features significantly in my photographs of the trip. In the years which followed I would remember the Chateaux as an interesting old castle on the lake where "Byron was imprisoned". The rest of the details must have faded rapidly. At the time I was much too interested in my female classmates and their novel attraction to pay much attention to old buildings.

But there was one other vivid memory that I retained from my first visit to Montreux. This was of a conversation which I overheard between several of my classmates including Derrick Crothers, Peter Burton and David Gillespie. They were discussing alcohol consumption and the phenomena of alcoholism, a subject I realized even at the time that they knew little or nothing about. I was somewhere on the distant periphery of this conversation when it naturally turned to speculation on which of their absent classmates was most likely to become an alcoholic. David, unaware of my presence within earshot, offered the opinion that I seemed to him the most likely classmate to succumb to this disease. To this day, I am quite puzzled by my over reaction to this offhand



Chateau de Chillon and the tower.

comment for I was shaken to the core. It was not that I had any great affection for David or any great regard for his opinions. But it seemed so grossly unjust based as it was on no evidence. It was also so diametrically at odds with my own view of myself. Yet I was deeply seared by that judgment and, to this day, have not forgotten the pain it caused.

Almost forty years later, in November of 1996, I was invited to visit and lecture at the Ecole Polytechnique Federale de Lausanne (EPFL), one of the two technical universities in Switzerland. It was a most pleasant visit, in part because of the opportunity to renew professorial acquaintances at the university and in part because of the excellent hospitality extended to me by my hosts. My lecture was well received and I enjoyed participating as an external examiner for a PhD candidate examination. In addition, my principal host, Phillipe Dupont, went out of his way to show me some of the attractions of the region. Thus we took the cog railway from Montreux to a spectacular mountaintop restaurant. And, one afternoon we drove out to the Chateaux de Chillon.

Even before we passed through the gates into the castle, I sensed that the visit was going to be an unusual experience for me. Just the process of looking at the profile of the castle in its spectacular lake-side setting, was triggering long forgotten shadows in my memory of that first visit forty years before. Indeed, before I passed through the fortified castle gate I could already visualize at least the general proportions of the first courtyard. From there the self-guided tour proceeded into the dungeon where Bonivard had been imprisoned and the stone pillar inscribed by Byron. Again, I remembered seeing these before but only because of the visual prompting I was now experiencing. So it went throughout the tour of this marvelous and intriguing place. But the final surprise was more surreal. Near the end of the tour the visitor is led across the third courtyard to the tallest structure within the castle, a brooding square tower that served as both the treasury and the keep. First built in the 11th century and extended in the 14th, it was a very ancient tower of refuge with few doors or windows except for the narrow lookouts on the top floor. A steep wooden stairway (modern of course) on the outside led to the small entrance high above the floor of the

courtyard. As I climbed these steps my sense of foreboding rose alarmingly but for no logical reason that I could perceive. Then I stooped to step through the entrance and found myself in the dimness of the cavernous interior of the keep. Suddenly I understood. The interior was empty except for a precarious wooden stairway hanging from the interior wall and winding around the corners as it rose toward a hole in the wooden floor high overhead. It was a scene immediately and frighteningly familiar to me for it had featured often in one of the few recurring nightmares that had occupied my life. In those dreams, it was always necessary for me to negotiate these tenuous stairs that were invariably on the verge of collapse. Yet, if during the intervening years, you had asked me where the structure was located I would have had no idea. It was a very strange feeling to learn, seemingly for the first time, the site of those nightmares. Now, in 1996, I had no trouble climbing the stairway to the top of the keep, in some symbolic way conquering my now materialized night fears. It was a bizarrely liberating and satisfying experience and I finished the tour in high spirits, pleased to have unraveled and overcome the mystery of the nightmare staircase.

That twilight zone experience motivated me to try to recall as much as I could of the rest of that school holiday. I even wrote to one of the last Rainey School teachers who might have some recollection of the excursion (the three chaperones had all passed away long before 1996). That teacher was able to find Elizabeth Logan's account, of little use since it made no reference to the Chateaux de Chillon. But each time my mind turned to the events of those days long ago, I would also recall the pain of the alcoholic judgment. Fortunately, that was one nightmare that did not materialize during the intervening years. Though I enjoy the odd drink, I was not cursed with the common Irish gene that predisposed so many of my countrymen to suffer from that disease. Not that I escaped entirely for, like virtually everyone, I had some friends and even family members who suffered to some degree. I do wonder whether that pain suffered forty years before had any beneficial effect. I doubt it.

I search for meaning in all of this. Probably there is none. It is simply the story of two disparate memories and their resurrection some forty years later. I wait to find out how the staircase nightmare will play itself out in the new light of reality - but it shows little sign of returning. And I wish that I had known then of the powerful forces of genetic heritage that shape all of our lives and that many struggle valiantly to counteract.

Chapter 12

FLOWERS ON THE WAY TO SLIEVE GALLION

*“What is life? It is the flash of a firefly in the night.
It is the breath of a buffalo in the winter time.
It is the little shadow which runs across the grass and loses itself in
the sunset.”*

Last words of Crowfoot, Blackfoot Indian (1821-1890).

Slieve Gallion is the easternmost summit of the Sperrin Mountains in the western part of Northern Ireland. Rising to 1730ft and only the 398th highest mountain in Ireland, it would rank as no more than a small pimple in most landscapes. But the broad flat summit, a blanket bog of wet heather and continual rainfall, is world's away from the green rolling farmland just 1500ft below for, at this high latitude, the weather changes rapidly with elevation. On the southwest, the water runs off into a lovely mountain lake, Lough Fea by name. The crystal clear water has sustained people for thousands of years for, on a small hill in the townland of Ballybriest just 1/4 mile away, there are the remains of several neolithic long cairn graves. The views from there are superb in all directions, northeast to the barren summit of Slieve Gallion, southwest to Lough Fea and far off to the western horizon of the Sperrins. Only important chieftains could have warranted such an immortal view.

Growing up in the village of Magherafelt just a few miles away, Slieve Gallion and Lough Fea represented the only real wilderness within the domain of my ramblings. My father loved to explore the narrow mountain roads that snaked up into the heather and around the lake. We would often take Sunday afternoon drives to places like Carndaisy Glen, a beautiful wooded glade on the slopes of Slieve Gallion. On a warm summer Sunday, a picnic might be planned for the glen or for the shores of Lough Fea itself. We especially liked the wooded

near-island that jutted out from the south shore of the lough, a mound with a symmetry that suggested some ancient human shaping. I remember one Sunday in June 1952 when my youngest brother Colin, aged six, nearly drowned and my father dived deep into Lough Fea to recover and revive him. And every few winters, as in 1955, there would be a spell of weather cold enough that Lough Fea would freeze over and we would mount an ice skating expedition.

The year of 1958 marked my last as a Boy Scout for I had found many other diversions. However, before leaving, I had striven to complete one of the more advanced “badges” or awards that scouts could earn. One of the requirements for that badge was to undertake an overnight hike in a desolate area. The obvious choice was an adventure on Slieve Gallion. Peter Burton was a class mate and a fellow member of the local scout troop and he and I formed a plan for the overnight hike. We would hike the five miles from Magherafelt along the local roads to Carndaisy Glen where we knew of some grassy camping spots by the stream that ran through the glen. On our way to Carndaisy Glen, I recall that we may have cheated a little by accepting a ride on a tractor for several miles. In any case we pitched our tent by the stream in the glen and cooked some flap jacks (made from flour, butter and water, I think) on the hot rock beside our camp fire before turning in for the night.

In the morning, after breakfast, we set off up the lovely glen as it climbed onto the slopes of Slieve Gallion. I particularly remember the patches of iridescent bluebells. Perhaps it was they that caused me in the years that followed to associate flowers with Slieve Gallion. Indeed, when I took up oil painting many years later, my first effort was entitled “Flowers on the way to Slieve Gallion”. Though it is of little artistic merit, I still keep that painting tucked away in a closet.

To return to the hike, we emerged from the top of the glen and transitioned onto the heather-covered moorland that covers most of the high ground on the mountain. Here the going got tougher for there were fewer tracks to follow and the heathland was mostly soggy underfoot. As we reached the broad summit of the mountain, it began to rain and the day became quite miserable. We slogged our way across seemingly endless moorland, the rain having penetrated all of our clothing. Peter became quite dispirited and I can recall having to urge him on. It was my first experience of wilderness loneliness, my first sense of being at the mercy of nature. Not that I felt much fear for, even then, I had great confidence in both my physical endurance and in my navigational ability. It probably only took a few hours but after three miles of off-road travel we were back on established trails and descending the other side of the mountain. Once back onto those paved lanes, I regained confidence that we could complete the last four miles of the hike without having to call for assistance. Coincidentally, the sun came out and I recall sauntering down the mountain road with satisfaction in my accomplishment while also reveling in the beauty of the drying countryside. We completed the hike by road through Desertmartin and back to Magherafelt with plenty of daylight to spare. That adventure was my first real challenge in the outdoors and one whose success stayed with me the rest of my life. It also created a special affection within me for Slieve Gallion, the mountain that



Slieve Gallion.



Ballybriest neolithic cairn.

would witness other moments of joy and sadness during my life.

Corporal Albert Symonds was killed on July 15, 1944, at the fierce battle for Caen, just after the Normandy landings in France that began the end of the Second World War. He was just 26 and left behind a wife and very young daughter, Laverne, just over a year old. Laverne grew up in a small market town in the shadow of Slieve Gallion, a place called Cookstown. She was raised by her mother, Gertrude Symonds, and her grandmother who were very protective of her welfare. They lived in a terrace house on the west side of Oldtown Street in Cookstown and, when she was old enough, Laverne attended the Rainey Endowed School in Magherafelt. There, in the autumn of 1958, I first became aware of this skinny girl with the sultry smile. I was infatuated by her languid sexuality and in a few months we became high school sweethearts. She was the only woman with whom I had a significant relationship before I met my wife and that was several years later, after I had left high school. Laverne and I had a mercuric relationship, sometimes on, sometimes off. It seemed to me that she no sooner had me in tow than she would become interested in another boy. But we shared many special moments whose memory could not but stay

with me down through the years. I remember one spring afternoon, March 22, 1959, when we drove to Lough Fea and walked and talked along the lake shore and among the neolithic gravestones. A year later, at Easter 1960, we visited London together where she stayed with relations in High Barnet and I roomed in the YMCA in central London. However, in the summer of that year, our two year relationship came to an end for, in July 1960, I met and fell in love with Doreen.

In 1961 Laverne entered Queens University, Belfast where she became the second woman in the history of that university to earn a Civil Engineering degree. I think the last time I saw her was in 1962 when Doreen and I encountered her briefly while walking along University Street on the Belfast campus. After graduation she took an administrative job in a university library. In Belfast, she met and married David Haskins, a teacher, and they had a son, Michael. After Michael's birth Laverne suffered severe post-partum depression and never returned to work; David believes she never fully recovered. She and David were separated and Laverne lived the rest of her life in Lisburn with Michael while David moved to a terraced house in Belfast. Michael became a musician, a guitarist with a group called Maya.

But I knew little of what had become of her after graduation. There were many moments when I thought to make contact with her out of curiosity more than anything else. But I could never quite justify such a contact as long as there was even the remotest possibility that Doreen might be hurt. Finally, however, in the year 2004, while visiting Northern Ireland, I acquired David Haskins' telephone number and called him to enquire as to how I might get in touch with Laverne. He informed me that Laverne had died of ovarian cancer on July 11, 2004, just a month earlier. After more than 40 years, I had reached back a month too late.

Her son and her mother were with her when she died. She was cremated on July 15, the date on which her father had been killed. Several days later, in accord with her wishes, her ashes were scattered to the winds at the Ballybriest neolithic cairn overlooking Lough Fea. A month later I stood alone in the rain and placed flowers on those ancient stones. Flowers on the way to Slieve Gallion.

Chapter 13

SCHOOL

*“Here upon the beach I wander’d, nourishing a youth sublime
With the fairy tales of science, and the long result of Time.”*

From “Locksley Hall” by Lord Alfred Tennyson.

I was told that I began my formal education at a preschool in Belfast in 1944, about a year before my family moved to the country village of Magherafelt. However I have almost no recollection of that beginning except for a faint memory of an embarrassing stage appearance as a bunny rabbit, a story I tell elsewhere (see “Acting”). What I do remember clearly is that shortly after our move to Magherafelt, my mother enrolled me in the local village grammar school, the Rainey Endowed School. It is to that great school that I owe most of my education. It was about 3/4 mile away from where we lived on the other side of the village. Like most children venturing away from home for the first time, it was a traumatically remembered moment when my mother took me there on my first day. I recall distinctly being led up a set of wooden stairs in the middle of the old part of the Rainey School. I remember the knot holes in the floorboards as I climbed the stairs holding hard to my mother’s hand. At the top was a big red door with glass in the upper half and through this I could see a mass of faces of older boys and girls and the rather grim visage of a lady teacher dressed in black. Her name I later discovered was Miss Rachel Carson; normally she was a vice-principal of the senior school but at that time she must have been a temporary stand-in as the kindergarten teacher. I do remember with great trepidation that she opened the door causing the sea of older faces to focus on me. Urged forward by my mother I tried to make my way into the room as inconspicuously as possible. There the memory ends and I do not recall much that happened immediately afterwards. Neither do I remember much about Miss Carson or about the schoolroom. I do, however, recall that two other children joined the kindergarten just about the same time, one boy and one girl. The boy was Iain McKay; Iain became a pharmacist and lived out

his life in Magherafelt, a stalwart member of the community and a good friend to my family. The girl's name was Barbara Badger; many years later she was to become a very important part of my life.

I must have merged easily into this new environment that they called kindergarten. Certainly I found comfort in a low profile within which I could develop my own reaction to the outside world. It was a relief to discover that I could explore that larger world a little bit at a time. When it overwhelmed me, I was comforted by the thought that my refuge at home was not far away in time and space. My father kept all of the school reports and gave them to me much later in life. They leave the impression of a quite and shy boy. From 1946: "For some reason or other he is very shy to repeat nursery rhymes or answer questions although he is quite lively in other activities". Reports from the following year reflect the same introversion but are also sprinkled with humor: "Christopher's work in the 3 Rs has been rather spasmodic this term. His number work is very good. Writing is improving as he gains more muscular control. Concentration could have been greater in reading. He is overcoming shyness by degrees" and "Writing has greatly improved. In number work he is most anxious to work without counters. Still rather shy when saying poetry". Later in 1947 a number of other subjects were introduced into my curriculum including French and Handwork. A lifelong lack of affinity for foreign languages was evident right from the start: "Eleve un peu dissipe. Pourrait mieux faire." and "Ne s'interesse pas beaucoup au francais". Conversely Handwork seemed to go rather well: "Very good, has produced a most creditable piece of sewing" and "Good, has used colours well and enjoys using his hands".

In a few years, the kindergarten (consisting of about a dozen children with ages ranging from about 4 to 9) was transferred to a small building behind the main school that had been built specially for this purpose. About the same time, the school hired a new kindergarten teacher whom we knew as Miss Williams. I spent several years in that class, mostly with Miss Williams for whom I came to have great affection. Several incidents from that comfortable time stand out in my memory. One occurred when Miss Williams tripped as she was entering the building and struck her head on a raised concrete step. This opened an ugly gash on her forehead that bled profusely. Barbara and I were standing nearby and remember the incident with horror. It was my first real experience with blood and substantial injury and therefore imprinted itself forever in my memory. Miss Williams was taken to hospital where she was sown up (perhaps by my father). Much to our collective relief, she returned to the kindergarten not much the worse for the experience.

Several years later I suffered a compound fracture of my left arm as the result of a fall from a tree. Because of the series of surgeries that were needed to repair the arm, I had to go on leave from the kindergarten. Just after I returned from my convalescence Miss Williams became engaged to marry and decided to leave for Holland to live with her Dutch husband-to-be. I remember her visit to our home to explain her decision to my mother. I was privy to that conversation and, for the first time, experienced the sadness of personal loss. I looked to the future with some trepidation.

However it was not long after that (and perhaps before Miss Williams actually departed) that I got transferred into the other room in the kindergarten building. This was occupied by the so-called Third Form in which regular teachers from the main school came to give classes in their specific subjects. This was another traumatic and vividly remembered transition for me. I was frightened out of my wits by the stories that the other, older third form students told of some of the teachers. In particular, the stories of Dr. Gwilliam, the math teacher who was portrayed as a real ogre at whose hands I would allegedly suffer greatly. Apparently the other teachers were not so bad but Dr. Gwilliam was regarded with great dread by those older students. Dr. Gwilliam's math class was the last of the day and I was so traumatized by the stories and so terrified by the thought of being trapped in the room with Dr. Gwilliam (even before I had a class from him) that I made a series of excuses to try to get away from the school before that last period. One day I pleaded sickness. The following day I hid in the cloakroom and then, when all the other students had gone, I surreptitiously escaped through the window in order to sneak home. I also have a somewhat indistinct and disturbing memory of what happened on the third day. In order to sharpen my pencils, I had earlier "borrowed" some used razor blades from my father's razor blade container. I think I genuinely used them to sharpen my pencils. But in the process I cut my fingers rather badly in several places. The cuts bled profusely and, as a result, I was sent home prior to the last class. I have a vague suspicion there might have been something deliberate about that but I cannot be sure. In any case these consecutive absences were noticed by other teachers and this resulted in a conference with my mother during which this series of events were discussed. Though I do not remember the consequences of that conference, I believe I was either encouraged or, perhaps, gently admonished. In any case, the result was that I did begin to attend Dr. Gwilliam's math classes. The irony of this story is that I turned out to be rather good - even outstanding at math. In the years that followed, I also began to understand and appreciate Dr. Gwilliam's expertise and teaching. In the end I became a great fan of his to the extent that I think he changed my life. Ultimately it was his teaching and my receptiveness to his teaching that led to me gaining a scholarship to Oxford University and going on to a career as an academic with a strong emphasis on mathematics. So there is indeed great irony in the story. Nevertheless I have some suspicion that I managed to manipulate those first days in order to avoid imagined suffering at the hands of Dr. Gwilliam.

I also remember the third form for other reasons including a broadening of my social awareness and an expansion of my acquaintances. I made many new friends. There were a few that I had known in kindergarten and that were friends throughout my school years: Iain McKay was one, Barbara Badger was another, Alison Scofield was yet another. So it wasn't that I lacked friends but that the base was broadened; there was Alistair Simpson, Anthony Redmond, Derrick Crothers, Peter Burton and Jim Getty. Each of us had our own desk. I sat behind Anthony Redmond on the left side of the room (viewed from the back) and hid in his shadow for a while though I soon emerged from that. Barbara's

desk was on the far right side near the front and I would often gravitate to my life-long friend. Many decades later several of my grandchildren would answer my question “which class do you enjoy most” with “recess, of course”. So it was for me for it was an important part of my emergence from the cloistered environment of a child into the rough and tumble world of a young and energetic schoolboy. Recess involved endless games in the school grounds and even the occasional fights with other boys. Just behind the kindergarten was a small field bounded by a grassy bank and a stream and many of our recess activities were centered there. We were also provided with small bottles of milk during the morning recess. We could consume as many of these bottles as we wished and sometimes there were competitions to see who could down the largest quantity. Often this resulted in someone being sick.

Ahead of me in third form lay one of the big hurdles in the educational system of my time, namely a government-organized intelligence test called the “Eleven Plus”. The purpose of this examination was to determine whether you were intelligent enough to be able to take advantage of the more advanced form of schooling, namely a grammar school education. It was indeed an elitist system. Children who did not pass this examination were channeled into a more trade-oriented education at the local Technical School. Alternatively, if their parents were wealthy enough, they could still pay their way through grammar school. Thus it was an unfair system in several ways. I had not had much practice at examinations and because of where my birthday lay within the year I first took the Eleven Plus at the age of 10 plus. I did not do very well. I don’t think I knew what an examination was and I do not think I had ever previously sat for an academic test. Though I do not know what score I earned, I either failed or it was decided that I was still too young, too immature to leave the third form and attend classes in the main building. Thus I remained for another year in the third form and retook the Eleven Plus at the age of 11 plus. This time I think I did remarkably well, probably because I had been practiced and had received instruction on what this was all about. Moreover I think I had matured to the point where I knew what I was doing. I was never told what score I earned, what my IQ (Intelligence Quotient) was, but I think it was a high number. This second Eleven Plus marked the end of my career in third form and the end of my residence in the cloistered environment of the kindergarten building. The following September I graduated to the grammar school in the main part of the Rainey Endowed School.

The entering class was called the Lower Fourth Grade; this was further divided into three classes according to intellectual ability. Thus entering the Lower Fourth was really the beginning of my formal, structured education at the Rainey Endowed School. I was placed in Lower Fourth One, in other words the elite level of the Lower Fourth Grade. The day was divided into eight 40 minute classes or periods as we called them. We moved from one classroom to another to attend the various subjects. There were 5 periods before lunch with a short break after the third period. Then there were three more periods after lunch. Sometimes we had double periods, that is to say two consecutive periods of the same subject and teacher. Those were a bit of an ordeal for me for I did

not have a strong ability to retain my urine and so at the end of two periods I was almost inevitably dying to go to the toilet. Early on I remember one or two times when I couldn't get up the courage to ask to leave for a toilet break with the result that I peed in my pants. That kind of unnecessary discipline left a very unpleasant memory.

In each of the classes we sat at old wooden desks that had ink wells and many years of carved initials. The writing surface opened up to reveal a container where books and notes could be stored. They were never used for this purpose because, during the day, many others came to the same classroom and used the same desks. Instead we all carried a large leather bag made by a local saddle maker, with a strap that you could put over your shoulder. These bags were filled with books, both workbooks and textbooks. The bags must have weighed about 30 pounds and we hauled them around all day; hence the need for the strap.

We were also obliged to wear the uniform of the Rainey School mostly in the school colors of red and black. For the boys the uniform consisted of gray trousers (shorts for the younger boys and long pants for the older boys), a white or gray shirt with a gray pullover, a red and black striped tie and a black blazer with a red embroidered patch, the school crest. This was, in fact, the crest of the London-based Salter's Company who had acquired a large tract of land in County Derry in the 1700s and had helped found the school. The girls had an equivalent uniform though they had a summer version and a winter version. In addition we were required while coming or going from school to wear a black cap though we treated these with a great deal of disrespect. Moreover the requirement was only spottily enforced.

In the Lower Fourth I studied a wide range of predetermined subjects (no electives). Some of the subjects involved one period each per day though, as mentioned earlier, we did have occasional double periods. The basic subjects were English Language, English Literature, French, German, Latin, Math, Physics, Chemistry, History and Geography. No Biology or Social Science for there were no teachers equipped to teach those subjects. Some Geology was included within Geography. The eighth or last period each day was devoted to a lighter subject, Art or Music or Gym. Thus each day was very full. In addition, any of the classes could demand homework so that we often had a stack of work to do each night.

Each day began with "Assembly" when all of the students in the school would gather in the main hall. Once we were assembled the headmaster and the teachers would march in and make their way up onto the stage. The headmaster would then conduct a brief religious ceremony, the singing of a hymn, a bible reading and a prayer. He would also make announcements such as the scores of the previous weekend's interschool games or the coming of some special events. I should remark briefly on the religious instruction during Assembly. At that time, "The Rainey" was unique among the grammar schools in Northern Ireland in that it was both mixed and co-educational. In other words it was attended by both Catholics and Protestants and by both girls and boys. The Catholic students were much in the minority for there were other Roman Catholic Church



The Rainey Endowed School, Magherafelt.



Barbara Badger and Christopher Brennen in Form 3.



Rainey Endowed School teachers in 1956.

schools in the neighborhood. For Assembly the Catholics would go to a different room to receive Catholic religious instruction. This was conducted by one of the small number of Catholic teachers, Dr. Gwilliam among them. I don't know anything more about that for we, the students, were all quite careful to avoid the inflammatory subject of religion.

Assembly lasted for about 15, perhaps 20 minutes, before we would file out to go to our first period class. A hand-held school bell wielded by one of the school administrators would ring to mark the beginning and end of each period. A dining hall and a kitchen were integral parts of the school and almost all the students ate a cooked lunch there, even those students that lived locally. However I was such a picky eater and disliked the cafeteria food so much that I went home for lunch every day. This was quite unusual and I am not quite sure how my mother put up with it but that habit continued throughout all my years at the Rainey.

I have fond memories of many of the teachers. I have already written of Dr. Gwilliam and his excellent mathematics instruction that undoubtedly changed my life. I also remember James McAteer who taught me physics and Alan Burton who taught me Chemistry (his son Peter Burton was also in my class). English, perhaps my weakest subject, was of less interest to me though I did enjoy the occasional play readings and poetry recitations. Otherwise the subject seemed very dull and that dullness was matched by the teachers. Mr. Schofield was particularly uninspiring though later on I had a teacher by the name of Wilfred Young who brought more enthusiasm to the subject. I was not very good at foreign languages either. Given the extended instruction I received in French and German, I ought to be able to speak those languages but my recollection of both is very slight. We also had some vicious, old-style teachers for languages. I remember Mr. McFadden who would rap the back of your knuckles with his pencil or ruler when you failed to pronounce your French verbs correctly. I also remember my Latin teacher, Jimmy Smith, who was usually nice but lost his temper on occasion and could be quite violent when he did. On one occasion he threw a blackboard eraser at me because I was not paying attention; it left quite a bump on my head. I did, however, enjoy History, in part because the teacher, Arthur Arnold, was not only interesting and amusing. He was also my second uncle. He inspired in me a lifelong interest in history. Geography was another subject that interested me though I could not possibly have visualized how extensively I would travel the world in the years to come.

The year after the Lower Fourth was called, unsurprisingly, the Upper Fourth. This followed essentially the same curriculum and, at the end of the year, we were required to take another government test called the Junior Certificate Examination. For me this consisted of ten three-hour exams, in English Language, English Literature, French, German, Latin, Chemistry, Physics, Mathematics, History, Geography. I had remarkable success earning a distinction in all ten subjects, a feat that I don't think was ever equaled at the school. A distinction meant you had exceeded a score of 280 points out of 400 maximum. My lowest score was in English Language where I only just achieved a distinction by a

handful of points. On the other hand in physics and math I scored close to 400. After successfully completing the Junior Certificate, I entered the Lower Fifth. At this point we did have some choice and could select either math/science course or a language course. There may have been a few other minor choices but the details escape me. Most of the boys went into math/science; quite a few of the girls selected languages. Thus my curriculum in the Lower Fifth consisted of a much expanded curriculum in mathematics, physics and chemistry but only one language (German) besides English. One period was also devoted to gym. That curriculum continued for two years through Lower Fifth and Upper Fifth. At the end of the Upper Fifth year another government-run exam loomed, this time the Senior Certificate, Ordinary Level. The year after that, the Lower Sixth, was one in which most students planning to go on to university took a few subjects at the Advanced Level. The Senior Certificate, Advanced Level, exams determined your entrance to university. I recall taking three math subjects, General Math, Applied Math and Pure Math as well as Physics and Chemistry. By this time I was a six foot senior in high school and very confident of myself. I did extremely well in those Advanced Senior Examinations, receiving the top marks in County Londonderry and the third highest marks in Northern Ireland. At the end of that year I could have followed the normal course, left high school and gone to a local university, either Queens University, Belfast, or possibly Trinity College, Dublin. Indeed, I had already been offered admission to the departments of science, engineering and medicine at Queens University. However, the other option that was suggested was that I could spend an additional year at The Rainey School studying more math and science and then sit for the scholarship exams to Oxford University. So that's what I did along with a fellow student, Derrick Crothers, who had done equally well in the math/science Advanced Level exams. During that additional year I studied math and physics almost exclusively. I say almost because we also knew that to be admitted to Oxford we would have to pass a latin exam. I had not studied latin for about three years and so had to work quite intensively to prepare for that exam. Those studies included some latin literature, specifically parts of Virgil's Aeneid. I enjoyed the challenge of that year in which Derrick and I were privileged to get special tutorial help from Dr. Gwilliam in math and from James McAteer in Physics. I learned a massive amount of math and physics in those tutorials.

Let me return to earlier years and recount some of the other activities that I enjoyed during my days at "the Rainey". In addition to the required gym classes, the school organized extensive extra-curricular sports activities. These were nominally voluntary though everyone was expected to participate. In the autumn and winter, the primary sport for boys was rugby while the corresponding activity for girls was field hockey. We had after-school practice at least once a week and a game against a rival school the following Saturday. The school fielded a number of rugby teams, enough so that everyone who wished to play could do so. There was an Under 13 team, an Under 14 team, an Under 15 team (known as the Medallion team though I am not sure why) and then two or three senior teams, the First Team (the varsity), the Second Team and sometimes a

Third Team. In this way all who wished to play did so and none were left out.

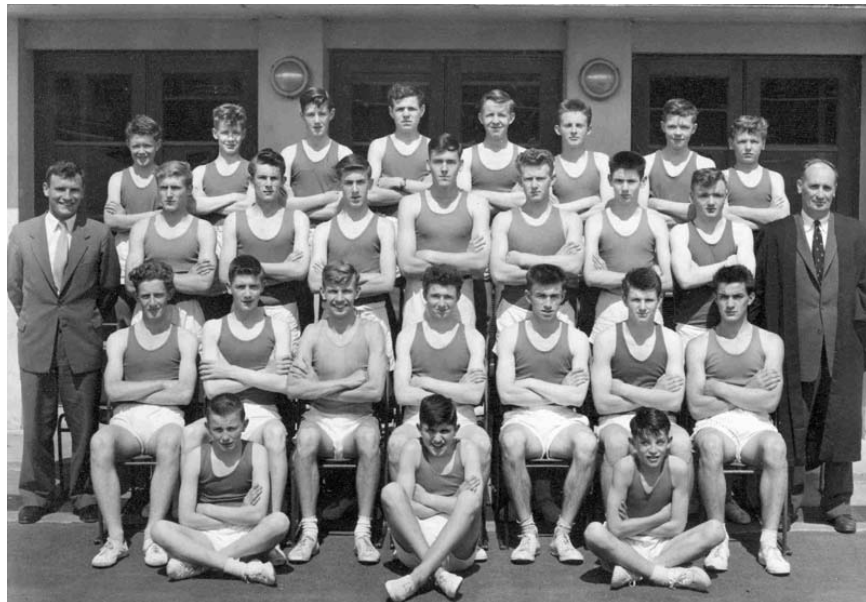
Just before my 12th birthday, I participated in my first rugby match against another school. I had just enrolled in Lower Fourth and was surprised and somewhat alarmed to be selected for the 1953/54 Under 13 team since I was a year younger than the rest of the team. We traveled to the city of Londonderry to play Foyle College and I found myself placed on the field in the fairly remote position of “wing”. Even though I had shown during practice matches that I had both speed and skill and could run quite elusively with the ball if I got it, when I found myself opposite this team of strangers I was absolutely terrified. I don’t think I touched the ball once during the entire match. Moreover, I don’t think I played in any other interschool matches that year. But I did hone my skills in many practices and gradually gained back the confidence so drained from me that day at Foyle. So much so that the following year I was chosen to be captain of the Under 13 XV. That year, I scored a number of tries (touchdowns) and still remember the joy of those moments. We beat one team, Limavady Grammar School, by the rather lopsided score of 53-0 and a very short segment of movie survives that shows one of my runs during that match. The next year I played for the Under 14 team, then for the Medallion the following year. Promotion to the First XV (the varsity) followed the next year and I scored a try in the first match against Dalriada Grammar School, a school in Ballymoney, County Antrim. Thereafter I played for the First XV for three full years and proudly wore the special gold (rather than red) crest on my school blazer that signified membership in that team. Underneath the crest were the years played and I was very proud of the three lines of dates for the years that I played. Thus rugby was a big part of my high school life though we were never very successful in the Northern Irish School competition known as the “School’s Cup”. I was particularly pleased to play for two years with my younger brother Michael who was a better player though, strangely, I scored more tries for the school. Mine were mostly opportunistic efforts in which I could use my quickness and elusiveness.

Rugby took up most of our spare time in the months of September through to about March though I also participated in cross-country races during that half of the year. There were several courses around the local countryside with distances of about three or four miles, always beginning and ending at the school. Being reasonably proficient, I was included in teams that competed against other schools, beginning with the junior cross-country team that ran distances of 2.5 or 3 miles. On one occasion during that first season, I was also asked to join the senior team that ran longer distances, perhaps four or five miles. I remember getting to about the 3.5 mile mark and being violently ill by the side of the road, with the result that I finished very poorly and felt the disapproval of the team manager. That taught me something about pacing myself and put me off long distance running for good.

In the summer months of April, May and June the primary athletic activity was track and field. I was not very fast in the short sprints but had a good deal of endurance and so my specialty was the 440 yards race (roughly 400m). Anyone who has participated in that race knows that it is truly exhausting; in the final



Rainey Under 13 rugby team, 1953/54. Back row: C.Brennen, N.Evans, J.Hillman, G.Watters, W.McClean, D.Crothers, ? Mitchell, F.Hartley. Middle row: J.Scott, A.Redmond, I.Gordon, R.Morrow, I.Campbell. Front row: J.Turner, J.Smyth, S.Walls, J.Brennan (no relation).



Rainey Track and Field team, 1958/59. Second row from the top, third from left: C.Brennen. Seated second from right: Michael Brennen. Seated on the ground on right: Colin Brennen.

100 yards your whole body goes numb and you are on the verge of collapse as you approach the finish line. As a school we participated in meets against other schools, in the County Londonderry Championships and in the Northern Ireland Championships. I never made it to the last. The high point of my track career was to finish second in the County 440 yard Championship. I might add that throughout all of these sporting activities, I participated with my brother Michael and sometimes with my youngest brother Colin. My favorite school sports photograph is the one of the school track and field team that includes all three of us.

Another extra-curricular activity that I enjoyed and in which I achieved greater success was the theatrical productions. In another chapter ("Acting") I describe the various roles I played and the important place that experience played in my education. It taught me how to present myself, how to speak to an audience, how to project my voice, and, most crucially, it gave me the confidence to build these skills in the years that followed. At the time, however, I mostly enjoyed the companionship and, in particular, the opportunity to get to know some of the girls.

I want to add some detail regarding the friends I made in high school. When I was in the Lower Fourth, I got into a fight during one morning break with a tall lanky guy by the name of Frank Johnston. I am not sure how it began but, in the end, I think the fight was more or less a draw. What tended to happen when two boys, especially two younger boys, became involved in a fight was that the rest of the boys would crowd around in a ring and encourage the two protagonists to greater efforts. Most of these fights ended up with two exhausted young boys lying on top of one another but some did become quite violent especially when older boys turned to fisticuffs that resulted in split eyebrows and knuckles. However, this fight with Frank Johnston did not go very far. Perhaps because of that he and I became great friends and remained friends throughout our time in high school. Indeed, today, more than 50 years later I still have contact with Frank. He lives on the shores of Lake Malawi in Africa and is a photographer and antique dealer. So if anyone could be called my best friend in high school it was Frank. There were, however, other boys with whom I was friendly, including Derrick Crothers, my principal academic rival. Derrick was a little bit of a wild man, quick-tempered and a little out of control at times.

I would also like to recall some of my relations with the opposite sex. I was very shy as a younger boy. I did not have any romantic contact with the female sex until the Lower Fifth at which point I would have been 15 or maybe 16. I had my eye on a demure little girl by the name of Esme Somerville. Esme was in the grade below me and I think the relationship started with the passing back and forth of written notes. At some point I asked her to meet me one lunch hour in a little room that was called the library. It was my duty to look after the library and so I had a key to this normally locked room that was little used. So we met during the lunch hour in this library room, locked ourselves in and spent maybe 5 minutes together. We had one very tentative distant kiss on the lips before departing. That was the full extent of the first and only date I ever

had with Esme. However, once, on the spur of the moment, I cycled in the dark across to the village of Coagh (about seven miles from Magherafelt) where she lived and where her father was a policeman. I had given very little thought to what I would do once I got there. Indeed I was standing in the dark near her home in Coagh when I was approached by several elderly, drunken gentlemen who seemed to think that my behavior was suspicious (which it was!). They accosted me, demanding to know what I was doing. I was, of course, afraid to tell them what I was doing standing outside a policeman's house and was, therefore, in a real pickle. Finally I saw an opening, sprinted away on my bicycle and rode home in the dark without further incident. I remember that night as one of those crazy things a young man does when he is infatuated with a young girl. Esme went on to marry another classmate, Eddie McClure, and they moved to England and had a family. Unfortunately, at quite a young age, Esme died of complications during an asthma attack. She was a lovely girl for whom I always retained a special affection.

In June 1958 I became very attracted to my classmate and childhood friend, Barbara Badger. Though I was very keen on her, she was less inclined to become romantically involved with me though, during the summer of 1958, we spent quite a bit of time together, playing tennis with others at the Magherafelt Tennis courts. My family had a visitor from France staying with us that summer, a sophisticated young man called Claude Lebon from Voiron in France and he was a keen tennis player. Often Barbara and I, Claude and Eileen McMaster would get together for doubles matches. Claude and Barbara took a shine to one another so I had briefly to take a back seat to that relationship. After Claude had gone home, I continued to try to woo Barbara with little success. The end of that relationship came when she went off to be au pair in Geneva, Switzerland, and subsequently went to nursing school in Belfast. However there is a much later and much more important episode in my relationship with Barbara that I recount in a separate chapter of these chronicles.

In 1959, after Barbara had left town, I became very attracted to another girl in the grade below me, a girl by the name of Laverne Symonds. I tell her story elsewhere in the chapter entitled "Flowers on the way to Slieve Gallion". Laverne and I had a long and torrid relationship, much longer and more physical than the fleeting affair with Esme though I hasten to add that we never had sexual intercourse. Many times I would travel the ten miles to the town of Cookstown to try to see Laverne, often on the spur of the moment, frequently hitchhiking in the dark. Her mother was usually not pleased to see me when I went knocking on their door and I would have to hitch-hike right back home again. In the early days of our relationship, Laverne was still dealing with an earlier boyfriend in Cookstown, an older and quite rough young man whose name I have forgotten. On one occasion Laverne and I were walking along Molesworth Street when this young man and his friends came up behind me and briefly attacked me. I am ashamed to say that I ran leaving Laverne to deal with the situation, a task that she accomplished with some ease. As the relationship developed she tended to get tired of me and to flirt with other boys once she knew she had me on the hook. I would then give up on her, the result being that she would try

to get back into my affections. So it was a very unstable affair that eventually ended when I had had enough of her machinations. Indeed I clearly remember the time when I hitchhiked back to Magherafelt in anger determined to move on. Laverne was really the first girlfriend I ever had and I continued to feel affection for her until her untimely death from ovarian cancer. She had a sad life, a marriage that did not work out, and lived her last days with her son in very modest circumstances.

The break-up with Laverne meant that at the end of my last year in high school in the summer of 1960 I was essentially unattached though Laverne still hovered somewhere in the background. That summer in Portrush I met my future wife, Doreen, and I tell the story of that meeting elsewhere in these memoirs. For reasons I am not sure I completely understand, throughout the years I have perhaps spent too much time thinking of these relationships with Esme, with Laverne and with Barbara. Maybe this reflects an insatiable curiosity about my own emotional development and life.

Chapter 14

SCIENCE

“He elucidated the laws of nature and applied them to the welfare of mankind. ”

Inscription below Lord Kelvin’s statue in the Botanic Gardens, Belfast.

The Irish are known throughout the world for a number of traits and talents, good and bad. Among the former is the spectacular talent for words, for poetry, literature and the theater. Among the latter is the propensity for addiction especially to alcohol. But, for me, there is a different talent that has gone virtually unnoticed. I refer to the contributions to the fluid and thermal sciences by Robert Boyle, William Rowan Hamilton, George Gabriel Stokes, William Thomson (Lord Kelvin), Osborne Reynolds and others (see “Into Fluid Mechanics”). I like to think that I was, in some small measure, a beneficiary of this different gene. Growing up we hardly heard of any of these people. This despite the fact that I came into the world within a hundred yards of where Reynolds was born. These outstanding scientists never featured in any list of great Irishmen. No plaintive songs recalled their exploits on highways and battlefields in lands near and far. Strange what the world has chosen to remember and what it has chosen to forget. One reason for the amnesia is that like so many gifted Irishmen before and since most of these men were forced by dint of tradition and circumstance to seek outlet for their talents in other lands. Thus, for example, Kelvin and Reynolds lived out their productive lives in the great academic institutions of Glasgow and Manchester respectively. Perhaps that is why their Irish origins are rarely mentioned.

My own genetic aptitude may, in large measure, be inherited from my maternal grandfather, John Earls. John was a son of the lowland Scottish tradition, his forebears having crossed the Irish Sea sometime in the 1600s to settle as tenant farmers on the rich land and soil of Northern Ireland. Indeed family legend tells of several ancestors who were brothers and who brought with them from Scotland, impressive farming expertise so that they were remembered as

“professors of biology”. Mixed with that knowledge of the soil was a knowledge of the sea for, until 100 years ago, the main highways for people and produce were the coasts of Ireland, Scotland and the islands in between. Since the coasts come as close as 15 miles, the journey across was an everyday event for the people of those times. Many of my ancestors settled in Islandmagee, a peninsula within sight of the Scottish mainland. There John Earls was born on Dec.23, 1874, the son of a prominent local farmer, merchant and lay preacher by the name of James Earls and his wife, Margaret. James also taught Sunday school and thus the family became known for their breadth of knowledge and commitment to education. John prospered in that rural community and excelled in primary school, driven in part by a strong Calvinist tradition. When he needed to move up, his father arranged for him to attend a craft school in the seaport of Larne. Though not far away by the standards of today the journey to Larne required a ferry crossing and overnight stays with an uncle in Larne, a considerable commitment.

Later John was sent to Dublin to acquire a teaching certification that would allow him to pursue the only profession realistically open to a young man of his background, namely the opportunity to become a schoolteacher. In Dublin, he trained at the Marlborough Street Training College and graduated from the old Royal University with a bachelor’s degree. This qualified him to become a teacher in the new system of National Schools being set up to serve the children of Ireland. Having completed his certification he moved back north, to the burgeoning industrial city of Belfast where he served as principal of Ballynafeigh National School during the years 1902-1904. In 1904 he moved up again, having been appointed as a Lecturer in Mathematics at the Belfast Municipal College of Technology. In 1907 he moved into the College and in the following year was promoted to be Professor of Mathematics. In 1910 he became chief assistant to the principal. When his boss joined the army in 1915 Professor Earls continued as assistant principal and later vice-principal. In 1924 he became head of the College of Technology. He was reputed to be a fine organizer and had a special interest in the mechanical and electrical engineering departments. The munitions work that was carried out at the College during the war years was performed under his guidance. Thus John rose from a poor farm boy to become a prominent citizen of the city of Belfast. Along the way he raised an upper middle class family with a son and three daughters. His youngest daughter became my mother.

In early August 1934, John was admitted to a nursing home for a routine appendectomy from which he appeared to be recovering. Tragically something went wrong and he died suddenly on August 28, 1934, some seven years before I was born. Though I never knew my maternal grandfather it seems clear to me that his inclinations and abilities were close to my own. Where John acquired them will never be known but one can see the outline in the knowledge of the soil and the sea.

But I still ask myself, where does it all come from? How much is truly genetic, how much is environmental? Not much in my own upbringing induced in me a fascination with machines. Indeed the machines around me in the

village of Magherafelt were fairly mundane by comparison with those in the distant cities. But about one train a day trundled along the single track to the Magherafelt Railway Station just about 200 yards from our house. And we saw the beautiful trains of the American west in the cowboy movies that played on Saturday night in the rudimentary cinema in our village. Even as a young child my very favorite first reader was Thomas the Tank Engine.

When I was just a few years old my father somehow acquired an electric train set, an 0 gauge train and some track. Though this soon became non-functional, the engine, a power source and some pieces of track lay in a box, the source of some frustration to me for I had neither the knowledge nor the ability to make them work. Not that I did not try. I made several unsuccessful efforts to get the engine to run. Later, I took it apart in an effort to try to understand what was wrong and, in doing so learned a little about electricity and electric motors. But it seemed hopeless. And so, for several years I waited in vain for Santa Claus to bring me my own, functioning electric train set. Finally it arrived one magical Christmas Day and I enjoyed that train and all the additional pieces I added for many years thereafter.

Other mechanical devices also attracted me. We built endless “carts” using the wheels from old baby carriages and wooden frames fashioned from boxes and two-by-fours. Later this interest transitioned to bicycles, new and very used, and from these we learned about chains and gears and bearings. So to my first old car; to keep this going it was essential to learn about a whole range of mechanical and electrical devices, from starters to carburettors, from batteries to induction coils. By then, of course, the die was cast.

Other electrical devices also attracted me. Very early I understood electric light bulbs, fuses and electric fires. I fitted my attic bedroom with all kinds of lights. In the process I managed to receive several major electrical shocks from the 220 volt, 50 cycle domestic power supply. I even recall rigging a switch under the carpet of the stairs to the attic in order to detect the approach of one of my parents! Little did they know that there were bare wires with 220 volts just underneath the carpet!

Radios were harder particularly since no one in my village had any clue how they worked - not even the physics teachers at my high school. So for me radio was a completely experimental subject. My father had been given a marvelous, broadband radio from a US Air Force aircraft and he had managed to persuade someone in Belfast to build a power supply for it so that it was functional. It had the full range of frequencies, short wave to long wave and a great lighted dial on the front with which to home in on the desired frequency. There was also an eye that guided fine adjustment to the incoming signal. We would play with this for hours trying all kinds of aerials and attempting to identify the numerous languages we picked up.

It is however clear that whatever genetic heritage I may have enjoyed, the seed, like all others, required nurturing. In my own case, that critical component was the result of some good fortune. As I have described elsewhere, I was fortunate to encounter in high school, a remarkable mathematics teacher, Dr. Gwilliam or “Doc” as we affectionately knew him. More than anyone (apart

from my parents) Doc shaped my life and I look back on him now as a marvelously gifted and inspirational teacher. When I won an open scholarship in mathematics to attend Oxford University, it was largely his doing. Doc had a Ph.D. from Cambridge (in mathematics) though what he was doing teaching in this small Irish high school, I never understood. That was my great good fortune.

These were the seeds of interest in science and engineering that led me to choose to major in Engineering Science at Oxford University and to pursue those interests throughout an academic career. Maybe the genetic seed was always there though I would also acknowledge my great good fortune in being nurtured so as to enjoy a truly special career.

Chapter 15

MOYOLA

*“I will break through, he said, what I glazed over
With perfect mist and peaceful absences
Sudden and sure as the man who dared the ice
And raced his bike across the Moyola River.
A man we never saw.”*

From “Glanmore Sonnets” by Seamus Heaney.

In the early 1950s my father decided to construct a two-man canoe in which to paddle the waters of some bucolic Irish river. I think the inspiration for this was derived from a canoeing holiday that one of my uncles had enjoyed on a river in southern Ireland. Indeed my father seemed to have inherited the remains of my uncle’s collapsible canoe that consisted of a foldable canvas shell within which a frame of wooden rods was to be assembled. However, we never managed to complete this assembly and so my father decided to construct his own canoe that would not be collapsible. It would still be canvas on a wooden frame but a rigid rather than removable frame.

This new canoe was constructed in one of the attic rooms in our house. It was carefully fabricated and a few test paddles were nervously but successfully conducted in a nearby pond. After that my father’s interest waned and he moved on to other activities. However, a year or two later, I had just begun my lifelong adventuring with a hike over the top of Slieve Gallion (see “Flowers on the way to Slieve Gallion”). Casting around for more adventure, my friend Frank Johnston and I decided to see how far we could float down the nearby Moyola in the “new” canoe.

The Moyola was the only river of any size close to Magherafelt. Rising near Mullaghturk Peak in the Sperrin Mountains, the Moyola winds its way through the rolling farmland of southeast County Derry for 27 miles before emptying into Lough Neagh. A little preliminary scouting revealed that the river upstream of the road bridge on the Tobermore/Maghera road was too shallow for reasonable

canoeing and so we decided start our descent at that point. We knew of several other road bridges further downstream and had reconnoitered the river from those vantage points; but we had little information on the river in between. Nevertheless, with the confidence of youth, we decided that we knew enough. Therefore, in the early summer of 1959, we began preparations for this canoeing adventure into the unknown. What attracted me to this exploit, indeed to all the adventures in the fifty plus years that followed, was precisely the thrill of venturing into the unknown, of finding out what was round the next corner or over the next hill and of meeting the challenges that followed.

Having obtained my father's approval to use his canoe and his willingness to deposit us at our starting point, we began collecting the gear we would need. Food and water were obvious. But we also knew that the canvas surface of the canoe was not particularly rugged; it could easily be penetrated if we made contact with rocks in the shallower parts of the river. Fortunately, we knew of adhesive and waterproof bandage tape called "Elastoplast" that my father made liberal use of in his doctoring activities. We obtained a supply of Elastoplast and set off one Saturday morning for the Tobermore/Maghera road bridge.

I do remember the mild but exciting apprehension with which we slid the loaded canoe into the water downstream of the Tobermore/Maghera road bridge. It was a beautiful, sunny Irish day. To the west of us the heather-encrusted Sperrin Mountains glowed purple in the sunlight and all around the lush green fields seemed to welcome us. As long as rain and misfortune stayed away it promised to be a glorious day. We bade goodbye to my father (who must have wondered if he would ever see his canoe again) and started downstream, Frank in front and me in the back. Not much paddling was needed but we soon encountered the first of many small rapids, some of which we needed to wade in order to negotiate. Inevitably the first rip in the canvas occurred, the Elastoplast came out and the canoe received its first badge of honor. On we drifted with kingfishers flashing past us and startled herons rising majestically before us. Though farm fields lay all around I don't think we saw a single person all day long. The river was its own sanctuary and we felt we should slip respectfully through this ribbon of near-wilderness. More riffles were encountered and negotiated but the bottom of the canoe began to look like a canvas war-zone; the Elastoplast supply was dwindling fast. We passed the junction with the Grange Water river and pressed on downstream.

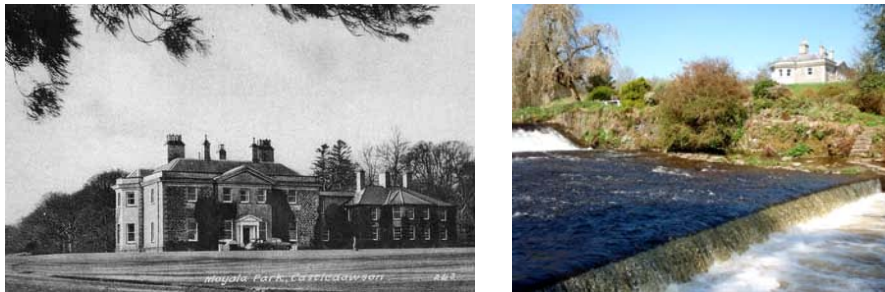
Several hours into our adventure and just beyond the Grange Water junction, we came to the lovely old Curran bridge, named after the nearby hamlet that recorded a population of 130 in the 2001 Census. A beautiful old stone, four-arch bridge carrying a single lane across the Moyola, the Curran bridge must date back at least to the 1800s if not long before. Instantly recognizable, we floated through it relieved to know where we were. The river was now fuller and easier to negotiate. However, a little over 1/4 mile downstream of the Curran bridge we came to an old weir or dam that dropped about 6ft in two stages. Throughout Ireland (and indeed Europe) dams like this were built in conjunction with a "race", a diversion of part of the flow used to drive a water wheel and mill in order to process the local agricultural produce. They represented the first



Left: Curran bridge. Right: Upstream of first weir.



Left: First weir. Right: Weak bridge.



Moyola House and its weir.

mechanization, the first industry, and were an essential and fundamental step in the development of civilization. The sluice gate that regulated the flow into the race of this first weir is still extant though overgrown and long forgotten. During our long-ago adventure this weir was our first significant obstacle and initially caused us some trepidation. But it was easily portaged and we were soon on our way.

Not far downstream of that first weir we found ourselves surrounded by woods. Until the middle of the 1700s, this whole region of County Derry was a dense forest, notorious as the haunt of wolves. The last wild wolf is reputed to have been killed in the middle of the 18th century. In 1633, part of that forest

was obtained by the settler Thomas Dawson and became the private domain and estate of the Dawson family who called it Moyola Park. As with many of the private estates of the landed aristocracy in Ireland, a substantial stone wall was built around this domain in the 1800s. The purpose was twofold - to clearly define that estate and to provide some employment and relief during the terrible years of the famine. Most of these tall stone walls remain. While the relief they provided is long forgotten, their stark statement of segregation still resonates, still generates inevitable resentment.

On that day in 1959, we did not know when we entered Moyola Park and the demense of the Dawsons for there was no stone wall across the river nor any other sign of the boundary along our route. We did suspect that we had entered grounds where we were not welcome but it was still a surprise when we suddenly found ourselves floating past the manicured lawn at the foot of a great mansion. We ducked down to reduce the possibility of being seen as we floated by, trailing streamers of Elastoplast in our wake. My mother would have been mortified if she had known where we were!

That great house in Moyola Park, the seat of the Dawson family, was built in 1713 by Joshua Dawson who was the Chief Secretary of Ireland in 1710. Both the house and the adjacent village became known as Castledawson. Joshua's descendant, George Robert Dawson (1790-1856), son of Arthur Dawson, was born at Castledawson, and married Mary Peel, the daughter of the British Prime Minister, Sir Robert Peel. Their son, Robert Peel Dawson (1818-1877), was the father of Mary Dawson, who became the heir to the Moyola estate. Mary was the great-grandmother of the brothers James Chichester-Clark (1923-2002) and Robin Chichester-Clark (1928-) who grew up in Moyola Park. Robin was the MP for Londonderry in the British House of Commons from 1955 until 1974. After an army career, his brother James retired to Moyola Park in 1959. He was a member of the Northern Ireland Parliament for South Londonderry for 12 years beginning at the by-election to replace his grandmother Dehra Parker in 1960. James went on to become the penultimate Prime Minister of Northern Ireland. He married the widowed Moyra Haughton (they had two daughters). In the aftermath of his political career James was created Lord Moyola in 1971 and died in 2002. Though the father of James and Robin Chichester-Clark died in 1933, their mother, Marion Caroline Dehra Chichester-Clark, lived at Moyola Park until she died in 1976.

Therefore, as far as I can tell, at the time of our adventure in 1959, the Moyola Park mansion was occupied by the 55-year-old widow, Marion Chichester-Clark, though her son, James, would shortly be moving in with his family. Of course, neither Frank nor I had any clue as to who lived in the great house that neither of us had ever seen before. But the drift of the river and the need for silent passage left us little alternative but to slip past as quietly as possible. Just a few yards beyond the house, the Moyola encounters its second weir, a larger drop than the first. We portaged around this on the right-hand side, the side furthest from the house. I think we were now out of sight. Continuing downstream through the woods, we negotiated several small rapids before signs that we had left the park were encountered. Soon we came upon an old, somewhat

familiar single-arch bridge.

This stone bridge over the Moyola connects Castledawson village to the wooded Dawson demense. Built in 1796 by Joshua Dawson, it replaced an earlier wooden bridge that was carried away by a flood in 1795. It has a single arch spanning 116ft, once the widest single span bridge in Ireland. Today that bridge is signposted "Weak Bridge" presumably because the arch would have difficulty supporting heavy modern vehicles. At that time in 1796 the road leading down to the Weak Bridge from the village (Bridge Street) was the main road to the neighboring village of Bellaghy, a few miles to the northeast. But to preserve their privacy when they built the enclosure wall around their property in the mid-1800s, the Dawsons diverted that route around the outside of their domain. This required a new bridge over the Moyola and the present Castledawson/Hillhead road bridge dates from that time.

By the time we passed under the Weak Bridge we, too, had been weakened by the struggles with the weirs and other small rapids. It was also getting cold as night approached. Moreover, our supply of Elastoplast was now completely exhausted and the bottom of the canoe was beyond repair. I remember struggling unnecessarily with one small rapid where the canoe drifted sideways and filled with water. It was time to end the adventure. The next bridge just a short way downstream of the Weak Bridge was the road bridge carrying the Castledawson/Hillhead road and here I climbed up to the road, found a telephone and called my father to ask him to come and get us. I recall he was none too pleased with the soaking wet load he had to transport home; nor was he pleased with the condition of the canoe. But it had experienced an adventure greater than that for which it was built - and given us a taste for adventure that would last a lifetime.

Frank went on to college in England and to establishing a business in South Africa and Malawi. He became well-known for his photographs of those countries and for his unofficial diplomacy. His book of photographs of Malawi entitled "Malawi. The Warm Heart of Africa", became Malawi's window on the world. He once asked me to circumnavigate Lake Malawi with him on a photographic expedition but other commitments prevented me from accepting his marvelous invitation. I dearly wish I been able to accept for we were fellow travelers in the realm of adventure.

Chapter 16

ACTING

“Almost every man wastes part of his life in attempts to display qualities which he does not possess, to gain applause which he cannot keep.”

From “The Rambler” by Samuel Johnson.

Acting and the theater were interests from my earliest years. Maybe that is part of my Irish genetic heritage but I doubt it. Rather, I believe it was a part of my cultural heritage for the theater was an integral and valued part of the Irish community in which I was raised. By the word theater, I mean not only the polished form invented by the European upper classes but also the raw, vernacular form practiced in the pubs and parlors of every traditional Irish community, the form so ably mirrored in the plays of John Millington Synge.

It was a tradition not based like the polished aristocratic version on the written word and its stylizations, but rather on the oral tradition that can, in Ireland, be traced back thousands of years. This vernacular form was everywhere in the community in which I grew up. Before television so insidiously began to change the culture, Irish parties, planned and impromptu, consisted of everyone doing a “turn”. A turn could consist of a tune on the fiddle or flute, a poem, a jig, a song, a joke or a host of other performances. Children were often the first to be called upon to “give us a turn” and one had to be ready when that happened. Later, well fortified by drink, the adults would take over. The thought of having to perform in this way is somewhat frightening in the Anglo-American culture. But, somehow, in the Irish community it did not seem so intimidating; everyone knew you, most likely had seen your turn many times before, and cheered you without a hint of criticism. It was a special part of my upbringing and an experience that had great value for the rest of my life.

In trying to describe this difference between the Irish and Anglo-American cultures to friends in the US, I have found it valuable to describe the differences between a movie theater experience in most of the English speaking world and

an experience at the “pictures” in a small Irish town like that in which I grew up. In the former, you are expected to sit as silently as possible (except when laughing at comedic scenes) in order not to spoil the experience for others in the audience. In fact the audience plays an exceedingly passive role in the event. On the other hand, the crowd at the pictures in Ireland was traditionally an active participant in the evenings entertainment. There would be a constant stream of remarks from the audience commenting on the scene, advising the characters and adding to the humor. Often this repartee would be more entertaining than the movie itself. And should there be some malfunction of the projector or other equipment, the audience would expand its activities to fill the void. Some of my most amusing moments in a movie theater, have occurred in such circumstances. I remember once going to see an Elvis Presley movie called “Blue Hawaii”. It was the practice at the pictures to start the “film” before pulling back the curtains and then to retract them during the opening titles. On this particular occasion the curtains trembled but failed to move and the audience hooted and cat-called as the opening scene began, obscured by the folds in the curtain. After about a minute the projector was turned off, the film ground to a halt with sounds of tearing celluloid and the lights came up. The subsequent pause was filled with shouts of advice to the projectionist and to Elvis. Suddenly, an unseen pair of hands appeared to grab the curtains from behind and began tugging them laterally - to no avail. A second pair of hands joined in, accompanied by a crescendo of advice from the audience. Then things began to get out of hand. Someone in the audience threw a beer bottle at the curtains and it struck something solid in between one of the pairs of hands. There was an angry cry from behind the curtain and suddenly a man parted them and emerged on the stage, demanding to know who had thrown the beer bottle. Absolute pandemonium broke out at this point. At least 50 people willingly owned up to the beer bottle assault. Finally calmer heads behind the curtains prevailed and, armed with a tall ladder, the crew began tucking the curtains up into the overhead equipment on the stage. Unfortunately, this was a very incomplete solution for the curtains still drooped down in many places. Consequently, I only ever saw the bottom half of “Blue Hawaii”. Somehow that never encouraged me to go back to see the upper half.

Though I stray far from my own story, there is one other detour I should describe before returning to the theater in Magherafelt, the Irish town in which I grew up. Before we moved to Magherafelt, my parents lived in the large Anglicized city of Belfast and it was there, at the age of four, that I made my first appearance on the stage. It is one of the few memories I have of my days in Belfast and it is not a pleasant one. It could even have marked me with a lifelong aversion for the stage. The time was Easter 1944 and somehow I was required to participate in a kindergarten performance in which we were dressed up as bunny rabbits and had to follow a congo line of other bunnies around the stage. I can remember being mortified at having to dress up as a bunny rabbit complete with ears. And to compound the mortification the congo line was “conducted” by a large battle axe of a woman who took no prisoners. At one point as the congo line approached the front of the stage we were supposed to split, some

going left, some going right. I was not paying sufficient attention and so I was suddenly and electrifyingly faced with this battleaxe gesturing frantically at me. Naturally I froze and the photograph that remains of that moment shows the stupefaction on my face. The entire congo line was interrupted, those ahead of me having now disappeared and the rest piled up impatiently behind me. I have no recollection of what followed. I must have run for cover. But that memory still haunts me.

Fortunately, my next stage appearance provided a satisfactory antidote. It was ten years later at the age of 13 when the local school in Magherafelt decided to feature a short operetta by the junior school prior to a more serious dramatic performance presented by the senior school. The staff had chosen a modest little operetta called "The Idea", written by Gustav Holtz. At that age I was still a small, shy boy who would not have been an obvious choice for such a production. Nevertheless, given the small size of the school almost everyone was pressed into some duty and I found myself with the minor part of the "Prime Minister". As far as I can remember, the entire part consisted of walking majestically onto the stage arm-in-arm with my wife, played by Lizzie Evans. I think I had one or two lines but certainly no songs. My mother helped me assemble quite an appropriate costume complete with waistcoat, watch-chain and top hat. With this outfit I began to warm to the task. Moreover, despite my small stature I had naturally come by a loud voice that I could project more effectively than my classmates. Thus it was that I surprised the staff with the strength and resonance of my lines. Then came opening night with most of the population of Magherafelt packed into the school hall. And something magical happened to me. First the audience cheered and hollered after each of my resonant lines. And then I had one of those inspirations that seem to visit me when confronted by a live audience. As I was booming my last line, I stuck my thumbs into my waistcoat armholes and bounced up and down on my toes, in a graphic representation of self-satisfaction reminiscent of Winston Churchill, then the prime minister of Great Britain. The crowd went berserk with laughter and cheering. And each time I bounced the cheering increased. And, as the next song began, I bounced again with the result that the cheering drowned out my classmates. It was a thrill that I could never, ever forget and I think I have strived to relive it every subsequent time that I have ventured on stage. The shy little boy shamelessly stole the show and I was hooked for life.

For a time I had to be satisfied with junior school productions. The next year I was a barber in "The Asses Ears", an operetta by Hugo Cole and the following year I was the loud Town Clerk in "The Pied Piper of Hamelin" written by the school staff. Six months later I played my first serious role as a Russian peasant in a one-act play called "Michael". By this time I had become a proven performer and, half a year later, I earned my first lead in a major school production, playing Charles Surface in Richard Sheridan's "School for Scandal". I remember relishing the opportunity to play an inebriated Charles in a drinking scene that brought the house down. Indeed, it is probably not an exaggeration to claim that the school and the village now expected to enjoy my performances. I do not actually remember anyone giving me any theatrical instruction; rather



Left: The bunny performance. Right: The Prime Minister.



The cast of "The Idea": front row: Derrick Crothers, Jennifer Egan, CEB, Anne Farley, Robert White, Elizabeth Evans, Peter Burton and Ivan Martin; back row: Janet Willan, John Turner, Eileen McMaster, Elaine Hutchison, Eileen Berryman, Marion Leith, Jim Getty and Betty Ellis.

I learned by experience and practice, recognizing the importance of skills like timing, stage presence and voice projection.

The next school production was a revue written by the school staff and featuring several skits written for me. The first was a simple lip-synched rendering of one of Eartha Kitt's sexiest numbers, "An old-fashioned girl". As the curtains parted I was lounging on the grand piano wearing a sleek satin dress, high-heels, beads, jewelry and a cigarette holder. The crowd gasped with amazement before breaking into uproarious laughter. The scene would be humdrum by modern standards but by the conservative standards of Magherafelt in the 1950s this was risqué indeed. The key element was the surprise and shock of seeing this quiet



The cast of "The Pied Piper of Hamelin". Back Row from right: Ivan Martin, CEB (with headgear), ?, Derek Ferguson, Winston McCracken, ?, Robert Gordon, Brian Rainey, ... Front row from right: Frank Graham, Elizabeth Evans, ?, ?, Anne Farley, ...



Left: A Russian peasant in "Michael" with Barbara McIvor (left).



Right: As Charles Surface in "School for Scandal". From left: CEB, ? Crockett, Frank Johnston and Ian Gordon.



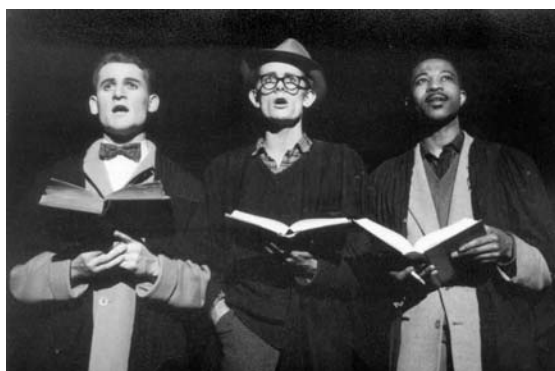
The cast of "Scrumdown". The rugby scrum: top: Eddie McClure, 5th row: Fergus Hartley, Michael Brennen, John Turner, CEB, 4th row: Mitchell Brown, Sean Walls, 3rd row: Ian McQuiston, Derrick Crothers, Leslie Gregg, 2nd row: Frank Johnston, Harry Dunlop, front row: James Forsyth, David McMaster, Robbie Gordon. The hockey team: top: Oonagh Redmond, 4th row: Audrey Weir, ?, 3rd row: Lizzie Evans, Lizzie Logan, ?, 2nd row: Jane Miller, ?, front row: Rosemary Mornin, ?, ?.



Left: As Eartha Kitt. Right: As an inadvertent surgeon with Audrey Weir, Lizzie Evans, CEB, James Forsyth and patient Leslie Gregg.



Left: As Koko in “The Mikado” with James Forsyth (left) and Eddie McClure (right). Right: As Fouquier-Tinville in “The Prosecutor” with Derrick Crothers (right).



As Seamus in “The Tinker” and as Private Tugs in “The Tent”.

young man in such an extra-ordinary scene. I had practiced the lip-synching and the body gyrations so that the laughter continued throughout the number and the curtains closed to wild applause. Fortunately, there were some songs and other entertainments before the finale, a skit in which two burglars had broken into the operating theater of the nearby Mid-Ulster hospital where, in real life, my father was the consultant surgeon. They proceeded to amuse themselves by dressing in surgeon’s garb only to be surprised by the emergency entrance of a patient requiring immediate surgery. In the tradition of slapstick Irish theater, I then proceeded to “operate” with tools like garden shears and to remove a variety of strange objects (like a dead chicken) from the patient’s abdomen. This skit, too, was a great success, the audience howling at every theatrical cliché. How it ended, I do not remember; perhaps it simply ended when the jokes ran out. But it was all great fun.

Encouraged by the success of “Scrumdown” the school decided on a more ambitious project for the following year. They would try a Gilbert and Sullivan production. The musical chosen was “The Mikado” and I was asked to carry the

production in the lead role as Koko. While I struggled with some of the more demanding songs (my music talents were very limited), I relished the challenge of the comedic parts. I gave the part considerable physical vigor, falling down the stairs during my first entrance while singing “I have a little list ...” and running through the stage many times during a chase scene with Natasha after serenading her with “Tit Willow”. The village audience loved the slapstick and the implied sexuality. I like to think that the success of that first Gilbert and Sullivan led to a long school tradition of an annual Gilbert and Sullivan production.

But my time was running out and six months later I appeared in a production of a rather grim tale set in the French revolution, a play called “The Public Prosecutor”, written by Fritz Hochwalder and translated by Kitty Black. I played the lead role of Fouquier-Tinville, the prosecutor himself. The photograph shows me condemning to the guillotine a sniveling character played by Derrick Crothers, now Professor of Applied Mathematics at Queens University in Belfast. I was on stage virtually the entire time and with some long speeches, delivered with intensity and menace. I think I did a fairly good job with my first really demanding dramatic part. But the play was not a great one. The audience had come expecting to be entertained with fun and hijinks so I think they left disappointed.

My next stop was Balliol College, Oxford University, and there I devoted a lot of my spare time to theatrical activities. One of my first roles, and perhaps my all-time favorite for I repeated it several times in later years, was the role of Ben in Harold Pinter’s one act play, “Dumb Waiter”. It was a production of the Balliol Dramatic Society and many of the friends I made within that close sphere remained in contact throughout my life. That production of the “Dumb Waiter” was directed by Peter Snow who went on to some fame as a BBC news reader and political commentator. We were a talented but amateur group and I have very fond memories of the productions that we put together. I particularly remember a production of “The Tent”, a play by John McGrath, that featured one of the best actors in our group, Michael Haines. Sometimes these College productions even made their way onto the storied boards of the Oxford Playhouse. In 1961, we produced “The Tinker” by Laurence Dobie and Robert Sloman in that famous venue.

But I also tried my hand in a larger arena and acted in a number of plays produced by the Experimental Theatre Group, a university wide club and the complement to the more traditional Oxford University Dramatic Society. With ETC I took parts in their productions of “Saints Day” by John Whiting, “Pantagloize” by Michel de Ghelderode and “Easy Death” by Carol Churchill. All those were performed in the Oxford Playhouse and featured people like Gordon Honeycombe who became a news reader for ITN (the British independent television news channel) and Sheridan Morley, son of the well known British actor, Robert Morley. While these productions were interesting and semi-professional, I enjoyed the camaraderie of the Balliol productions and remember them more fondly. As an undergraduate I even found time during the vacations to participate in theatrical activities and played a part in the Rainey Players production



As Pat in “The Hostage” by Brendan Behan.



Left: As Lieutenant Branigan in “Guys and Dolls”; CEB is front row, third from right; Harry Gray is to my right. Right: As Mr. Lundie in “Brigadoon” (left).

of “The White Sheep of the Family” by L. Du Garde Peach and Ian Hay in the Town Hall Summer Theatre in Portrush.

Graduate school brought a temporary end to theatrics for it required a major commitment of time especially after my marriage and the birth of my first child. However, after my PhD and our move to London I was able to indulge myself again. I became noted for performances of various sketches from the revue “Beyond The Fringe”, performing these in several local theatrical revues. I also played the part of Pat in the National Physical Laboratory Amateur Dramatic Circle production of “The Hostage” by Brendan Behan. I enjoyed that challenge of playing a much older man and of doing so with an Irish accent.

Our emigration across the Atlantic did not lessen my interest in the theater and, at the California Institute of Technology, I was soon involved with student productions. Back then the students produced a musical each year and it so happened that just after my arrival they needed to find someone to play the Irish

policeman, Lieutenant Branigan, in the well known musical, “Guys and Dolls”. That was particularly interesting, not so much for the theatrical challenge as for the opportunity it provided to get to know several of the other faculty members who had agreed to participate. Four faculty happened to have speaking roles and formed an eclectic group: Richard Feynman, the Nobel Prize winning physicist, Harry Gray, a noted chemist, and reknowned teacher, Jenijoy La Belle, the first woman faculty member to have begun in the untenured ranks, and myself. Harry played the role of the gambler, Harry the Horse. Jenijoy was the exotic dancer in the Cuban night club scene. Feynman played the bongo drums in the same scene and was a Brooklyn voice on the other end of a telephone conversation. For me, a young faculty member, it was a special treat to get to know all three of them while sitting around during rehearsals waiting to play our small parts. I retained those friendly connections in the many years that followed. Years later Harry spent a memorable sabbatical year at Balliol as the Eastman Fellow. Jenijoy and I both did our parts to try to improve the place of women at Caltech, while at the same time enjoying a shared love of Shakespeare. Feynman was always ready to do what he could for the Caltech students and, when I was Dean of Students he was always responsive to my requests. His premature death from stomach cancer was a real loss to all of us.

That first musical adventure was followed by other productions and performances. I enjoyed being “Sir Dinadan” in Camelot and being the Master of Ceremonies in a number of Christmas shows put on by the Caltech staff and students (one of which was televised by NBC). But, as an incurable romantic, perhaps I most enjoyed my role as Mr Lundie in the mystical “Brigadoon”. I like to remember that performance as the Scottish schoolteacher as an appropriate thespian swan song. I remember with particular affection the last scene when somehow, against all odds and all expectations, Mr. Lundie reunites two young lovers from different eras and different worlds. He(I) wanders through a curtain of fog, calling out and miraculously contacting the young hero, bringing him back to the love of his life. Little did I realize that many years later that miracle was, in some strange way, to be played out in theater of my own reality.

I have no doubt that all of these theatrical experiences, however amateur, provided a major lever of success in my professional life. Not only did they teach me the basic mechanics of verbal presentation, stage presence, timing, voice projection and body language. More importantly, they lent me a special self-confidence for all of the public presentations I was called upon to make during my career. Thus I have come to realize the great gift that my Irish cultural heritage brought me - a major reason for the pride I feel in that inheritance.

Chapter 17

EMBROIDERED CLOTHS: FIRST ACT

*“I have spread my dreams under your feet;
Tread softly because you tread on my dreams.”*

*From “He wishes for the cloths of heaven” by William Butler Yeats
(1899).*

The little boy sat alone in the big black Jaguar saloon car parked on the gravel in front of the great house. He was just 5 years old and impatient because his father’s absence seemed interminable. As the local consultant surgeon, his father was frequently asked by local GPs to visit special patients to help in deciding diagnosis and treatment. The little boy loved to roam the countryside sitting beside his father in the big car and today something very special had been promised. Most often these outings involved visits to poor farmhouses in the more remote and desolate parts of southeastern County Derry. But this time the patient was one of the local aristocrats, Lord Charlemont, who lived in a great mansion atop a hill on his Drumcairne estate in northeastern County Tyrone, not far from the village of Stewartstown. His estate stretched away for miles, allowing a spectacular view of the great lake, Lough Neagh, just a couple of miles to the east.

The little boy retained almost no memory of that special day. In fact he would have no memory whatsoever, were it not for the fact that he was fascinated by model railways. And Lord Charlemont had built a spectacular model railway in a Quonset hut near his great house. After the medical consultations were completed, his father and Lord Charlemont emerged from the great house and led the little boy to the Quonset hut for that very special treat. Years later all he could recall, apart from the thrill of seeing the train trundle around the track, was the section of track across the doorway that could be lifted to

allow passage into the hut. For many years the memory of that model railway stayed with the little boy (though he did not remember where it was located) and many times he strove to reproduce it. There is little doubt that his visit to Lord Charlemont's railway strengthened an emerging interest in things mechanical, an interest that formed his later career as a professor of mechanical engineering.

But that was the lesser of the two important things that happened that day. Though the little boy's memory of the day is slight, another person remembers it very clearly indeed. Hiding in the bushes near the great house was a little girl, curious about what was going on. She had been on one of her regular visits to the great house to have tea with Lord Charlemont and had been sent home early because "the doctor was coming". Home was a cottage behind the great house called Green Cottage where she and her mother lived while her father was off fighting in the Second World War. Lord Charlemont was childless and had been enchanted by this lively and intelligent little girl whose company brightened his life. They had struck up an unusual friendship, the great lord who, before retirement, had served as Minister of Education for Northern Ireland and the little girl who loved to explore his house and gardens. He had lost two wives, one to an early illness and the other to the London blitz; she was waiting for her daddy to come home from the war. And so she received regular invitations to tea, properly typed on the Lord's own stationery. Sometimes she behaved and listened to the stories of the china tea set that belonged to Napoleon or of the island in Lough Neagh where all his ancestors were buried. At other times her childish enthusiasm overflowed as when she "played" the grand piano too violently or when she toppled one of the garden statues into the adjacent pond.

Indeed, she was beginning to feel at home in the great house and so, on that day when sent summarily home, she was a little resentful and very curious. Instead of going straight home, she hid in the bushes in order to try to find out what was happening. She could see the little boy in the big black car though he did not see her. Starved for the company of other children, she would have liked to meet that little boy. But the doctor and the Lord emerged from the house and she had to hasten home. Thirteen years later she would finally meet that little boy and sixty years later, after forty years of marriage, the little boy and the little girl would still smile when they recalled their first encounter.

Flash forward those thirteen years, to a day in 1960 when the long economic aftermath of the Second World War finally seemed to be over and the teenagers of the day were breaking with the past, in their activities, their music, their broadening perspectives and their independence. The little boy was now a stylish high school senior assured of a place in university for the coming fall and enjoying the interlude of leisure before his departure to a new, albeit temporary, home. It was a time when the Saturday night dances in the town halls and sometimes in the high schools formed the focus of youthful social life. The high school dances were much safer and normally chaperoned; the town hall dances could be rough and occasionally violent. Both involved young people jiving to the latest rock and roll music, sometimes from records but often from live bands. If you were really cool you had a girlfriend, a driver's license and a car in which

to take your girlfriend to the Saturday night dance. The boy had not quite managed this. He did have a driver's license and even a beat-up old Ford. But, despite several high school romances, on the night of the story he did not have a girl. Though he had yet to accept the fact, his latest "romance" was already over for the girl had found greater attraction elsewhere. Indeed, on this night he and a male friend were touring the dance halls trying to find where she was and with whom. They had depressingly little success. Finally, in desperation, they decided to check out the Cookstown High School dance.

The little girl had matured into a stunningly beautiful young woman with luminescent blue eyes, and still with the liveliness and charm that had captivated the old Lord. But she was carefully chaperoned by her watchful parents. On the night of the story, she and two of her friends had been delivered to the Cookstown High School dance by her father. There, with the approval of their parents, they met with several male peers from their hometown of Dungannon. Her uncle Bobbie would collect them from the dance at 10.00pm sharp. Till then they could enjoy their friends and the music. The now-mature little girl was having fun twirling and swinging to the music, her fashionable dress flaring out all around her and her necklace of beads clicking as she swirled. Not completely preoccupied however; between numbers she did notice the boy who came through the doorway, dressed fashionably in a black shirt and jeans, a three-quarter length trench coat hanging casually from his shoulders, the collar turned up. But soon the music began again and she lost sight of the boy.

Despite his preoccupation, the whirling dervish had caught the eye of the trench-coated boy and he had moved to a seat nearby to take a closer look. She whirled by several times and he was entranced by the blue eyes and the smile. She seemed so much fun, so different from the dour girl who had abandoned him. And the young man she was with seemed to be more an acquaintance than a boyfriend. She swirled by again. Suddenly the bead necklace broke and glass beads were bouncing everywhere at his feet and under his chair. Dismayed, the girl stopped and tried to recover the far-flung beads. The boy stooped to help and, in doing so caught the eye of the girl, now close to tears over the scattered necklace; clearly they meant much to her (her father had brought them from North Africa at the end of the war). As their eyes met, the boy connected with the girl in that moment of loss. But soon the crowd closed in, the music lurched and they lost contact with each other. Minutes passed before he caught sight of her again, standing by the door with a gray-haired man. And seconds later she was gone. By the time he got outside there was no sign of her. It had all flashed by so suddenly and so unexpectedly that he had not had time to absorb what had happened. Though his mind returned to his previous, hopeless quest for a lost girlfriend, the image of the whirling dervish and the flying beads kept flashing back through his mind - and continued to do so in the weeks and months that followed. He had no clue who she was or where she came from - and could think of no way to find out. Regret crept over him as he began to feel the full impact of the lost opportunity - regret that he had found no way to speak with her, no way to find her again.

Months later the girl had sought and received permission from her parents to

take a summer job in a bakery shop in Portrush, a summer resort on the north coast of Ulster. Those were the days before foreign travel was within either the financial or conceptual scope of the young people of Northern Ireland. Instead they gathered in one of a handful of summer resorts like Portrush where they could enjoy the company of their peers under a little less supervision than pertained the rest of the year. In these northern latitudes, the sun does not set until well into the evening and it was during these twilight hours that the teenagers congregated along the main street of Portrush, walking up and down its length, promenading for their friends and peers. Here was a rare opportunity to meet a girl or boy from a different village or town. Rather than going with the crowd, maybe you could even find a special date that you could take to the dance hall by the beach. Called the Arcadia, the dance hall was the center of social life after dark when it teemed with jiving teenagers. Each evening after work in the bakery shop, the girl and her friends would dress in the most fashionable outfit they could find (often borrowing from their friends). Then they would spend the early evening alternating between strolls along the main street and visits to one of the many amusement arcades or to Forte's, the fashionable ice-cream parlor. This evening, she and her friends were bound for the Arcadia, but somehow she had been left behind and found herself walking along the main street all alone.

Though still a lost soul the boy was closer to accepting the need to start afresh. Only weeks remained before he would travel across the Irish Sea to begin university life in a very different culture. During the summer he had been unable to find any female companionship. Portrush seemed full of pretty girls but none that he found attractive showed the slightest interest in him. The one date he had managed to arrange had ended in disaster, when the girl mistook his intentions during a walk in the sandhills and ran away, telling her friends about this dangerous young man. Moreover, the boy had not quite given up hope of rekindling the old flame that still haunted him. He had seen her here in Portrush but, in his saner moments, he knew it was a hiding to nowhere, and he had avoided approaching her. This evening, he and his mate, fat Willy, decided to stroll the main street with a mission. When they saw an attractive girl approaching, they would pretend that they recognized her as an old friend and say with gusto, "Oh hello! How nice to see you again. Don't you remember, that great party....". If done with sufficient enthusiasm, this ploy might create an opportunity to engage the girl in conversation. At least that was the theory. In practice, when deployed the first few times, this strategy proved a complete failure and elicited only laughter. Still, it seemed worth another shot. Looking ahead of him, the boy suddenly caught sight of a beautiful young girl, walking alone toward him wearing a bright turquoise summer dress. She seemed distracted, perhaps looking for a friend. The boy's heart jumped but he suppressed his nervousness for one last try. "Oh hello! How are you. Nice to see you again..." She stopped and turned to look, expecting to know him, more trusting than the rest. "Hello.." she said hesitantly. Their eyes met. But belatedly recognizing her mistake, she soon turned and was on her way again. The boy stared after her, suddenly remembering a whirling dervish and flying beads. This time he need not chase her for he knew he could find her again.

And perhaps be introduced to her in a more honest way.

That night and the next day his mind was consumed with a turquoise dress and luminescent blue eyes. His whole attitude had changed. He was no longer the shiftless boy of the preceding days and weeks, but a young man determined on a mission. Early the next evening he was out on the main street trying his best not to appear intent, while all his considerable powers of observation were trained to find her, to find a way to meet her. Then, as sometimes happened, a group of teenagers began a harmless and amusing diversion, in this case a chaotic search for “Milligan”. A few may have been genuinely seeking a friend by that name, but the majority joined in just for fun and were having a great time running in and out of the ice-cream parlors and amusement arcades “looking for Milligan”. The boy joined in and soon spotted the girl involved in the same high-jinks. Even better, he faintly recognized one of the young men that she seemed to know. As the chaos subsided and the young people broke into groups to catch their breath, the boy managed to fall into conversation with the girl’s acquaintance. Suddenly, they were standing together, the girl and the boy. The first words were spoken though words rarely mean much in these circumstances. Their eyes met and their faces and their body language conveyed a mutual interest, perhaps even a chemistry of attraction. At least it was enough to want to meet again. But it was time for her to go for she and her friends were bound by a curfew imposed by their watchful employer. Trying desperately not to screw up again, the boy hesitantly and uncertainly mumbled a wish to see her again the following evening and she seemed to acquiesce. Then she was gone. But now he knew her, her name and her spirit.

Even forty years later their memory would seem to both of them as fresh as if it were yesterday. He could picture her in her black sweater and grey slacks, standing in front of him as the neon lights of the amusement arcade across the street flashed through her hair. He could still feel the gentleness of her smile and the serenity of her composure. She wasn’t like any other girl he had ever known or seen. She seemed to be both innocent and yet all-knowing. Most of all she seemed as beautiful on the inside as she was on the surface. He walked home completely gob-smacked, his mind in turmoil. For her part, the girl could picture the boy standing in the shadows on the sidewalk in front of her, his deep brown eyes conveying a serious interest in her. She did not know what to make of this intense young man that her friends had told her was “dangerous”. She sensed that he was much kinder than that reputation or the cool exterior might suggest. At the very least she was intrigued by the flashing intelligence coupled with the friendly face. But she was very uncertain about what arrangement, if any, there was for the next evening.

Both approached the following evening with intense excitement coupled with a fear that the other would have lost interest or been visited by second thoughts. To support him at this critical moment, the boy leaned not only on Willy, his co-conspirator of a previous evening, but also on his brothers, Michael and Colin, as well as Michael’s girlfriend Lesley. He persuaded them all to accompany him to the ice cream parlor ahead of the appointed time. Once they were all seated, he tried hard to appear nonchalant while watching intently for her possible

arrival. The appointed time came and went and a dull ache began to invade him. Then, suddenly, he could see her through the large plate glass window. And she saw him. She stopped and turned to speak with her friend. And then his heart leapt as she came through the door alone and walked over to his table. He rushed to his feet to try to reciprocate the brave commitment she had just made. Nervously and quickly, he introduced Willy and his family though now he wanted rid of them all as quickly as possible. But before he could manage this, there occurred one of those incongruous things that sometimes happen when people are nervous. In a gesture quite uncharacteristic of his usual quiet demeanor, Michael inquired of the girl "Do you have a handle to your jug?" It was something they would always remember, a slightly bizarre introduction to his family. But the boy was determined and he quickly ushered the girl out into the main street.

And so began hours and days and weeks during which they spent every possible moment together, getting know each other, falling in love though they may not have known that. They walked all the streets and beaches and sand dunes. They danced to the music in the Arcadia hardly recognizing that anyone else was there. They even played bingo for the one and only time in their lives. In his beat-up old Ford, they took trips along the coast, where he delighted in showing her many of the quiet little fishing villages that she had never visited. Usually those trips were taken in his old Ford that had to be parked at the top of a hill so that he could freewheel downhill to start it. But occasionally he was able to borrow his mother's car and then they would venture further afield. On Sunday, when she had the whole day off, he took her to the house along the coast that his parents owned and where he was spending the summer. It was their second, holiday home. There she met his mother and father and began to recognize and to fear the social gulf that lay between them. But now, in the classless but temporary teenage world of Portrush, this gap did not matter.

They would remember many moments from those days, some more special than others. They would both savor the memory of the night when they went for a walk around Ramore Head, the bleak and windy headland beyond Portrush. She remembered that he would not stop talking. As they turned for home, chilled by the Atlantic wind, they took brief shelter behind an old harbor wall. There he took her inside his woolen coat and they first felt the warm flow of mutual physical affection. Walking on they stopped again at a seat on the rocks by the sea. It was a place called the Blue Pool where locals often put on exhibitions of diving. This evening it was deserted though the lights of main street were just a step away. Sitting there on the rocks, the boy first told the girl that he loved her. Nervously, she laughed at him and told him not to be ridiculous. But he knew and he was right.

* * *

Katharine Doreen Kerr and I were married on Jun.22, 1963, in the Registrar's Office in St.Giles, Oxford. It was a typical, rainy, summer day only brightened by the presence of both sets of parents, my brother Michael, a group of my



Left: The little girl at Drumcairne. Right: With Mum and Dad.



At our wedding in Oxford on Jun.22, 1963.



After the reception at the Bear Inn in Woodstock.

college friends and most of all by that spectacularly beautiful woman who had agreed to become my wife. I remember being suddenly struck by the enormity of the moment when required to say "I do". It was a lifelong commitment but I had no doubts that I would love this woman for the rest of my life. After the brief official ceremony, we drove in convoy to the storied village of Woodstock about 5 miles north of Oxford, to the Bear Inn just outside the walls of the famous Blenheim Palace, residence of the Duke of Marlborough and the childhood home of Winston Churchill. There we had arranged a reception and wedding lunch thanks to the efforts of my college buddy, Colin Weatherley, who had been my best man at the ceremony. In the years that followed Doreen and I would often remember with glee the large quantity of champagne that was consumed at the Bear Inn and the antics of my college friends, determined to put on a show to mark the occasion. For me it was most marked by the loveliness of Doreen.

Chapter 18

BALLIOL COLLEGE

*“may my mind stroll about hungry
and fearless and thirsty and supple
and even if it's sunday may i be wrong
for whenever men are right they are not young”*

From a poem by e.e. cummings.

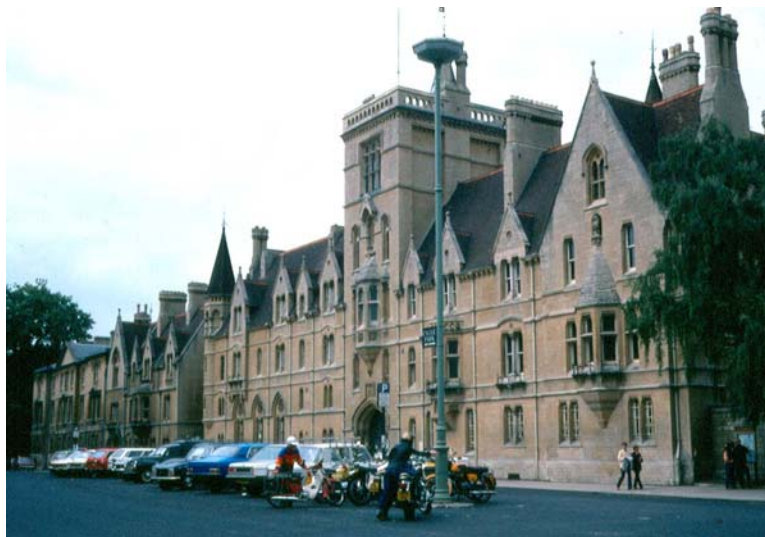
If the Rainey taught me how to think and gave me confidence in my analytical abilities, then Balliol College, Oxford University, polished my outward appearance and gave me the tools and the confidence to succeed in whatever company I might find myself. The transition from a small Irish grammar school to one of the world's elite university environments truly changed my vision and my life; when I think back it came about partly by happenstance and partly through my lifelong gift for optimizing my opportunities. I recounted earlier how the Rainey School and my parents arranged for me to remain in high school for an extra year in order to prepare for the scholarship examinations at Oxford. So it was that I spent a special year absorbing a remarkable quantity of mathematics and physics thanks, in large measure, to some remarkably dedicated and inspiring teachers at “the Rainey”. Then at Easter 1960, Derrick Crothers (my fellow student in this special educational opportunity) and I were driven by my father to the docks in Belfast where we boarded the night ferry across the Irish Sea to Liverpool. Arriving the next morning at Liverpool harbor after a rather sleepless night in the uncomfortable bunks of steerage class, we found our way to Lime Street Railway Station where we caught the train that, after several changes, would finally deliver us to Oxford. I remember walking through the streets of this strange city with its crumbling, sandstone buildings to Balliol College, where, strangest of all, the porter at the front gate referred to me as “sir”. I remember thinking how odd that was for surely I did not deserve such a sobriquet, especially from this elderly, dignified and confident man. He directed

us to our spartan rooms in one of the staircases in the front quad, accommodations as strange to me for their Victorian archaicism as for their aristocratic connections.

The scholarship exams in mathematics and physics began the next day in the great hall of Jesus College just across Broad Street from Balliol. They lasted a couple of days and concluded with an interview in Balliol with the mathematics tutors of that College, one of whom was called Jack de Wet. When these trials were over both Crothers and I were informed that we had won scholarships to attend Balliol. In my case the award was called the Williams Open Exhibition. Thus we returned home to Northern Ireland via train and ferry to be met at the Belfast Docks by my father who was clearly delighted by the outcome of this venture.

In the weeks that followed my family and I began to plan for my departure the following September. We soon found out there were several additional and unforeseen hurdles that would have to be overcome before I would be admitted to Oxford University. First I would have to pass an examination in Latin (this requirement was abolished by the University just a couple of years later). It was agreed that the Northern Ireland Senior Certificate Ordinary Level exam would satisfy this requirement. I had not studied Latin for several years and only had about two months to prepare. So began the first of several intensive study periods. I immersed myself in Latin full time at the Rainey and followed this several evenings a week by studying Virgil's Aeneid with the local Presbyterian Minister, the Rev. James Johnston. While the basic mechanics of Latin grammar and structure were easy for me, the Aeneid and I never quite saw eye to eye. Nevertheless, in the end, I passed that Latin exam fairly easily. I also found out that there was a second hurdle, the matriculation exams at Oxford University and that I would have to travel to Oxford two weeks before the beginning of my first term in order to take these. The school wrote away to obtain samples of past exams and when these arrived it was clear that though the mathematics exams would pose no problems for me, the physics exams involved material that I had not, as yet, studied. This hurdle was overcome thanks to the kindness of the Rainey's physics teacher, James McAteer, who volunteered to spend one morning a week with me during the summer to teach me the necessary material. I remember both of these special study efforts with considerable gratitude for I realize now how much each of these teachers gave of their own time to help me. I also remember that these experiences taught me how to study on my own; indeed work habits formed in these months laid the groundwork for a lifetime of study.

Despite all these positive developments, I remember preparing myself to leave home and suffering considerable emotional turmoil at the prospect. On top of the understandable uncertainty associated with the prospect of leaving the security of my family, my home and my village, I had just fallen hook, line and sinker for a girl whom I would love for the rest of her life (see "Embroidered Cloths"). Now I had to leave her for long periods of time. Perhaps these stresses were what caused me to become quite ill; that, at least, was what my parents believed though I believe it was just an unfortunate and vicious virus. Thank-



Broad Street entrance to Balliol College.



Balliol College Dramatic Society photograph.

fully I recovered sufficiently to travel to Oxford in time to take the Matriculation exams. These were spread out over about two weeks and I remember those as the two loneliest weeks of my life. There were few other students staying in the college and so I was very alone. I recall that I survived by studying during the day and then rewarding myself by going to the cinema each evening. But the exams went well and very soon all the other new students arrived and we began to forge friendships that would last for most of our lives. More senior students arrived to conduct welcomes for various extra-curricular activities. I connected with members of the Rugby Club and the Balliol Dramatic Society. By tradition the latter participated in a University-wide festival of one-act plays and the Balliol group chose a Harold Pinter play entitled “The Dumb Waiter”. I played a thug called Ben while another frosh, Peter Bleasby, played the other, dumber

thug called Gus. The play was directed by Peter Snow who went on to become a news reader and political analyst for the BBC. It was one of the productions that I remember with great glee. Many other theatrical activities followed and I recount some of these in another chapter (see “Acting”). My other pastime was rugby and I enjoyed the conviviality of the college team though I never had the ability to excel on the field. One fellow team member did however enjoy great success; Richard Sharp, a lithe and brilliant fly-half went on to star for the Oxford University team and then for England. Indeed our class contained several outstanding, international caliber athletes; in addition to Richard, the Nawab of Pataudi became a great cricketer who captained India’s national team. Other contemporaries who went on to prominence included Lester Thurow in academia and Chris Patton in politics. But perhaps the most illustrious was Crown Prince (now King) Harald of Norway. He was a genial and private man who was a core member of the Balliol Rowing team and who enjoyed playing “shove-hapenny” (an English pub board game) in the student lounge. We suspected that the University dreamt up a two year course of study for him that ended with a degree that none of us had ever heard of before.

So began three marvelous years as an Oxford undergraduate and resident of Balliol College. Indeed I was lucky to have a room in Balliol for all three years. The College was divided into vertical staircases and so the rooms were designated “Room A, Staircase X”. For the first year, we were arbitrarily assigned rooms, some singles, some doubles, though, again, I was fortunate to have a single, perhaps in part because of the priority I received as a scholarship-holder or “scholar” (non-scholarship-holders were known as “commoners” and this included most of the students). In the second year, my group of friends selected all the rooms on the only corridor in the College, a corridor called “Dicey” that had been added to the roof of the original Victorian building. That year saw many lively parties in Dicey. In the third year, I got a random room at the last moment when someone dropped out. The rooms were both spartan and dated. They came with sinks but the baths were in the basement some distance away and, in the cold of the English winter, it required some fortitude to have a bath. Though there was no central heating, each of the rooms had ancient gas fires. In normal times these provided adequate heating. However the winter of 1962/63 was severe and as the gas supply dwindled, the situation rapidly became critical and we survived by wrapping ourselves in blankets. In contrast to these physical facilities, we were all cared for by men servants known as scouts who woke us in the morning, changed our beds and cleaned our rooms. As with the porters, I could never quite adjust to this aristocratic treatment.

Breakfast, lunch and dinner were served in the great hall, a cathedral-like building with a vaulted ceiling, stained-glass windows and wood-paneled walls lined with paintings of ancient benefactors and alumni. Breakfast and lunch were informal buffet-like meals. However, dinner was more formal and we were required to wear a jacket and tie as well as our academic gowns. (As a scholar I wore a long knee-length black gown whereas commoners wore short waist-length gowns.) At the end of three years of mopping-up spilt food and beer these gowns were seriously rancid. During dinner we, the students, all sat on the wooden



1962 Balliol College Rugby Team. I am standing on the right while Richard Sharp is seated just to the right of center.



Balliol College JCR Committee, 1962.

benches and tables that were arranged lengthwise in the hall. A raised platform at the end of the hall held the “high table” and the faculty or “dons” would eat there after a formal entrance and a saying of grace (many years later, during a sabbatical in Oxford I was invited to dine at the high table.)

Except for breakfast which I enjoyed, the food we were served was sometimes edible but invariably atrocious. There are few nations in the world where the cooking is worse than in England (though Ireland is only marginally better, perhaps because they simply fry almost everything.) We were required to sign up for these meals (or at least a large fraction of them) and so, on those evenings when the dinner was truly inedible, we usually repaired either to one of the many pubs in Oxford that served various meat pies or to one of the Indian restaurants where you could purchase quite cheaply a large plate of rice and curry. Hunger forced us to ignore the frequent rumors that the cheaper of these Indian restaurants obtained their meat from dubious sources.

Dinner in college also involved an old tradition that has hopefully been abandoned in more recent times. I refer to the tradition of “sconcing” that existed in one form or another in almost all the Oxford colleges. It was derived from the aversion most students felt toward the discussion of certain topics during dinner. For example, you were not supposed to discuss women, work, the paintings on the wall, or a few other arbitrary subjects. If you violated one of these ill-defined restrictions then you were liable to be “sconced” by a fellow diner. This meant that you could either (a) buy drinks (beer) for all those within earshot or (b) consume a large flagon of drink without allowing the liquid to leave your lips. These flagons were large traditional silver tankards containing several pints of liquid (the amount was standard but differed from college to college). The liquid could be chosen by the consumer but was traditionally beer. If the consumer succeeded in this task then the person who had initiated the scone would have to respond in kind by either buying drinks or by consuming a scone. Of course, the process usually ended quickly with a sudden rush outside to vomit up the liquid. Though I always enjoyed a drink I liked to be able to enjoy it and therefore thought this tradition was ridiculous, sophomoric and dangerous. There were other beer consuming games that were sometimes played at parties (such as “chugging”) that were equally ridiculous. Somehow this foolishness continues among the young.

The student body in the College was governed by an elected board called the “Junior Common Room” or “JCR” (in contrast to the “Senior Common Room” that consisted of the faculty or “fellows” associated with the college). The name derived from the physical common rooms or lounges used by the students (or faculty). As well as the usual newspapers, magazines, etc., tea was served in the Junior Common Room and it was part of the daily routine in the summer months to carry large mugs of tea out to the manicured college lawn during an afternoon break. There we would lounge on grass and talk the day away. Sometimes long games of croquet would absorb the rest of the afternoon and continue until it was time for a beer before dinner. The bar or “buttery” opened for business at 6pm. In my second year I was elected a member of the student governing body of the JCR and performed several duties such as managing the

student, second-hand bookshop. We also planned a substantial renovation of the JCR that was funded, in part, by Harald's father, the reigning King Olav of Norway. Indeed the King came to open the newly renovated common room and it was at this event that I met him.

The Oxford system of education was elite because of two separate components. The Department of Engineering Science was an integral component of the University; there I participated in the usual array of lectures and laboratories that constitute the curriculum of almost any undergraduate engineering course. The Department was situated about a half mile north of the College and the route along the storied St.Giles Street was one I walked hundreds of times. The quality of the lectures varied from good to mediocre but I enjoyed the labs and learned much from them. At the end of the first year we were also required to participate in a two week surveying course. Among the exercises were several surveys we were asked to conduct in the countryside around Oxford. I do remember several visits to country pubs that magically appeared along the route of our survey. Those bucolic visits did not improve the accuracy of our calculations but did make the results more palatable. Unlike universities outside Oxford the Department required no end-of year exams at least not until the major examinations at the end of the three year course.

The second educational component was centered in the College rather than the University for each of the student members was assigned a tutor who was a Fellow of the College (usually in addition to being a faculty member in the University). This is where the Oxford (or Cambridge) system was special for the student would meet with his/her tutor once a week (or more). Reading, exercises or essays would be assigned and one was expected to complete these and discuss them individually in the tutorial the following week. Each of the tutors had rooms in the college (some with living quarters) and the tutorials took place in living room comfort within these rooms. I can remember standing and waiting outside my tutor's room for these hour-long sessions, often wondering how my work would be received. My tutor for all but my first term in Balliol was a New Zealander by the name of Leslie Colin Woods with whom I went on to do my PhD after I completed my undergraduate degree. Les was a brilliant mathematician and a rambunctious character who enjoyed his quixotic role in the college and in academia. In the latter part of his career his research focussed on the subject of magnetohydrodynamics and, in particular, on the physics and mathematics of machines called "tokamaks". These are the huge toroidal devices designed to someday extract energy from nuclear fusion but which, to date, have failed to come close to that objective. Les' explanation of that failure differed from the conventional wisdom and that disagreement loomed large in his later academic life. Unfortunately, it also detracted to some extent from the outstanding contributions he made to aerodynamics in his earlier life. His autobiography, "Against the Tide", details these disputes but also describes a truly remarkable life that began as the shoeless child of a New Zealand fisherman who lived in a tent on the beach and progressed through a career as a fighter pilot in the New Zealand Air Force to end as a distinguished professor of mathematics at Oxford University.

Les arrived at Balliol to take up his Oxford appointment in December of 1960 just three months after I got there so I was one of his first students. I think he had little clue how to conduct the tutorials that were part of his duty but since we were both “outsiders” (and would remain so) we got along well. I learned a great deal from him. He had the sense to understand the value in my extracurricular sporting and theatrical activities though I think he viewed the second askance. He also had the sense to know that he had little knowledge of some of the engineering topics (such as electrical machines) that we had to study. He therefore arranged for us to go to an engineering fellow in another college for this instruction. So it was that I met and learned from another fine teacher, Don Schultz, without whom I doubt that I would have succeeded as I did. In these tutorials, with Woods, Schultz and several others, we typically spent a term studying two subjects, two undergraduate texts. I relished this kind of focussed study for I think it allowed me to develop my own impressions and opinions in a way that helped greatly when it came to research.

After three years of this elite education we were faced with an intense 8 days of examinations that would entirely determine the grade of our degree. These exams were held in a large building built especially for this purpose and called, not surprisingly, the Examination Halls. The exams were strictly proctored and we were required to wear academic robes for their duration. This outfit consisted of a grey suit, white shirt, white bow tie, gown and mortar board. In the heat of an Oxford summer this was not the most comfortable attire. There were about 10 exams each three hours long and, in my opinion, were one of the most exhausting experiences of my life. I truly think that my better-than-average physical fitness helped me keep up a pace that allowed me to do better than most of my classmates. When the results were announced several weeks later, I found that I had obtained a first-class honors degree. This opened doors that might otherwise have remained closed. Les asked if I would like to continue to obtain a PhD (or in Oxford’s notation, a DPhil) and I was delighted to be able to say yes. But more of that graduate experience later.

When I think back to those halcyon days as a privileged student in one of the best undergraduate educational institutions in the world, I remember several great experiences. Of course, I remember the great friendships that I made. I also remember the confidence that it gave me, most permanently and valuably in my intellectual ability; I still remember specific moments when, to my surprise, I realized that I had abilities that were superior to most of my fellow students. But mixed with that is the recollection of some struggle to keep myself grounded, to recognize that the special intellectual tricks that I had been privileged to inherit and to have been given, did not make me any better person than those around me on the streets of Oxford. The College boasted of conveying to its students a sense of “effortless superiority”. That attitude was infectious and I was not always successful in resisting its destructive lure; it still gives me pause.

Chapter 19

INTO FLUID MECHANICS

*“When dealing with water
First the experience
Then the theory.”*

Leonardo da Vinci

Toward the end of my last spring as an undergraduate my tutor, Les Woods, casually enquired as to whether I might be thinking about continuing to work toward a higher degree. I think he had more confidence in my academic ability than I did, but, in any case, as a relative new faculty member he was anxious to acquire some graduate students with whom he could conduct his research. I had been interviewing for industrial jobs with little enthusiasm and only modest success (I suspect that my Northern Irish accent was a significant handicap) and therefore my attraction to graduate work increased as the weeks wore on. Of course, that opportunity depended on success in the final examinations and I was not very confident in that regard. I was in the United States when the results were posted and so the first I knew of it was when I was congratulated by a fellow student who had heard through the grapevine that I had earned a first class honors degree. Anxious to have confirmation of this surprising news, I managed to make my way to the newspaper room of the Harvard Library where, in a recent copy of the London Times, I found the Oxford degree results and the desired confirmation. At that point, my immediate academic future was assured.

These developments had occurred so rapidly and had been compounded by so many other important matters (such as my marriage to Doreen) that I really had not given enough thought or attention to the details. For example, I had made very little effort to consider what area I might like to focus on for my

graduate research. I had always been attracted to the subject of mechanics; indeed, even in high school, I had been fascinated by the Newtonian mechanics of objects like rockets, planets and billiard balls. Les Woods had specialized in fluid mechanics during the earlier part of his career and I had enjoyed my undergraduate studies of fluid flow. Therefore, I thought that fluid mechanics would be an appropriate choice though, in all honesty, the decision may simply have been the path of least resistance rather than a carefully considered plan. It would not be until years later that I recognized that some of the most remarkable mathematicians and physicists who had contributed to our fundamental understanding of fluid mechanics were Irish by birth. Among these were Robert Boyle (1627-1691), discoverer of Boyle's Law and the fundamental properties of gases and a founding fellow of the Royal Society, and William Rowan Hamilton (1805-1865), inventor of the characteristic functions of dynamics and the first foreign member of the US National Academy of Science. More pertinently, several of the greatest fluid mechanicians were Northern Irish. The man who, along with the French scientist, Navier, first constructed the basic equations governing the flow of a viscous fluid was George Gabriel Stokes (1819-1903), born in County Sligo. Every student of fluid mechanics soon becomes aware of the importance of the Navier-Stokes equations. Then there were the two great scientific sons of Belfast. William Thomson (Lord Kelvin) (1824-1907) first defined the absolute temperature scale and made major contributions to thermodynamics; his statue in the Botanic Gardens stood just across the street in Belfast from where I lived as a young child. If I had been able to read I would have learned from the inscription that "He elucidated the laws of nature and applied them to the welfare of mankind." The other great Belfast fluid mechanician was Osborne Reynolds (1842-1912) who made major contributions to the understanding of turbulent flows; his accomplishments are memorialized in the "Reynolds Number", a calculated quantity that allows one to determine some of the key characteristics of a fluid flow. I was born within a hundred yards of where Reynolds was born and so I used to tell my class that "I had a very low Reynolds Number". It would imply that I moved very viscously; not very accurate me thinks.

So it was that I launched into research in October of 1963. I began by attending advanced classes in mathematics, by studying several advanced fluid mechanics texts and by reading papers that Les Woods thought would interest me. Within the first couple of weeks I severely injured my left knee playing rugby and had to take time out to fly back to Northern Ireland in order to receive medical attention. Eventually however I resumed my classes and studies. I particularly remember the mathematics classes taught by Prof. George Temple, a kind man who was particularly concerned with my welfare following my injury. The fluid mechanics text that I started with was L. M. Milne-Thomson's "Theoretical Hydrodynamics", a book for which I never really cared. The first paper that Les Woods suggested I study in detail was a paper by Jack Kennedy on the formation of dunes and anti-dunes in hydraulic sediments, a paper that I did enjoy though it was hard to see what I could add to what Kennedy had done. Then toward the middle of the first year Les suggested I study papers

on the subject of fully-developed cavity flows and thus began a lifetime of fascination with and research into the subject of cavitation. Fully-developed cavity flows occur in a high speed flow past an object when the wake pressure falls below the vapor pressure and the wake fills with gas or vapor rather than liquid. This leads to spectacular flows with huge bubbles whose surface is sometimes frothy and sometimes glassy smooth. They are simultaneously spectacular and beautiful and part of their attraction for me was aesthetic. Les had suggested that I might try to calculate theoretically the shape of these vapor-filled wakes or bubbles and that seemed to me a fascinating project. Though some theoretical, mathematical predictions for the shapes of cavities existed for very simple, impractical objects, the only way forward for more practical objects would be to use numerical methods. This idea of using computers to predict these kinds of flows was then in its infancy (this is 1963); I had heard of those early efforts and was very interested in learning more. Consequently I dived into that project and began several years of what we would now call “code development” trying to develop calculational methods that would allow prediction of cavity flows. The project turned out to be more difficult than I first thought because the shape was very sensitive to small changes in the flow velocity. Thus the code became more and more complex and my need for time on the computer became greater and greater. When I began this work Oxford University owned only one very primitive computer, called a “Mercury Ferranti”, housed in what was the surveying department. It operated with vacuum tubes and tended to malfunction approximately once every half hour. The programs were prepared on 5-hole punched tape, identical to “ticker-tape”; indeed the tape readers and tape punchers were simply the devices used in the stock market. The programs were written in a computer language called “Auto-code” which was surprisingly similar to the modern “Basic” language. Due to the frequent computer breakdowns, the only practical way to make progress was to print out results every 15 minutes or so; in this way I could restart the calculation after each breakdown without having to go back to the start. Even without breakdowns the computer was very slow and hence I needed to spend large chunks of time on it in order to progress. Fortunately, I was able to persuade the Computer Department to teach me how to operate the computer and to spend one night per week doing my own calculations throughout the night when the normal operating staff were home in bed. Thus, for about a year, my working hours were almost completely time-shifted since, one night per week, I would spend from 7pm until 7am the next morning trying to pry useful results out of the Mercury Ferranti. There was one awkward aspect to this night-time activity, namely that the Department required me to have at least one other person present during the entire time I was operating the computer. Sometimes, I would be able to find another student with similar needs for extended computer time. But, on other occasions, Doreen and our infant daughter, Dana, would be kind enough to spend the night there with me.

After that first year, matters improved greatly for the University purchased a more advanced computer from English Electric called a KDF9. It was much faster, somewhat more reliable and used eight-hole paper tape rather than five-

hole. However, it would not accept Autocode and so I had to rewrite my programs in a new programming language. We were all urged to learn and use “Algol”, a cumbersome and awkward language that I did not like at all. Fortunately, an alternative rapidly became available, namely “Fortran” and I rapidly converted to and used that language that was not radically different from Autocode. I was to use Fortran and Basic (even more similar to Autocode) for most of the rest of my academic career. It was not long before I learned how to operate the KDF9 and got permission to resume my night-long efforts to compute cavity flows. In the end, I had devised new computational methods and used them to produce a raft of calculated shapes for fully-developed cavities behind objects like discs and spheres.

But Les Woods rightly thought that I should also have some exposure to experimental methods during my doctoral studies. Not being an experimentalist himself, he made use of his contacts at the National Physical Laboratory (NPL) in London to arrange an introductory visit to that government laboratory on the outskirts of London. Parenthetically I should add that the drive from Oxford to London in Les’s car was exciting for Les drove a car like you might expect a fighter pilot to drive. Nearing London, we encountered a series of roundabouts and Les’s tactic when approaching these obstacles was to accelerate into the circulating traffic, scaring the hell out of the other drivers to say nothing of yours truly. Somehow we arrived unscathed at the Ship Division of the National Physical Laboratory in the London suburb of Feltham, just south of Heathrow Airport. There I met Les’s acquaintances, Alec Silverleaf, George Gadd and John English, had an opportunity to explain to them my thesis research and to learn of the impressive experimental facilities at the Laboratory. They included a 3/4 mile long towing tank in which ship models were tested and one of the largest water tunnels in the world. Those tunnels were to figure large in my later research. Arrangements were also made for me to spend six weeks at the Laboratory the following summer. Thus I stayed with a family in Feltham during June and July of 1966 and was allowed the opportunity to conduct research at the Ship Division under the guidance of George Gadd and John English. They had constructed a small blow down water tunnel in order to demonstrate the phenomenon of cavitation at a trade show several years before and thought that it might be valuable to investigate the cavitation in this device more thoroughly. To do this they arranged for me to use a high speed camera to take photographs of the fully developed cavities behind a disc in this facility over a range of operating conditions. While the limited time only allowed a very preliminary set of results, it laid the groundwork for the research I conducted at Ship Division after my PhD. I then returned to Oxford to resume work on the computations of fully developed cavities.

After about three years as a graduate student, I started to prepare a PhD Thesis that ultimately was about 400 pages long. Apart from its contents, I believe the way in which I produced it was quite novel for that time. I realized that I could type the thesis on the eight-hole paper tape machines used to prepare the programs for input to the KDF9 computer to which I had access. Then, by feeding the thesis tape into the computer I could get it to rapidly print



Blow down water tunnel at Ship Division, NPL.

out a copy of my thesis. This had several great advantages over the traditional production methods that other students used to prepare their theses, namely by paying a typist to do it for them. First I could readily make corrections, cut and splice the corrected tape into the master tape and then print out a revised version. Second I could, with little difficulty, make as many copies as I wished (five official copies were required but at least double that number were needed). Thirdly, since no one kept track of the paper used, I could do all this for free. Since typist costs were substantial and Doreen and I had very little money this was a serious advantage. Fortunately, no one objected to the slightly odd font that the computer produced. After I received my PhD (or rather my D.Phil. for those are the initials Oxford pretentiously prefers) I did not look at the thesis for many years, afraid to be reminded of what I thought was poor, beginner's writing. But when I eventually did examine it again, I have to say that I was favorably impressed not only with what I managed to accomplish but also with the writing that was not as bad as I feared. Moreover, many decades later the work was used throughout the world (but particularly in the Soviet Union and in the USA) as a starting point for development of more advanced methods for calculating fully-developed cavity flows.

A few weeks before beginning the writing of my thesis Doreen and I decided to terminate the lease on our cottage. Doreen and Dana flew back to Northern Ireland to stay with her parents so that I could devote my whole time to writing and thus complete the thesis as quickly as possible. For the next two weeks I did nothing but write, draw and type until the task was finished. I worked for about 22 hours each day, taking a surreptitiously one-hour nap each afternoon

in the basement of my office building. Of course, the human body cannot keep up such a regimen for very long and I remember my thought processes beginning to disintegrate after about eight days. I also remember watching the sun come up while the computer ground out the printing and noting how just a few rays of sun had a remarkable rejuvenating effect on my brain. Finally, the thesis was finished, bound and delivered to the appropriate Administrative Office of Oxford University and, much to my amusement, I was given a receipt written in Latin. After sleeping in a friend's spare bed for the best part of a day and a half, I flew back to Northern Ireland with some feeling of satisfaction.

So it was that seven marvelous years in Oxford came quietly to an end in the fall of 1967. I was a very different person than the boy who had timorously traveled to the plains around the Isis and the Cherwell seven years earlier. I had earned the highest degree in the land and rubbed shoulders with royalty. I had begun traveling the world and gained the confidence that I could hold my own in any company. On a personal level, I had married the first great love of my life and fathered my first child. I had begun to learn what mattered to me and what I most wanted to do with my life. I had acquired the wisdom to know what I believed and even the ability to recognize defects in the culture of Oxford. In particular, the attitude of many English toward the Irish left in me a recognition of the deeply debilitating effect that discrimination can have on an individual. Of course, many more lessons, positive and negative, were yet to come but much of what came later was made possible by those scintillating and emboldening years in Oxford.

Chapter 20

POST DOC

*“I have traveled through great beauty
To some measure of understanding
You cannot ask for more than that.”*

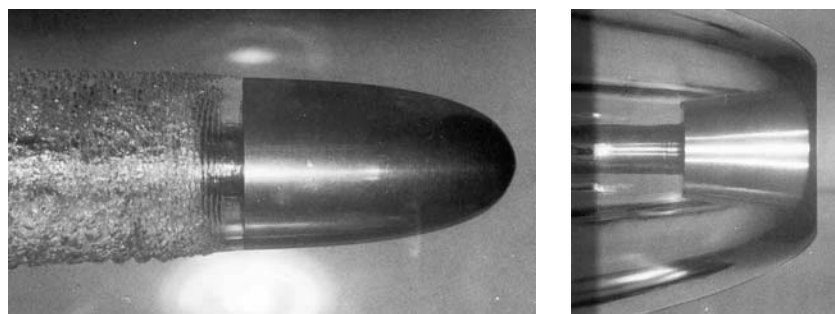
Anonymous.

The financial necessity of finishing my PhD combined with the all-consuming attention that was needed to complete my thesis, led to me repeating my earlier mistake of not making timely enough preparations for the next stage of my career. Fortunately, I had created a sufficiently positive impression during my six week sojourn at the Ship Division of the National Physical Laboratory that they were willing to appoint me as a Junior Research Fellow. So it was that, in the summer of 1967, Doreen and I packed up our few meager possessions into the decrepit Hillman hatch back that had allowed us to get around Oxford in the final few months and drove down to London to take up the postdoc at the Ship Division. I recall that even those 60 miles sorely taxed that vehicle whose steering was so dysfunctional that I parked the car in the garage of our apartment in London and never took it out again; indeed it was still there when we flew away to America. So began our brief residence in the suburbs of London.

The National Physical Laboratory is a storied government research laboratory set up in London in 1900 to promote fundamental research in the physical sciences. Among its many other achievements, radar was invented there in 1935 (and gave the allies a great advantage during the Battle of Britain in World War II). Other notable events were Alan Turing’s pioneering design for the computer while he was a staff member at N.P.L. in the 1950s. As it evolved, the Laboratory was organized into a number of divisions devoted to specific subdivisions of the physical sciences. The main site and headquarters were in Teddington, some 5 miles to the southeast of Heathrow Airport. The Ship Division where I was based had relatively new facilities constructed in Feltham just outside the southern boundary of London’s Heathrow Airport. The other divisions that I



Filming the “Dam Busters” at NPL.



Fully developed cavities behind an ogive (left) and a disc (right). Photographs taken in the Large Cavitation Tunnel at NPL, Feltham.



Left: The Mews, Thamesfield Court, Shepperton. Right: Dana & Kathy in Shepperton.

interacted with, the Aerodynamics and Mathematics Divisions, were located in Teddington as were some of the older facilities of the Ship Division. The latter included the original ship towing tank which was opened by Lord Rayleigh in 1911 and in which ship models were towed to evaluate their drag and thus improve their shape. It became famous as the facility in which the “bouncing bomb” was developed in 1942 for the destruction of the German dams (a story told in the movie “The Dam Busters”, partly filmed at N.P.L. in the 1950s). The newer site of the Ship Division at Feltham housed some impressive facilities, including a very large towing tank that was 25ft deep, 48ft wide, 1300ft long and floated on the shallow water table of the flatlands on which it was built. A large motorized carriage ran on rails mounted on the two sides of this tank (to keep the elevation of the carriage at exactly the same height above the water level, the rails had to follow the curvature of the earth and that curvature could be observed if one sited along the rails). The ship models were attached to this carriage and then dragged along through the water at a series of speeds. It may be interesting to note that the proximity to Heathrow Airport gave rise to some concern because of the long roof over this towing tank. The fear was that during some hazy London winter day an airliner would mistake the roof for a runway and initiate a disaster, not only an airplane wreck but also a huge wave as the water from the ruptured tank spread out through the surrounding built-up area.

Through helping one of my senior colleagues and mentors at the Ship Division, George Gadd, with his research I had several experiences with this towing tank. The first was the result of agreeing to help George with an experiment designed to measure the drag on a ship caused by the waves it produced. For this purpose George wanted to map out the whole wave pattern behind a ship model. To do this he constructed a huge framework attached to the carriage just behind the model and just above the waves. This frame was equipped with literally hundreds of vertical pointers that, once the carriage, frame and model were up to speed, could be lowered to just touch the water surface. In this way when the carriage came to rest at the end of the towing tank, the height of the waves over the entire region behind the model could be recorded. However, during each experimental run down the length of the towing tank it took considerable youthful agility to adjust all the pointers in the available time. This is what I was able to accomplish. Other staff members would come to watch this remarkable athletic achievement of the adjustment of over 100 pointers in less than a minute as the carriage caroomed down the length of the towing tank at over 30 miles per hour. I would leap across the frame adjusting pointers like a crazy man, only inches from being “lost at sea”. I am not sure whether I ever received the recognition I deserved for this effort of behalf of science but then such is life.

The other experience with the towing tank involved more fundamental scientific discovery. It had begun to become clear that the same ship model seemed to have a significantly different measured drag when tested at different times of the year and/or in different facilities around the world. Now it so happened that, at that time in the late 1960s, there was much interest in the surprising

effect that very small quantities of various dissolved long-chain molecules could have on the drag on an object in water. George Gadd was conducting a number of small scale experiments to investigate this effect using very dilute solutions of wallpaper paste and other chemicals. In a Eureka moment George realized that the algae that inevitably bloomed in the towing tank at various times during the year might be secreting organic molecules that had the same effect on the drag of the ship models. Therefore we devised a method to measure the algae content of the towing tank and were able to show that they were indeed the culprit behind the scatter in the drag measurements.

The other remarkable facility at N.P.L. Feltham was one of the largest water tunnels in the world with a circular working section some 44 inches in diameter. A little history is needed to put this facility in perspective. The first water tunnel in the world designed for high-speed and cavitating water flows was built at Caltech in Pasadena, California, by Robert Knapp in the 1930s. Knapp designed this tunnel using the same basic plan that had been developed for wind tunnels except, of course, the whole structure needed to be much stronger to support the much larger weight of water. However, when it was first run under conditions at which an object placed in the working section would cavitate (low pressure and high speed), a serious design flaw immediately became evident. Air came out of solution into the cavitation bubbles and, when the bubbles were convected downstream into regions of higher pressure, the vapor would condense but the air would remain in the bubbles for much longer because of the slow rate at which it could be dissolved back in the water. This rate was so slow that the air bubbles would complete the circuit of the water tunnel before being completely dissolved, resulting in the flow into the working section quickly becoming a bubbly mess that eventually eliminated any visual observations of the flow. This was a disaster that could only be fixed by major facility modifications. At Caltech a crew of workmen were employed to dig a 65ft deep, 8ft diameter hole in the ground under the water tunnel and the return passage was then deflected into this hole where it went down and up twice before returning to the original water tunnel loop. This meant that the water spent much longer at high pressure during its circuit of the facility and the air bubbles were almost completely dissolved before arriving back to the working section. This added feature needed in a high-speed water tunnel became known as a resorber and was incorporated in all subsequent water tunnel designs.

So, the design of the large 44 inch water tunnel at Feltham also incorporated a resorber, in this case just a very deep return leg buried some 100ft below the ground level where the working section was located. This tunnel had been completed only a year or two prior to my arrival. It was intended to complement a much smaller water tunnel that had been moved to Feltham from the Teddington site. Both were intended primarily for testing propellers for Britain's ship building industry. The problem with the large tunnel was that the cost of manufacturing the large bronze propeller models was prohibitive. Consequently when I arrived only the initial demonstration propeller had been manufactured and no additional propeller models were anticipated. Thus the large tunnel lay idle. Taking advantage of this situation with George's complicity, I received

permission to use the tunnel for my own research purposes. Specifically, at very modest expense, I was able to construct the objects I wished to test in the tunnel. With some ingenuity I was also able to adapt existing instrumentation in the lab for my own purposes. Finally I solicited some time from the laboratory photographer who took some marvelous photographs for me. Thus I was able to create the opportunity to do a series of very productive research investigations in the tunnel time allotted to me and those experiments, when supplemented by theoretical studies conducted later, formed the basis of a number of publications in the prestigious *Journal of Fluid Mechanics*. These papers greatly helped my subsequent career. In addition, it was during the middle of these investigations that I was visited by Professor Ted Wu from the California Institute of Technology, a story that belongs to the next chapter.

* * *

When Doreen, Dana and I first arrived in London, we lived in temporary accommodations in Teddington. Searching for more permanent rental accommodations was depressing because of the high rent and also difficult because Doreen was very pregnant with our second child. However, with the help of one of my other Ship Division colleagues, John English, we finally found an affordable and comfortable apartment that was part of a big house in Shepperton, an attractive suburb on the banks of the Thames about five miles south of Feltham. For the subsequent year and a half, I caught the bus each day from there to Ship Division. The big house and the surrounding acres had been subdivided into a pleasant little development called Thamesfield Mews. The river Thames was just a few yards away as were some old pubs including “The Ship” in which we spend many happy hours. Life in Shepperton was pleasant if somewhat limited by our lack of a functional vehicle and our lack of money. Fortunately we made friends with a very nice Australian couple who occupied one of the other apartments in our complex. Delma and Demitrios Brunello were very good to us and frequently ferried us to important and necessary appointments in their little Fiat. In this way Doreen got to her obstetric appointments at the Middlesex General Hospital, many miles away in Chelsea. However, when our second daughter, Kathy, decided to arrive, it was in the middle of the night and quite urgent so an ambulance had to be summoned; I remember with trepidation the ambulance disappearing into the night as I had to stay home to look after Dana. In this way our second daughter, Kathy, came into the world within the sound of Bow Bells but far from any family other than her mother. She was delivered by a nurse and we were never quite sure whether that moment occurred before or after midnight which left us permanently uncertain of her real birthday (as opposed to the certain date on her birth certificate). She was a very easy and sunny child, much loved by all our friends in Thamesfield Mews. Almost every day Doreen would load Kathy and Dana into the second-hand baby carriage that we had been given and would push them about a mile, across a bridge over the Thames and into the shopping center in Walton-on-Thames where she would do our shopping, laundry, and other errands. She would make this trip

even when it was freezing. Though we made the best of our life in Shepperton, I felt angry that we were not paid enough to allow reasonable living comfort. I was ready to grab any chance to improve our existence.

Chapter 21

CALTECH

“Thank you, Jones. You were in university ?”

“Yes, sir.” “California Institute of Technology. Five semesters completed, A average. I didn’t finish.”

“Why did you leave ?”

Jones smiled. “Well sir, you gotta understand that Caltech is, well, kinda a funny place. I played a little trick on one of my professors. He was working with strobe light for high speed photography, and I rigged a little switch to work the room lights off the strobe. Unfortunately, there was a short in the switch and it started a little electrical fire which burned out a lab destroying three months of data and fifteen thousand dollars of equipment. That broke the rules.”

From “The Hunt for Red October” (1984) by Tom Clancy.

I had been working away on my research at NPL’s Ship Division for about a year when a professor at the California Institute of Technology (Caltech) came to the lab to visit several of the senior staff members. The professor’s name was Ted Wu and he had made a number of outstanding contributions to the published literature on cavitation, several of which I had studied during my Ph.D. research. So I knew of Caltech and, in particular, its contributions to the state of knowledge of cavitation through the work of faculty members such as Robert Knapp, Milton Plesset, Anatol Roshko, and Allan Acosta as well as Ted Wu. I think that my senior colleagues at NPL felt that Ted might enjoy hearing of my research efforts and therefore made room for me to spend time with him during his visit. I well remember that hour spent with Ted in my office, telling him of my findings and seeking his input. He was clearly interested and, as he was leaving, expressed the hope that I might visit Caltech at some point in the future. It seemed like a pleasantry and so I did not think much about his remark. However, I had started to think about the next step in my career and

so I allowed myself to daydream of the possibility of traveling to California at some point in the future. While I was enjoying my time at N.P.L. I did recognize the need to move onward, to strive for a more permanent and better paid job, perhaps in academia. I had started to apply for a more permanent position at N.P.L. but without much enthusiasm. Then, several weeks after Ted Wu's visit, I received the letter that was to change my life. Ted wrote asking whether I might be interested in coming to Caltech for a one-year post-doctoral appointment. I almost flew home that day to tell Doreen of this amazing and incredibly exciting development. Ted also wrote that he would like me to explore the possibility of obtaining some ancillary funding from foundations in the United Kingdom and so, before the arrangement could be finalized, I spent a number of days in central London going from one foundation headquarters to another, exploring the possibilities. In the end only one such opportunity came to fruition. I was awarded a Fulbright Scholarship that paid for my travel to and from California. The money was not much, but the prestige of being a Fulbright Scholar helped greatly to seal the deal with Caltech and with the Office of Naval Research, who were to support my visit through their research contract with Ted.

There were many other minor arrangements to be made before we could fly off on this new adventure. Doreen and I managed to scrape together the funds for her airfare and that of the children, mostly by cashing in the retirement funds I had accumulated at N.P.L. We managed to give away the old Hillman car that had stood idle in our garage throughout our stay in Shepperton. We crated up our few household belongings and placed the crate in storage in London in the anticipation of returning to England in about a year (that crate was actually recovered and disposed of about a year later during a brief visit I made to England).

So it was that Doreen, Dana, Kathy and I left Shepperton for good just before Christmas 1968. We traveled back to Northern Ireland to spend Christmas there and to make preparations for our trip to California. On New year's Eve we were taken to Belfast Airport by my father and boarded a flight to Glasgow where we transferred to Prestwick Airport for a night flight to New York. I remember how stormy the weather was and how dark the night was for our landing and take-off in Scotland and the trepidation that engendered in me. We were met in New York by some very good friends from our days in Oxford who had emigrated to the United States. They took us to their home in Queens where we were able to get our bearings and recover from the trip. After a brief visit to friends in Boston, we continued our air journey to Los Angeles, landing in the bright sunshine in the land that was to be home for the rest of our lives (though we little realized that at the time). We had some apprehension about what we would find in California and at Caltech but the welcome we received exceeded our most optimistic expectations. Two of Ted's graduate students, Mike Wilson and Art Whitney, met us at the airport and drove us to Pasadena where Ted and his staff (Barbara Hawk and Cecilia Lin) had arranged an apartment for us. Cecilia had even stocked the fridge with some basic foodstuffs, an extraordinary act of kindness that was typical of her.

* * *

Thus began a fabulous first year at Caltech. In the lab I became deeply involved with the research projects of Ted Wu's group. We examined non-linear effects and devised numerical methods to investigate tsunami waves. In addition I was drawn into Ted's new investigation of the locomotion of small organisms, prokaryotic (bacteria) and eukaryotic (large organisms). Among other discoveries we were involved in showing how and why bacteria use flagella that continuously rotate relative to their heads - unlike eukaryotic propulsion in which a similar propulsive effect is produced by propagating waves along the flagella. In addition to all of these new adventures, I continued my interest in cavitation and conducted experiments on cavitating wedges in the Caltech High-Speed Water Tunnel. All this led to a renewal of my research fellowship for a second year.

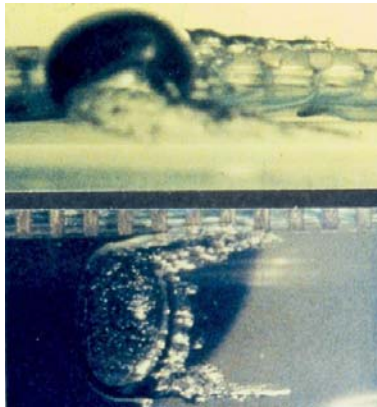
On the personal side, Doreen, the girls and I enjoyed a much better quality of life than we had seemed destined to have in England. We bought camping equipment and began to explore the southwest, camping at many of its National Parks. Dana and Kathy learned to swim and spent a great deal of time at the Caltech pool. We made many friends within the Caltech community and began to think of an extended career at that marvelous institution.

In the 40 years that followed I feel I was privileged to enjoy a truly extraordinary career at Caltech. The initial appointment as a Research Fellow expanded into a total of seven years on the research faculty as a Research Fellow (1969-1972), Senior Research Fellow (1972-75) and Research Associate (1975-76). When I look back I recognize that those years allowed me to establish a sound foundation for my scientific career without the obligations of teaching and administration that young tenure-track faculty face. During the first few years I formed close collegial and research bonds that lasted throughout my career, most notably with Allan Acosta and Rolf Sabersky. When I first arrived at Caltech, I was given an office in the Karman Building that adjoined Allan's office. We rapidly became friends and that friendship led to a career-long collaboration in cavitation and turbomachinery research.

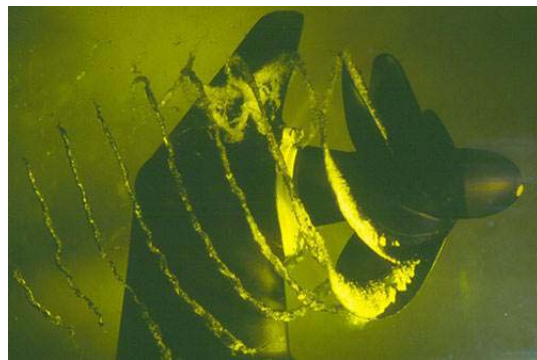
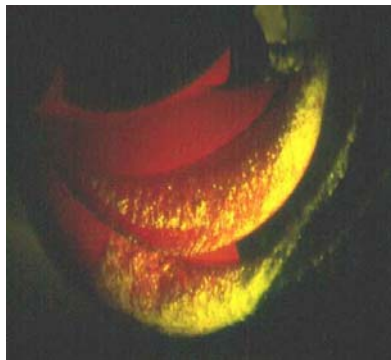
In the 1930s Caltech had begun many decades of leading-edge research into high-speed liquid flows and particularly the phenomenon of cavitation. The very first high-speed water tunnel was designed and built at Caltech by Robert Knapp with the support of Theodore von Karman. Moreover, observation of these high-speed flows was made possible through the development by Albert Ellis and others of remarkable cameras with framing rates as high as a million frames per second. These observations motivated pioneering programs of experimental and theoretical research into cavitation by Blaine Parkin, Milton Plesset, Allan Acosta and Ted Wu among others. It was inevitable that I would become entrained into this inspiring effort and in the years that followed I was able, with the support of the US Office of Naval Research, to pursue many of the leading research questions associated with cavitation. Specific projects included (1) studies of the interactions between cavitation bubbles and the flow and the implications for cavitation noise and damage (2) the population dynamics of



Left: Professor Wu's group in 1969: CEB, Allen Chwang, Mike Wilson, Art Whitney, Ted Wu, Ed James. Right: Prof. Acosta and students in 1975: Phil Engelhauf, CEB, David Braisted, Allan Acosta.



Left: Strange Cavitation Bubbles. Right: With Steve Ceccio.



Cavitating Propeller.

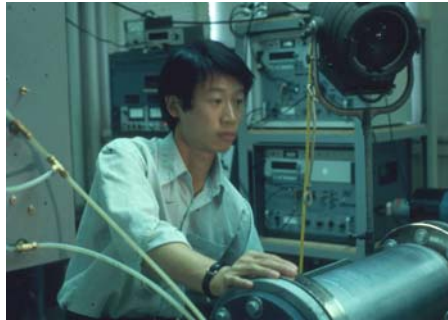
cavitation nuclei of microbubbles and the relation to cavitation event rates (3) studies of the dynamics and acoustics of clouds of cavitation bubbles (4) the dynamics of cavitating propellers. The results of these studies and much more were incorporated in my books “Cavitation and Bubble Dynamics” and “The Fundamentals of Multiphase Flow”.

In the early 1970s, during the design of the Space Shuttle, NASA became determined to try to avoid an endemic problem that had plagued many earlier liquid-propelled rockets, an instability called POGO after the child’s toy of the same name. This problem was characterized by longitudinal oscillations of the rocket that would create pressure and flow rate oscillations in the fuel and oxidizer feed lines to the engine that would then produce an oscillating thrust that would further amplify the longitudinal vibrations. The key to understanding and treating this problem lay in understanding the relation between the flow rate and pressure oscillations in the flow entering the high-speed pumps at the heart of the engine and the oscillations in the flow between the pumps and the combustion chamber. At the time little was known of this relation since it was clearly complicated by the fact that the cavitation within the pumps would oscillate in volume causing instantaneous differences between the entering and exiting flow rates (and pressures). It was essential to understand those differences and to model them in order to devise ameliorative measures. I remember the day when Allan and I flew back to Huntsville, Alabama, at the request of the staff at the NASA George Marshall Space Flight Center to explore whether we could help them with this issue. We soon recognized that progress would require a controlled and instrumented laboratory investigation of the relation between the oscillating pressures and flow rates at inlet to a cavitating pump and the same quantities at discharge, a relation that could be represented by a “dynamic transfer matrix”.

We proposed to NASA that we would build a facility called the “Dynamic Pump Test Facility (DPTF)” at Caltech in order to measure these transfer matrices on a small scale pump, pumping water rather than liquid oxygen or hydrogen. This would allow us to explore the nature of these transfer matrices and how they varied with the frequency of the oscillations and the extent of cavitation. It was by far the most ambitious experimental facility I had ever been involved in building. Initially we did not even know whether it would be possible to measure the oscillating flow rates with the necessary accuracy in the presence of a highly turbulent flow. In the end we succeeded and the knowledge of the transfer matrices that we obtained allowed, for the first time, accurate prediction of liquid-propelled rocket engine dynamics. The Space Shuttle thus avoided any POGO instability problems and our expertise continues to be used around the world more than 30 years later. Many other laboratories attempted similar measurements without success before confirmatory measurements were finally obtained in the 2010s using modern computing power and modern instrumentation. When the DPTF reached the end of its useful life at Caltech (around the end of the millennium), NASA disassembled it and transported it back to Huntsville, Alabama. For Allan and I (and the many graduate students who worked on the project) the program had been a great success and



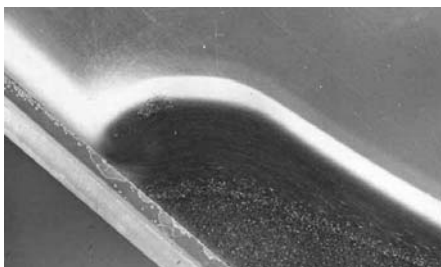
Dynamic Pump Test Facility.



Left: S.L.Huang. Right: SSME Model Cavitating.



Left: Three-phase Flow Facility. Right: Robert Bernier.



Left: Hydraulic Jump of Granular Material. Right: At the “booming” Dumont Dunes.



Hiking with graduate students. Left: Carl Fischer, Tricia Waniewski, Carl Wassgren, Garrett Reisman, Sudipto Sur, CEB and Frank Liu. Right: Garrett Reisman, Tricia Waniewski, CEB and Fabrizio d'Auria.

the papers we published were among our proudest achievements.

Parenthetically I should add that the approach and instrumentation we used in the DPTF had much value in other technological contexts such as the instabilities that could occur in power-generation cooling systems (including nuclear power systems). For a time I worked as a consultant to the Nuclear Regulatory Agency in efforts to understand instabilities in emergency cooling systems.

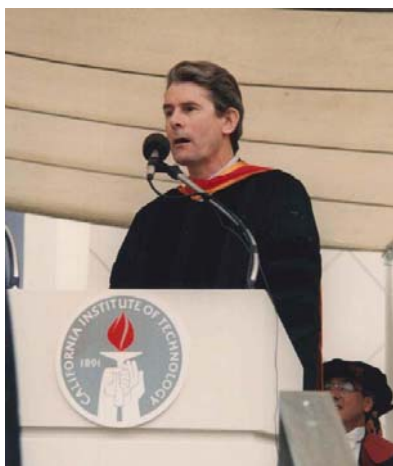
The success of the DPTF project motivated NASA to call on our help with another major SSME problem, one that arose during early testing of the engines. The design of the Space Shuttle Main Engine (SSME) pushed well beyond the boundaries of many known technologies. The rotating speeds and operating conditions of the high speed liquid oxygen and liquid hydrogen turbopumps at the heart of the engines were extreme indeed and early testing revealed a whirl instability whose magnitude exceeded expectations and allowable limits. Rotordynamic instabilities in machines rotating at nearly 40,000rpm in cryogenic liquids are clearly very serious in any context and potentially catastrophic in rocket engines. Early on it was suspected that fluid-induced rotordynamic effects might be a contributing factor and yet very little was known of such phenomena for historically it had erroneously been assumed that the fluid would simply damp out the whirl motions. NASA's response to this crisis was to launch several parallel research investigations designed to provide some long-

term fundamental understanding of these fluid-induced rotordynamic effects. Dara Childs, who had already done important work on the effects in hydrodynamic seals, was to expand his program at Texas A&M. At Caltech, Allan and I were asked to examine the effects that might result from the main flow through the pump impeller itself. In the year that followed we built an add-on to the DPTF that helped define a new set of fluid-structure interaction phenomena in turbomachines, namely fluid-induced rotordynamic forces and instabilities. The new add-on facility allowed us to identify and measure the fluid-induced rotordynamic forces that could cause instability in high-speed turbomachinery. Rotordynamic coefficients were measured for a wide range of pump designs and operating conditions. In addition, ameliorative measures were also identified, for example the installation of anti-swirl vanes in the discharge-to-suction leakage path. This second contribution to the SSME program in particular and to pump dynamics in general represented another major, internationally-recognized success and one whose results were used throughout the world.

The results of these two NASA-sponsored research programs received much international recognition. They were included as a large part of my widely-distributed book on the “Hydrodynamics of Pumps”, a treatise that was subsequently translated into Japanese, Chinese and Farsi. It became an essential reference work for researchers and pump engineers around the world and earned me much international recognition.

At some point in the 1970s both Allan and I moved our offices to the Thomas Building on the Caltech campus. There I also developed a close relationship with Rolf Sabersky who interested me in the brand new research area of the mechanics of granular material flow. As the years rolled on this became an area to which I devoted a significant effort. Experimentally, we studied granular flows in hoppers and down chutes; we also developed computer simulation methods whose results, when compared with the experiments, allowed us to verify and improve our understanding of the grain-level mechanics and modeling techniques. While the knowledge of these flows made important contributions to industrial equipment transporting bulk materials, it also had relevance to many geological processes. Thus we became involved in several geological investigations including the intriguing phenomenon of “booming dunes”.

In working with Allan Acosta, I believe I had the privilege to work with the best fluids engineer in the world. Somehow we managed a chemistry that was exceptionally productive. Allan is also a great friend who helped me survive the tragedies life threw at me. I was also been singularly fortunate in my younger colleagues and enjoyed my work with Melany Hunt and Tim Colonius among others. Another great group of academic friends were the young post-doctoral researchers who made extended visits to Caltech among them Yoshi Tsujimoto and Kenjiro Kamijo from Japan. Yoshi in particular became a lifelong friend with whom I shared many adventures. Next to these faculty colleagues, I feel deeply blessed that I had the honor and privilege to work with an outstanding group of graduate students as well as many undergraduates. About 35 young people obtained their PhDs under my supervision and most of them have gone on to outstanding careers. Quite a few are now professors at institutions around



Left: Reading names at graduation. Right: Urging restraint after 9/11.



Left: Tsujimoto-sensei, Osaka University. Right: Doreen and I with Seamus Heaney.

the world including MIT, University of Michigan, University of Southern California, Purdue University, Cambridge University, University of Pisa, Yeditepe University in Istanbul, National Cheng Kung University in Taiwan, National Autonomous University of Mexico, and Keio University in Tokyo. Others have become movers and shakers in companies like Chevron, Schlumberger, Boeing, TRW, Exxon Mobil and Dow Chemical. Others have made major contributions to small companies and start-ups and several have worked at government laboratories including Sandia National Laboratories and the Institute for Defense Analysis. One is now an orthopedic surgeon and another became a NASA astronaut. I have kept in touch with almost all of these academic “children” and take great pride in their accomplishments. One of side benefits was the opportunity to get to know many of these very talented young people outside the classroom and to have their company on some marvelous wilderness adventures. I am

deeply grateful to all of these intellectual explorers for their friendship.

My early research accomplishments eventually persuaded Caltech to appoint me to a tenure-track position and in 1976 I became an Associate Professor of Mechanical Engineering. Thus I was never an Assistant Professor, something that would be most unusual today. Later I was given tenure and promoted to full Professor in 1982; and finally, I became the Richard L. and Dorothy M. Hayman Professor of Mechanical Engineering.

In parallel with these faculty appointments, I also served in four different positions in the Caltech Administration, and I tell the story of these in a different chapter. The first of these four year appointments was as Master of Student Houses, a position I held from 1983 to 1987; then, following a one year break, I served as Dean of Students from 1988 to 1992. After these eight years interacting with the students I was fairly certain that was the end of that phase of my career. I returned to the Mechanical Engineering Department where I served as the Executive Officer (Department Chair) for Mechanical Engineering from 1993 to 1997. However, with the arrival of a new president, David Baltimore, I was persuaded to rejoin the administration as the Vice-President for Student Affairs, a position I held from 1997 until 2002. During my years in the administration of Caltech I had the opportunity to meet some extraordinary people, not just remarkable scientists but also visitors from all walks of life and many corners of the globe. It gave me particular pleasure to host two remarkable men from near my home village of Magherafelt, the 1995 Nobel Prize winner for Literature, Seamus Heaney, and the 1998 Nobel Peace Prize winner, John Hume.

Chapter 22

MASTER OF STUDENT HOUSES: THE HARD PART

*“...Two roads diverged in a wood, and I
I took the one less traveled by,
And that has made all the difference.”*

From “The Road Not Taken.” by Robert Frost.

It was my privilege to serve as Master of Student Houses at Caltech during the period 1983 to 1987. Before I began my term, a former Master told me that I would learn as much about myself as I would about the Institute or the students. As I sit down to write about this chapter in my life, that astute remark comes to mind first. I am still absorbing what I learned of myself and so will focus here on a recounting of the events and what I learned of the campus and the students. Throughout this chapter and the one which follows I have changed some of the student names out of respect for their privacy and because it is not important to identify those individuals. Let me say at the outset that I left the position with a great affection and respect for the students. They may think that they gave me nothing but their troubles. But those troubles were mostly quite ephemeral. The joy I took in seeing so many very fine young people mature, in being able to see them through temporary crises, and in contributing to the humanizing of their lives at Caltech is a joy that will remain with me for the rest of my life. For that, it is I who am grateful to the students. Perhaps I may find another job as intimately rewarding; but I doubt it. The price of that reward was a continuous demand not only on my physical energy but, more importantly, on my emotional resources. At that time the job of Master of Student Houses was a wholly consuming task that left little energy for other activities. By the end

of each of the four academic years in which I served I was totally burnt out, to use the modern idiom. I was blessed with a wife who was willing to put up with the inconveniences, at least for a limited period of time. But I also paid a price for the rewards described above.

In constructing these reminiscences I have concentrated mostly on major incidents or issues that occurred during my tenure. One of my predecessors, Robert Huttenback, produced the classic account when he wrote "Confessions of a Genial Abbot". I do not pretend to be able to match his eloquence or his ability to give a balanced report of his term in office. As I sat down to write, I began by rereading his "Confessions", reprinted by a group of students during my time in office. Those students reproduced it because they felt that Huttenback's criticisms and concerns about student life at Caltech were as valid in 1984 as they had been in 1958-68. I shared their opinion. Much of what I might say is already recorded in Huttenback's account. Any different shades of perspective I might have are contained in this account. So my excuse for these pages cannot be an attempt to produce an assessment of student life; Huttenback's remarks are as valid now as they were then and I can add little. Perhaps I have written for my own sake, seeking a review of my own experiences. Perhaps it is of value to supply an addenda to "Confessions". Perhaps there is a perverted sense of self-importance that one gains by revealing facts known only to one's self. Who knows. Here goes.

* * *

In early 1983 I was contacted by Professor Andy Ingersoll, the chairman of the faculty standing committee on student housing who inquired as to whether I might have any interest in becoming Master of Student Houses. Having known four of the previous Masters and having recognized the substantial commitment that the job entailed I did not respond except to say that I would like to give the matter considerable thought before being considered a candidate. Thus began several weeks of research and soul-searching. Professor Sunney Chan, the retiring Master, did his best to convey to me both the joy and tribulations associated with the task while at the same time trying quietly to recruit me. The Dean, Professor David Wales, recounted for me his perception of the role. I also talked with Professor David Smith, a previous Master during the turbulent early seventies. Looking back I believe that I accrued a fairly accurate picture of the job though none of this quiet conversation could possibly convey the emotions that accompany the occasional traumatic emergencies that I had to handle as Master. In addition I searched within myself in an attempt to determine my own ability and willingness to handle the kind of situations described to me. Even at that early stage I realized that, if I accepted the job, I would learn much about myself; and that some of those lessons might be painful. Other thoughts cascaded to the surface. It seemed to me that like so many other scientists and engineers my avocation suited me because of an inherent shyness. The practice of my profession was in part a refuge from the uncertainty and complexity of human relations. Perhaps it was high time that I emerged from this solitude and

simplicity. I cannot say that I ever resolved this set of questions. Nevertheless after several weeks I did indicate my willingness to be considered a candidate for the position of Master of Student Houses. There followed an interview one evening when I sat down to talk not only with the Committee on Student Housing but also with about a dozen students, members of both the current and previous Interhouse Committees. It was a unique experience to be interviewed by about twenty people. The conversation consisted mostly of fairly benign generalities because it was the subliminal evaluation that mattered. Could they trust my judgment under emergency conditions? Would I be approachable by a student with embarrassing personal and emotional problems? Would I be sympathetic to the problems and needs of students at Caltech? I did not consciously prepare myself for this kind of subliminal examination but I now see with the benefit of hindsight that this was precisely what was appropriate.

Other candidates were interviewed that same evening. Shortly afterwards I received a phone call offering me the position. Then the negotiations with the administration began. Professor Jim Morgan, the Vice-President for Student Affairs, seemed to be agreeable to all of my modest requests so that after a brief interview with Murph Goldberger, the President of Caltech, I was officially offered the position of Master of Student Houses, an offer that I duly accepted.

In the summer of 1983 Professor Sunney Chan spent a substantial amount of time with me while I learned not only the details of the running of the Master's office but also a great deal about the undergraduate community at Caltech and about individual student problems. I recognized a duality in the responsibilities of the Master. On the one hand he was charged with the fairly straightforward tasks of ensuring that student accommodation arrangements ran smoothly, that each of the Student Houses had a responsible Resident Associate and that a limited amount of money for social activities was distributed usefully and equitably. On the other hand he had to serve as a father figure, a counselor tending to the social, emotional and psychological problems of individual students and of groups of students. Sometimes these dual responsibilities would clash as when it became necessary to discipline a student whose infractions resulted from emotional turmoil. Thus I was initiated into a quite unique position at the Institute and only time would tell whether or not I was capable of handling the challenges and the pressures of the task.

* * *

Of all the problems I faced in the ensuing four years, perhaps the most traumatic were those of severely disturbed students. Sometimes the problem seemed intractable, sometimes I struggled in vain to avert a seemingly inevitable demise. This was the dark underside of the Institute, the inevitable obverse of the quest for excellence of which we are all so proud. It was, however, one of the arenas of responsibility that fell upon me as Master. There existed no descriptions of this theater of operations. It certainly would not have made good press. Yet one must recognize that any school could tell a similar story and the problems are not solved by ignoring them. Consequently, I believe it

is important to present an account of the severe psychological and emotional problems suffered by a few of our students and a description of some of the difficulties I experienced in trying to cope with those problems. In doing so I must emphasize that I pretend no professional expertise in this realm of mental illness.

It is appropriate to begin with a few comments on the underlying causes of some of the psychological disorders with which I had to deal. I think I can truthfully state that all of the serious problems I encountered had their roots, whether biological or environmental, in the history of the individual before he or she came to the Institute. The academic pressures of Caltech may have amplified the problem but, in my judgment, were never the root cause. Furthermore the students who experienced these problems ranged over the entire spectrum of academic abilities. Indeed, when I review all the cases that came to my attention, there are no characteristics that were common to all of the cases. However, there were several characteristics that were notable by the frequency of their occurrence and these are worth elucidating in more detail.

First, as one might expect in any population of adolescents, a certain small fraction of the students develop that disorder of the thought processes known as schizophrenia. The most common of the psychoses, schizophrenia occurs in about 1% of the population. This would suggest that each freshman class would include about two schizophrenics. The number would be increased if one took into account the correlation between schizophrenia and intelligence indicated by some recent studies. It is decreased by the extent to which the admissions process selects out applicants with indications of mental illness. My own estimate is that the 1% of our student body suffer from this disorder. During my time in office I had to deal with about ten cases of serious schizophrenic psychosis.

Paranoid-schizophrenia is a disorder for which there exists no known cure. Added to the schizophrenia is a paranoid suspicion or fear that makes both behavior and treatment all the more difficult. It inexorably debilitates the victim to the point where, at best, he or she can, without help, barely survive on the fringes of modern society. Frequently the deterioration instead of being gradual, occurs in steps corresponding to crises. About all that modern medicine can achieve is to avoid such crises and thus slow or even arrest the deterioration. This requires that the victim faithfully follow a prescribed course of treatment and medication, a prescription that is made particularly difficult when the individual mistrusts anyone in a position of authority over him.

Schizophrenia has been shown to be predominantly a genetic disorder. However it is also recognized that a number of environmental factors can contribute to crises that can cause a marked deterioration in the victim. The most relevant of these factors in our student population are, first, the pressures placed on them by the social and academic conditions and, second, the abuse of drugs. It is well-established that amphetamines (speed) and hallucinogenic drugs (acid) can create psychoses that are clinically indistinguishable from acute schizophrenia. Given adequate treatment the otherwise normal person can recover from such an episode in a matter of weeks. However, an individual who is predis-

posed toward schizophrenia may never recover to their condition prior to the drug abuse. Both the stress-related and the drug-related environmental factors occurred in our student body.

Apart from the schizophrenics, our student body naturally includes a number who suffer from an affective disorder at some time during their time at the Institute. A major affective disorder is characterized by disordered feelings or emotions. Like schizophrenia, a tendency to develop an affective disorder appears to be heritable. Factors at the Institute that can exacerbate a latent affective disorder include, again, the academic pressures (particularly when reinforced by parental pressures and expectations) and social pressures. Among the latter one must rank first the fact that most of our students develop their sexuality during their residence at Caltech. The unnatural ratio of males to females is particularly unfortunate in this respect though this factor has diminished in more recent years as the percentage of women has increased. In summary, it was my experience that victims of major affective disorder are more easily and more constructively handled by our system than the victims of schizophrenia.

I have remarked on the heritability of both schizophrenia and the disposition toward major affective disorders. From an institutional perspective this can make the problem particularly difficult, often agonizingly so. In any student crises, the parents should represent the major emotional resource. We often suggest that the student take a leave for several terms in order to recover from the crises. But, in the case of a major psychological crisis, the chances are that the family has contributed to the crisis either genetically or environmentally. So, in an ideal world, it would not be the optimal solution for the student to return home. Yet, this is frequently the only economically feasible option and one has to suppress one's feelings to pursue it. Sometimes the family alienation has progressed to such an extent that the student refuses to return home, citing either real or imagined reasons. The prognosis in such cases is not good; the chances are high that the individual will become a homeless itinerant. With considerable distress I watched a number of former students progress along that path.

While on the subject of parental relations, let me make an observation on a phenomenon that I believe occurs in some of our students though I know of no way in which it could be proved without improper intrusion into their private lives. It seems to me that some of our prospective students become over-achievers in high school because of excessive parental pressure and supervision. When these individuals arrive at Caltech they suffer in one of two ways. Either they consciously or unconsciously rebel against parental pressure and their academic performance correspondingly declines. Or they continue to be susceptible to that pressure and, when they can no longer satisfy themselves or their parents by straight-A grades, they suffer from substantial emotional problems. I believe that such achievement-related affective disorders are present in a significant fraction of our undergraduate student body.

Finally, let me shake the foundations of the common misconception that our undergraduates come from good homes. One of the things that surprised me most about the family backgrounds of our undergraduates was the number of

cases in which I suspected that the student had suffered emotional, physical or even sexual abuse as a child. It is often said that such abuse is one of the greatest hidden problems in our modern society. We should not fool ourselves into believing that our undergraduate population has been immune from this societal disease.

But what do all of these observations mean for the Institute and for the health of our undergraduate population. Let me try to summarize the conclusions from two different perspectives: first, that of the admissions procedure and, second, that of caring for the students once they are in residence.

The first perspective leads to some obvious lessons most of which have been expressed elsewhere but bear repeating. First the admissions process should make more effort to determine whether the applicant has the emotional and psychological stability to survive the pressures of the Institute. It is disservice to both the applicant and the Institute to admit an individual who lacks such attributes. At a less chronic level too much attention has been paid to the past academic accomplishments of the applicant and not enough attention to what motivated them. In my opinion it is the latter that will determine the degree of success that the student will achieve at Caltech.

The problem is to find ways of assessing both the stability and motivation of the applicant and here I can only offer some methods that I used during my experience interviewing applicants for the admissions committee. In order to try to assess the level of parental pressure I would use somewhat casual questions such as "What do your folks think about Caltech?" or "What do your folks think about your interest in science?". I was often surprised by how revealing the responses were. Few applicants would guess that one of the most satisfactory answers was "My parents never heard of Caltech". In addition I regularly asked teachers about the stability of the student (counselors were rarely of use since they were usually preprogrammed). Sometimes the teachers would provide revealing responses; at other times it was necessary to read between the lines. Extracurricular activities were also a guide to the motivation of the applicant. None of the deeply troubled students I encountered as Master had any extensive participation in group activities such as sports or music during their high school careers. Someone at the Institute once told me that the average GPA of students who participate in varsity sports is significantly higher than the mean. I would not be surprised if this were true.

Aside from these general observations, it is appropriate to recount several of the most traumatic problems with which I had to cope during my time as Master. Though these are but a tiny sample, their features exemplify most of the common characteristics of these individual problems. In these accounts I have changed the names to protect the privacy of the individuals involved.

* * *

This first story is that of a young man, a paranoid-schizophrenic whom I shall call "Bill Brent". Bill came from a broken home and had been raised by his mother with the help of two older brothers. Unknown to us, he had suffered

several psychological episodes as a high school student, but had consistently avoided psychiatric care. In retrospect it is clear that his resistance to psychiatric treatment and his aversion to hospitalization had developed during his early teenage years when he was forced to attend therapy and, on one occasion, was hospitalized by his family against his wishes. Nevertheless, Bill was a very intelligent young man and, after graduating from high school, he was admitted to Caltech and arrived as a freshman in the early 1980s. On his freshman interest form, Bill listed his hobbies as Dungeons and Dragons, table tennis and tennis and indicated an interest in the Bridge Club, the Chess Club, the Math Club and guitar classes. During Rotation he was selected by Dabney House but due to difficulties in housing all of the freshmen on campus that year he was assigned to an off-campus room. I have no first-hand knowledge of the events of his first two years at Caltech since they preceded my term as Master. However I do know that there was a suicide attempt during his freshman year that motivated his being moved from the off-campus room into a room in Dabney House where he could be more closely watched by his fellow students. Unfortunately he quickly became a part of the drug scene in that house and, in particular, developed the habit of taking amphetamines, or "speed". Either then or later he also smoked grass and indulged in "acid" and, occasionally, cocaine though the latter was too expensive to be frequently used. It was, however, the speed that was particularly destructive to Bill's mental health.

I should digress briefly to emphasize that speed has always been a special problem at Caltech. The academic pressures at the Institute can be severe and students are sometimes tempted to resort to speed to remain alert in order to complete assignments. I have been told that this usually works without obvious side-effects the first few times that the person uses the drug. Later it can become a habit and the insidious side-effects can be too easily ignored. First there is the psychological reliance on the drug, a lack of confidence that an assignment or exam can be completed without the drug. And so to more habitual use that begins to wreak havoc with the student's mental and physical well-being. The physical damage is caused not only by a lack of regular sleep but also by a much-reduced appetite. But the mental damage is much more serious for prolonged use of speed results in amphetamine-induced psychosis that is clinically indistinguishable from paranoid-schizophrenia. And if the individual is already predisposed toward schizophrenia the psychosis will occur more rapidly and be much more severe.

Returning to Bill's story, it seems clear that when healthy he had relatively little difficulty with the course work at Caltech. He did not however complete any work during the third term of his freshman year and took a leave of absence in May. His social well-being during his sophomore year was enhanced by a liaison with a very pleasant female student whom I shall call Beth. I am fairly sure that Bill's relationship with Beth helped him temporarily avoid serious trouble during his sophomore year. Indeed the relationship was so close that they planned to room together at the beginning of his junior year, the time when I took over as Master. But Bill's mental health was already beginning to be seriously affected and the relationship became strained as 1983 came to an

end.

My first direct contact with Bill occurred at the beginning of 1984. He came to my office one day to seek my advice on his career plans. Bill had intended to major in Applied Physics but had begun to believe that the only major job opportunities for APh majors were in the defense industries. He expressed to me a moral objection to working for any company involved in the engineering of weapons. Though I cannot recall many of the details of this first conversation, I do recall that his nostrils seem to be inflamed but that he was quite lucid in his arguments. He told me that he was going to take a leave from the Institute in order to sort out his future in his own mind and this was granted by the Dean in January, 1984. Where he went during this leave I do not know. I did not see him again until about June, 1984, and, when I did, it was under difficult circumstances.

On an evening in June, 1984, security received a call from a student working in one of the laboratories. That student reported a suspicious person in the parking lot beside the building, suspicious because he seemed to be taking an unusual interest in one of the vehicles parked in the lot. Security arrived and confronted that person who turned out to be Bill. Bill seemed to be somewhat spaced out and only slowly responded to questions. Security then brought Bill to the Master's house where I confirmed his identity as a recent student. After talking with Bill for a short time I concluded that there was no reason to pursue any action against Bill and asked security to leave. A little later Bill left.

Now, it transpired that Dabney House was closed during the summer of 1984 in order to make some repairs and upgrade some of the facilities in the House. After several weeks a number of people realized that Bill was hanging around the empty house particularly at night. It seemed that he was "ghosting" which, in the student idiom, refers to someone who is sleeping in the house without an assigned room. One evening I decided to investigate and entered the unlit house about midnight. It was eerie to come across Bill standing in an almost pitch black corner apparently talking to himself. As unthreateningly as I could I suggested that he and I should talk. Bill immediately turned and began to run out of the House. I decided that, rather than chase him, I would try to find him during the day when others might be around to help. It was from that time that my wife and I began to refer to Bill as "the ghost".

It was clear to me from that encounter and from my other brief glimpses of Bill that his mental and physical condition had deteriorated substantially since his return to campus. I suspected that he was abusing himself, not only by neglecting to eat but also by taking drugs. Andy Dowsett, the Dabney House R.A., and I made tentative plans to try to corral Bill and get him to help. In the meantime, Nancy Carlton, the director of housing, was inspecting the maintenance work in Dabney House one morning when she came upon Bill standing on one of the toilets talking to himself. When she called me to report the incident the shock was still reverberating in her voice. Security had been called by Nancy and they brought Bill to my office; shortly thereafter Andy Dowsett joined me with Bill. It was clear that we had to get Bill to the Institute psychiatrist. Initially Bill seemed to agree to allow Andy to accompany him to

an appointment that we had arranged for that afternoon. And so they left to walk to the Health Center. But when Bill saw the psychiatrist he immediately ran out of the building and across campus to an off-campus house on Holliston Street where he thought he would find refuge with a group of friends living in that house. Those friends were sufficiently disturbed by Bill's appearance and demeanor that they had no hesitation in consulting with Andy and I about how to get Bill to help. We then converged on Bill at that off-campus house. I began the process of trying to talk him into willingly going with us to the local Huntington Hospital. Bill was in such a poor state that he was almost incapable of communication. If he responded to any of my questions, the answer was preceded by a substantial pause. And his speech was slow, almost mechanical, and usually incomprehensible. But each time we tried to get him to move it was clear that he was about to panic. Finally he seemed to agree to accompany us but did express a desire to collect some things from Dabney House. We then proceeded in a group to Dabney where, again, Bill balked at going anywhere. Andy Dowsett drew his van up as close to the house as he could and there followed another long period of trying to persuade Bill to move from the House to the van. By this time I was becoming doubtful whether we would ever be successful without resorting to force that I knew would be viewed very negatively by the other students. So I withdrew to a little distance away while several other students tried their best. Finally they succeeded in getting Bill to join them in the van. They then proceeded to the Huntington Hospital who had been forewarned by the Institute psychiatrist at my request. The Los Angeles County Psychiatric Evaluation Team (PET team) were then called and decided to involuntarily hospitalize Bill in the nearby Ingleside psychiatric hospital.

During previous crises, I had experienced difficulties while attempting to have a disturbed student hospitalized when they were in no fit state to look after themselves. In this case the state system worked, at least initially. I discussed the situation with Bill's mother and we were fortunate that she had medical insurance coverage for the hospital bill. Bill was in such a psychotic state that he was clearly in danger since he could not look after himself. So the PET team placed him on an involuntary 72 hour hold that was later extended to a 14 day hold. By that time Bill had "dried out" sufficiently that he was lucid and able with some effort to present a reasonable argument for his release. Now, a patient who has been involuntarily hospitalized in California for 14 days has the right, if he or she so wishes, to plead his case for release in front of a judge. Much has been written elsewhere about the vicissitudes of this system and the difficulties inherent in mixing psychiatric medicine with the legal system. In retrospect, I believe the system must be held responsible for Bill's ultimate fate. By the time he had dried out sufficiently to exercise his natural intelligence he was able, with some effort of will power, to persuade the judge during his brief hearing that he should be released. He lied to the court, saying that he was currently a student at Caltech and that he had a student room to live in. He also had some modest funds with which to feed himself. The court made no attempt to check on the veracity of these statements. To keep him in hospital it would have been necessary for someone to make a special effort to detect these court proceedings

and to be present to make a case for continuation of the hospitalization. Since no such effort was made Bill was released after 14 days. Perhaps this was in accord with Bill's constitutional rights. But subsequent events demonstrated that it was certainly not in the best interests of Bill's mental health. I do not deny that he was vastly improved both mentally and physically when he was released; only that the underlying psychiatric problems were hardly addressed.

So Bill registered as a student for the 1984 fall term and moved into a room in Dabney House. He enjoyed participating in Rotation and I remember that he was quite prominent socially when my wife and I went to dinner in Dabney House one evening. Later in the term it was clear that Bill was back on the same downhill slide, the runners greased with speed. He did manage to complete the term but the decline in both his physical and mental health were obvious. Moreover, there were several slightly bizarre confrontations with his former girlfriend, Beth.

Then one evening I received a call from Andy Dowsett informing me that Bill had begun to behave very strangely and had gone running off the campus along one of the nearby residential streets. There he had run through the gardens of the houses and had even stopped to dig in the dirt of several front yards. There was a general concern about what he might do to himself so, in addition to organizing a search of the local streets by students, I called the Pasadena police and asked them to be on the alert for Bill. As it transpired one patrolman had already observed Bill talking to a fire-hydrant on Del Mar boulevard. Thus both Andy and I as well as the police caught up with him. It was clear that he was in a semi-psychotic state. I recall that the police handled the situation very smoothly and got Bill into the squad car with the minimum of force. At the station the PET team was called and Bill was again hospitalized involuntarily. I do not recall the extent of this, his second incarceration. But I do remember that Dabney House, Andy Dowsett and I arranged a special reception for Bill when he was released. The student who collected him from the hospital brought him directly to the Master's Office where Andy, about ten students and I were waiting to talk with him. It was a very frank conversation in which we all tried to point out to Bill that he was in danger of destroying himself by abusing drugs and that he had to commit himself to a real program of psychiatric care at the Health Center. I think this peer pressure had more effect upon Bill than I could have had alone. Unfortunately its effects were short lived.

The next incident occurred in January, 1985, when Bill attacked the telephone in the Dabney lounge with a pipe-wrench, and was overheard remarking that he wished the telephone was "Joe Stevens" head. "Joe" was a Dabney student who may have tried to intervene with Bill's supply of drugs. Bill was warned about his behavior and was billed for the cost of the telephone. But as the term wore on his behavior became increasingly bizarre. It was not that he really threatened the other students but rather that his increasingly irrational acts frightened them. On one occasion he walked straight into a female student's room without knocking and simply stood there staring at her. On another occasion he climbed to the bars outside Beth's window and shook them until Beth cried out for help. When confronted about his behavior he would

also react strangely and at various times appeared to be listening to voices. All of this finally became too much for the residents of Dabney House and we jointly agreed that Bill would have to be declared *persona non grata* in the house. This I did in a letter to him in March, 1985. I did offer to provide him with a temporary off-campus room for the brief period that he would still be in residence.

The Dean, Gary Lorden, and I had also decided that Bill should be placed on an involuntary medical leave of absence effective immediately. This would mean that he would require the approval of both the Institute psychiatrist and the Dean before he could again become a student. So, the next day, Bill was summoned to the Dean's Office in order to present him with this decision and to try to persuade him to seek immediate psychiatric treatment. I cannot recall the exact ruse that we employed in order to get him to show up. Whatever it was he behaved quite strangely, picking up papers from the secretary's desk and reading them and wandering rather arbitrarily around the office. I arrived shortly after Bill, accompanied by campus security. I then followed Bill when he left the office and accompanied him back to Dabney, collecting Andy Dowsett on the way. When we believed that we had Bill under control we then asked security to call the Pasadena police. Unfortunately Bill detected the arrival of the police before they reached us and took off running as fast as he could. The chase proceeded up Holliston street before the police picked him up. Harold Ginder, the security chief, and I went to the police station along with Bill and waited while the PET team consulted with the Institute psychiatrist. The result was that Bill was again placed on an involuntary hold and hospitalized.

Bill was again taken to Ingleside Psychiatric Hospital and placed first on a 72 hour hold and then on a 14 day hold. After the 14 days had elapsed, Bill's psychiatrist, his mother and I were all better prepared for the impending court hearing that Bill requested in order to achieve his release. Several other students accompanied me to the hearing. I was called to testify to the fact that Bill was no longer a student and that he could not stay in Institute housing. Bill, who was not in very good shape, also fouled his own case by admitting that he had taken acid a short time before his apprehension. The psychiatrist testified that Bill was a paranoid-schizophrenic and also told me privately that they had detected speed and marijuana in Bill's blood. The judge denied Bill's appeal for release and he remained in hospital for several more weeks.

We did not see Bill again until the beginning of the summer break of that year, 1985. When I encountered him outside the Dean's office he seemed vastly improved (as he always did after release). He assured me that he was determined not to return to his abuse of drugs and that he intended to follow his prescribed course of medicine and therapy. I hoped very much that this would happen. In his recovered state Bill managed to arrange a summer job at the Jet Propulsion Laboratory. With such a job he was entitled to housing and we placed him in a quiet off-campus house on Wilson Street. For a few weeks Bill seemed to be progressing quite well and was making plans to return to school in the fall. For a while I lost track of his activities. But toward the end of the summer he had a relapse and returned to his drug abuse while at the same time failing to follow

his prescribed regimen of treatment. Since he did not register as a student for the fall term I had to ask him to vacate his room. He briefly took unauthorized refuge at another off-campus house on Holliston before his increasingly bizarre behavior there caused the residents to ask him to leave. I believe his next stop was with some drug-related friends in the Pasadena area.

Then matters rapidly got worse. In October, I received a telephone call from the Highway Patrol in Newhall to the effect that they had apprehended Bill in Newhall after a 100mph car chase on the Golden State freeway. The car Bill was driving had been leased from the Institute and the Highway Patrol wanted to know whether or not they should release the car to Bill after he was bailed out. I told them not to release the vehicle and immediately tried to find out how Bill could have managed to rent the car. The answer was that Bill still appeared on the list of students used by the Institute's carpool personnel. As a result the procedure for renting cars to students was changed to ensure that there would be no repeat of this incident. I am not sure how Bill managed to post bail. However he did return to the Pasadena area.

About a week later two students in Blacker House observed a young man whom they did not know behaving strangely. When this young man (Bill) picked up and started to walk off with a backpack that they knew belonged to another Blacker resident, they called security and then tried to apprehend the young man. Bill then turned on the students and began to punch one of them with his fists. When security arrived they handcuffed Bill and called the Pasadena Police. Bill was then charged with theft, battery and resisting arrest. As a result of the last two incidents, the Dean wrote to Bill declaring him *persona non grata* on the entire campus and warning him that he would be arrested for trespassing should he be found on Institute property.

A few nights later, security observed Bill on the west side of campus and warned him several times that he was trespassing. On the third occasion they chased him and he went into an Institute house on Wilson Street where security caught up with him. The Pasadena Police were called and Bill was arrested for trespassing. Two nights later, security found Bill sleeping in one of the steam tunnels under Fleming House. Bill told them that he was scheduled to appear in court at 10.30am the next morning as a result of earlier charges. Again the police were called and took Bill into custody on a charge of trespassing. At the police station Bill was found to be in possession of sufficient drugs to book him on an additional charge of possession with intent to sell.

Many of the details of what happened to Bill over the next six months are not known to me. I do know that there was a court case on the assault charge at which the Blacker student who had been attacked testified and Bill was found guilty. I also heard third or fourth hand that Bill entered a gun shop and, while attempting to purchase a revolver, said some things that indicated to the salesman that he intended to commit suicide. As a result of these incidents, and perhaps other court proceedings, Bill was incarcerated in the Los Angeles County Metropolitan psychiatric facility until June of 1986. It seemed singularly ironic to me that Bill, who was otherwise a very gentle person, should have had to attack someone in order to get the kind of extended care that he needed

from the beginning. Knowing Bill's gentleness and his lack of size, strength and coordination I doubt that the attack was very serious; and I know that it was not in any way malicious but rather an act of frustration, confusion and desperation. When Bill was released on probation from the Metropolitan Hospital in June 1985, one of his first acts was to return to campus to see me. He asked whether it would be possible to lift the *persona non grata* status. I told him that since he had only just been released I could not change his status. However if he came back to me in six months with a record that showed that he could conduct himself in society in an appropriate way then I would consider the possibility of changing his status. Three months later I received a phone call from Bill's brother with whom I had spoken on previous occasions. He called to tell me that Bill had taken his own life. Apparently Bill had gone to Nebraska in order to try to start anew. However one day he went to a shooting range, turned the gun around and shot himself through the head. I wept at the passing of a gentle soul who had never been able to control his own thoughts. Bill was buried in October, 1986, a victim of the cruel side of the great American dream. For me his ghost will always drift through Dabney House, a reminder of the awful price to be paid when one tampers with the mind.

* * *

The single most alarming and difficult individual problem with which I had to contend during my term as Master concerned a young man whom I shall call Peter Stillwell. Though it was not clear at the outset, this student had a very disturbed family history that was responsible for his paranoid-schizophrenia. As in so many other cases with which I had to deal, Caltech was not the direct cause of the mental illness. However the pressures to which a student at the Institute is subjected either by himself or by the academic demands may have aggravated the illness.

I first met Peter Stillwell in July 1984. During that month I received a security report on a confrontation in the courtyard of one of the student houses between Peter and a female student whom I shall call Judy. Security had been called when Peter and Judy began shouting at one another. Reports were taken from both antagonists and the incident ended with the officer advising Peter to stay away from the house in which Judy was living. The incident was not in and of itself alarming. What did concern me was the statement by Peter that Judy had "cut his hand at the end of May" and the statement by Judy that "Stillwell had physically assaulted her and broken into her room twice". The Dean, David Wales, and I agreed that we had to investigate these previous incidents and so I asked both students to come and see me.

From these discussions it became clear that Peter and Judy had been close friends but that Judy had decided to terminate the relationship. Upon recognizing this Stillwell demanded to talk to her. On one occasion he forced his way into her room in the student houses. She picked up a hunting knife and he retired when she threatened him with it. However, sometime later, he forced his way into her room for a second time. On this occasion when she picked up

the hunting knife Stillwell refused to leave and they got into a struggle during which Stillwell's hand was cut. Subsequently he confronted her several times with demands to talk to her; the incident in July 1984 finally brought the whole matter to my attention.

During my discussions with Peter and Judy in July, the antagonists appeared to agree on the basic facts described above. It was clear that Stillwell's actions in forcing his way into Judy's room on two separate occasions warranted some disciplinary action. Therefore the Dean and I talked to him together and informed him that such behavior was unacceptable and that any further acts of this kind would result in stern disciplinary action being taken against him. We also encouraged him to get away from the campus for the remainder of the summer vacation.

I had no further dealings with Peter Stillwell until the fall of 1984. He registered as a student and lived in one of the student houses. Along with a number of other students he became involved with an EST-like program called Lifespring and spent some time attending their courses in Santa Monica. It was the opinion of the Institute psychologist that, while such courses might be relatively harmless for the mentally stable, they can have disastrous effects on those with certain types of emotional problems. Indeed this mini-fad for Lifespring caused a number of individual problems among our students and resulted in my concluding that such involvements should be actively discouraged when they are first discovered. Fortunately none of the students who became involved suffered any permanent damage with the possible exception of Peter.

One morning in October or early November I received a telephone call from the resident associates in the student house in which Peter was living (let me call them John and Sarah Brown) who told me that Stillwell had come to them the previous evening in a very disturbed emotional state. He still seemed very distressed over Judy and, added to this, were his fears over a more recent relationship with another female student. He spent the night in the R.A.'s apartment. I was there when he awoke about noon. I brought with me another student who had also attended the Lifespring courses and as a result had become quite concerned about Peter's well-being. Let me call him Jack. Jack was one of those who was stable enough to, perhaps, even benefit from that program. Jack and I persuaded Peter to go and see one of the counselors at the Health Center; indeed I believe Jack may even have accompanied Peter to make sure that he kept the appointment. Apparently the counselor and Peter agreed that he, Peter, should voluntarily check into a local psychiatric hospital. I had offered to drive Peter there; however when the time came I was tied up and I arranged for someone else to take him. Later that evening I visited Peter at the hospital. He had been drugged and was quite relaxed but lethargic. I was quite sympathetic to him and in retrospect this may have been a mistake. Indeed my intuition dates his antagonism toward me to this visit. Peter was released from the hospital the next day and I spoke with him outside his room in the student houses in the company of Jack and another Lifespring friend whom I shall call Sam. Peter seemed somewhat resentful at the time, claiming that I had been "too sympathetic".

The next incident occurred late one night in November when I was awakened by a telephone call from Security requesting my presence on campus as a result of a confrontation between two students, Peter and Sam, and three security guards. Apparently the two students had been spotted returning to campus with various street signs, a pair of bolt cutters and other miscellaneous tools. The three security guards had stopped the students, confiscated the signs and tools and demanded their student I.D.s. Peter then became very agitated saying that he could sue Caltech and have the guards fired to which the officer replied that Security was there to protect students as well as Caltech property. At this point Peter "went into a fit" saying that he had been stabbed and that Security and Caltech personnel had done nothing about it and that he had been informed not to call the police. Apparently Sam had the presence of mind to physically restrain Peter by getting behind him and pinning his arms to his waist. Thus he managed to avert a direct physical confrontation between Peter and Security. Furthermore Sam pulled Peter away toward the student houses so that by the time I arrived on the scene Peter and Sam were ensconced in the lounge of one of the houses while the security guards were waiting outside. I entered the lounge alone and spoke with Sam. Peter was on the telephone talking with his psychologist who seemed to have calmed him. Sam asked me to leave, assuring me that he could handle Peter. I told him I would have to speak with both of them on Monday. I then left the house advising the security guards to go about their business since I would deal with the matter the next weekday.

On Monday, Peter arrived in my office first. As soon as he was seated he began a tirade of accusations against me claiming, amongst other things that I had prevented him from seeking justice after he had been "stabbed" by Judy. I never really understood this accusation or what might have led to it. After all I did not even hear of the incident until about four months after it had happened. Nevertheless Peter was very angry. I then informed him that I could not tolerate his violent behavior. I reminded him that he had previously been warned about this violent tendencies and, as a result, I would have to consider asking him to leave the student houses. At this point he became even more enraged and abusive, storming out of my office giving me "the finger".

At this point I did consider asking Peter to vacate his room in the student houses. He had informed the new Dean, Gary Lorden, of his intention to withdraw and, perhaps wrongly, we decided to wait and hope that he departed without further incident or confrontation. On drop day at the end of November, Peter completed the paperwork associated with withdrawal and thus ceased to be a student. However he remained living in the student houses. About two weeks later a more serious incident occurred. About midnight I received a telephone call from the R.A. John Brown. He told me that Peter had entered their apartment in a very disturbed state. He was calling me from the lounge; his wife Sarah was with Peter in the apartment and he was very concerned about Peter's behavior. I told him to give me a couple of minutes to wake up and dress. Within about two minutes Sarah called me from the lounge. John was now with Peter in their apartment and she was concerned for John's safety. I told her to call Security immediately while I called the Institute psychiatrist

to seek his advice and cooperation in handling the problem. I then went down to the student houses where I found John and three security guards standing outside the R.A.'s apartment waiting for me. John informed me that Peter had assaulted him and was now lying on the floor of the apartment curled up in a ball. I then entered the apartment. Upon seeing me Peter leapt to his feet, screamed at me ("Get the f— out of here you bastard, Brennen") and then rushed at me with the clear intent of assaulting me. Fortunately John Brown stepped between Peter and I thus deflecting the assault. Peter did manage to throw several objects at me before the security guards rushed in and pinned him to the wall. There followed a most unpleasant scene while the three guards attempted to subdue Peter who was fighting, screaming, spitting and kicking. They eventually handcuffed Peter though he continued his violent resistance as they escorted him out of the apartment and down the hallway. During this time I asked one of the security guards to call the Pasadena Police. Helped by the intervention of several students, Peter calmed down prior to the arrival of the police. Also during the wait I again called the Institute psychiatrist and arranged for him to talk to the police once they arrived. Thus upon their arrival I asked one of the police officers to call the Institute psychiatrist and I understand that he recommended that the police call the County Psychiatric Evaluation Team (PET team) to examine Peter once they got to the police station and that they arrange for him to be placed on an involuntary 72 hour hold. The police then proceeded to take Peter to the station. The deputy master, Bernie Santarsiero, also went there separately in the company of John Brown and a student. Due to Proposition 13 cutbacks only a skeleton PET service operated during weekends so the PET psychologist only talked with Peter over the phone. Furthermore Peter had recovered himself sufficiently by this time that he was able to persuade the PET psychologist over the phone that he was not a danger either to himself or to others. Meanwhile the Institute psychiatrist and I were busy trying to make the necessary arrangements so that Peter could voluntarily hospitalize himself. This was made difficult by the fact that Peter was no longer a student and therefore no longer covered by the Institute health plan. I therefore called Peter's father and after giving him the barest account of the events, sought his willingness to pay for voluntary psychiatric hospitalization. This was forthcoming and the Institute psychiatrist arranged for a bed at the same local hospital where Peter had previously stayed. Having made these arrangements the Institute psychiatrist and I both telephoned Peter while he was still at the police station in order to try to persuade him to go along with voluntary hospitalization. Peter refused all these offers. The Pasadena Police then released him. He returned to campus and the events of the night drew to an exhausted end.

I spent the next day, a Sunday, trying to decide what action to take. I also had to tend to the welfare of the R.A.s who had gone through a most harrowing experience. I sent them to a motel for the rest of the day and the following night. I also had an extended telephone conversation with the Dean who was on vacation as well as further discussions with the Institute psychiatrist. On Monday I talked with the Vice-President for Student Affairs and with the

Institute Associate General Counsel about the steps that I now intended to take and received their approval. I had learned that Peter intended to leave for Christmas vacation at his parent's home within a day or so. However it appeared that he did not intend to vacate his room. I decided to allow this to happen before taking action in order to avoid yet another violent confrontation within the student houses. Peter did indeed leave on Tuesday. I then mailed a registered letter to his home declaring him *persona non grata* in the student houses and telling him that I would have his belongings packed and stored in Central Receiving where he could either arrange to have them transported elsewhere or collect them himself.

I heard nothing more of Peter until one evening early in January. My wife and I returned from an evening out and were walking from the car to our front door when Peter approached us in a quite threatening way. He immediately launched into another tirade against me, shouting that he was going to sue me for wrongful eviction and stating that I would lose my job and everything I owned. His manner was abusive and threatening. My wife was very upset by this confrontation with its aura of impending violence. However I simply said "Yes Peter" and escorted my wife to the door and into the house. By that time Peter had disappeared. Later, concerned over the possibility that Peter might not have received my letter, I called Peter's father who confirmed that he had indeed received my letter while at home.

To further emphasize my resolution I wrote a reiterative letter to Peter along with a copy of the earlier letter and a copy of the student house rules that state that the Master has the right at any time to expel a student from the houses for conduct he considers detrimental to the houses. However it appears that Peter decided to defy my order and he was seen in the house by a number of students. He even came to the door of the R.A.'s apartment but they refused to talk with him. Shortly thereafter Peter filed a grievance against me with the Vice-president of Student Affairs. After several interviews with Peter, the Vice-president ruled that Peter had no basis for a grievance and advised him to abide by my order. Shortly thereafter, Peter left the Pasadena area and we heard nothing from him for several months.

However, unbeknownst to any of us in student affairs, Peter managed to obtain a summer job with an off-campus Institute laboratory. Early in the summer the Dean received a telephone call from Peter telling him about his summer job and that he was setting off for campus to "pour some water on the wicked witch of the west". I suspected that he visualized me as the witch and was therefore somewhat apprehensive about what to expect though not at all prepared for what did happen. At about 9.00pm that evening I was at home with my wife, my elder daughter, Dana, and my young son, Patrick. The doorbell rang and I advised my wife that I would answer it. She was nearby, Dana was in the kitchen and Patrick was upstairs with a friend. Suspecting the worst I left the security chain in place as I opened the door. It was Peter and he began screaming the moment he saw me. Seconds later he crashed into the door, breaking the security chain (whose screws came out with dismaying ease). Before I knew what was happening I was forced to the back of the hall

with Peter's arms around my neck. He continued screaming that he had come to arrest me and that he would make sure I was thrown in jail. Fortunately I managed to remain on my feet. Though the shock of the assault had temporarily weakened me, I had managed to achieve a brief stalemate while admittedly pinned in the corner in a partial neck hold. Peter continued to scream at me. Doreen had had the presence of mind to run in to the kitchen and call security demanding their immediate presence. She followed that with a call to the police. My elder daughter had escaped through the back door at the beginning of the assault and, despite injuries to her leg while climbing the fence to enter the neighboring student house was also calling the police from that location. Patrick had the sense to lock himself in one of the bedrooms. Doreen then approached the confrontation itself during the stalemate phase but I yelled at her to leave. Upon seeing her Peter screamed at her to call the police, adding that if she called security I would be a "dead man". Finally I had recovered my strength and when Peter made a particularly vicious but awkward move to scratch my face, I lifted him off the ground using my leg and, once he was off balance, got my arm around his neck from behind and threw him to the floor in a classic strangle-hold. For a brief second I tightened the hold quite angrily and he quickly ceased all resistance when he realized that he was powerless. I then loosened my hold to avoid injuring him and yelled at Doreen to go out into the street and shout for help. This she did while dressed in her nightclothes.

Help arrived almost immediately thereafter. A student from a house across the street came running over. Several students from campus who had heard of Peter's intent to come to my house showed up. Two security guards came running up Holliston and placed Peter in handcuffs. I was too shaken to recall accurately what happened later that evening. I do know that I called the Dean and he drove to campus as fast as he could. The police arrived and there was some discussion of the options before Peter was arrested and taken to the police station where he was charged with several misdemeanors. I found out the next day that Peter had attempted to flood the jail by deliberately blocking up the toilets. This sufficiently angered the police that he was also charged with a felony count of attempting to flood the jail. It seemed singularly inappropriate to me that breaking into a person's home and attacking him warranted only misdemeanor charges while attempting to flood the jail was a felony. Several days later in the presence of his father, Peter was ordered by the court to be hospitalized for at least two weeks. At the time we were unsure of when he would be released and so spent a number of very restless nights not knowing what might happen. I believe he was released after about two weeks and spent an additional two weeks in the Pasadena area. He then left for his home and as far as I know has not returned to the campus since.

As a result of his assault on me Peter was expelled from the Institute, a punishment that requires the action of the President and is very rarely handed out. I hoped that this was the end of the story and that somewhere, sometime Peter would find peace within himself.

With the benefit of hindsight it is clear that I handled the problem with excessive leniency. Peter should have been asked to leave immediately after the

incident in the R.A.'s apartment if not before. Furthermore I believe that the job of being an R.A. is sufficiently difficult that the Institute should take a very firm and rigid position on any violence or threats direct at an R.A. (or indeed any other member of the staff). It should be established that any such threat or act will lead to immediate expulsion. I have become increasingly convinced that such a policy would not only be in the best interests of the Caltech community but also of the young person involved.

Another hard lesson to be learned from this and other experiences with mentally ill students is the inadequacy of our state system for dealing with these afflictions and the dangers they can present. The present policy prevents hospitalization except when the person is either a danger to themselves or to others. Yet in order to prove this it seems to be necessary for the sick person to have attacked either themselves or others. In the present case, even after the assault on the R.A., it proved impossible to get any response other than a fruitless phone call from the local PET team. And Peter was undoubtedly released while still a threat to myself and others on campus.

Chapter 23

MOSH: SOME OF THE FUN

“A councillor ought not to sleep the whole night through, a man to whom the populace is entrusted and who has many responsibilities.”

From “The Iliad” by Homer.

In stark contrast to the sometimes intractable and always troubling issues detailed in the preceding chapter, it was also my unofficial responsibility as Master to discretely oversee some of the high-spirited fun that our students indulged in, to try to mitigate the worst excesses and the more severe consequences. The most public of these student activities were the often-ingenious pranks that our students loved to perpetrate. Most of these have been documented in alumni publications so I shall confine my account to a few of those classic pranks in which I played a background role. Indeed the period, 1983 to 1987, during which I was the Master of Student Houses is often recalled as a classic era for Caltech student pranks, coming as it did just before serious security issues raised the danger for students to an extreme level. I will recount my role not only in several of the all-time classic pranks but also in several of those that failed.

* * *

On New Year’s Day, 1984, I had been Master for just over four months when the students pulled off one of the all-time classic stunts at the annual Rose Bowl football game. In its achievement it may even have surpassed the card stunt of the 1961 Rose Bowl. For those unfamiliar with the history of these stunts I should mention that they have become part of the enduring folklore of Caltech. Each generation of students feels challenged to leave a Rose Bowl legacy that will rank with that of its predecessors. When alumni meet these legacies are

spoken of with mischievous pride. Indeed the most popular publication ever produced by the alumni office, "Legends of Caltech", recounts student pranks of all kinds - but, in particular, features the challenge presented by the Rose Bowl. Alumni, faculty and students at Caltech enjoy regaling new students, parents and visitors with the stories of pranks. Hence the tradition has substantial momentum. Indeed during his address at the 1982 Commencement ceremony, President Murph Goldberger, much to his later embarrassment, decried the absence of a good Rose Bowl stunt in the preceding few years. Murph's later regret was understandable but in his defense I doubt that his statement had much effect. Fueled by years of tradition, plans were already being formulated.

It is appropriate to ask why the Rose Bowl became the focus of such a tradition. The obvious answer is that it is far-and-away the biggest day in Pasadena each year. The Rose Parade and the Rose Bowl game that follows are known and televised throughout the nation. A stunt at the Bowl Game means instant attention by the national media - and national recognition of the uniqueness of Caltech students. But, in addition to this, the confrontation between the students and the Tournament of Roses officials has all the classic elements of a confrontation between the young and what is perceived as an unnecessarily stuffy tradition. During past incidents the Tournament officials had displayed a lack of humor, an unbending resistance to any impromptu deviation from their clockwork organization. No doubt, this stuffiness supplements the determination of the students and adds spice to the challenge.

The idea of gaining control of all or part of the electronic Rose Bowl scoreboard during the New Year's Day game seemed to have been tossed around for many years. Indeed there may have been one or two earlier attempts that were aborted. What is clear is that during 1982 and 1983 serious efforts were underway. The basic idea was to take over control of the Rose Bowl Scoreboard during the game in order to illicitly supplement the day's entertainment with some of Caltech origin. Though others were involved to various degrees during its planning and implementation, there seems little doubt that the major instigator - Caltech's own Mr. "Mission Impossible" - was Dan Kegel, in 1983/84 a junior in Blacker House. There he had learned the intricacies of opening locked doors and so supplemented his formal studies in electrical engineering and computer science. One other important skill, rock-climbing, he polished with the Caltech Rock-climbing Club, always a popular activity at the Institute. Kegel and his friends faced a number of challenges. First there was the device, the computer, that would take over from the Rose Bowl computer once the latter was disconnected. Though not trivial, the hardware necessary for this was readily available. A small microcomputer was selected and a transmitter/receiver system was integrated with the computer so that the latter, once installed in the Rose Bowl, could be radio-controlled from a neighboring hillside. This would allow the operators sitting on the hillside during the game to change the scoreboard in whatever way they wished. All this is now part of the familiar legend. What is not so well-known is that a tape recorder was also part of the computer package. This was rigged so that, on command from the operators, the computer would connect the tape recorder to the public address system and

broadcast the contents of the tape to the assembled 100,000 people.

But this hardware represented only a small part of the challenge. In addition the students had to program and install the computer. This required finding not only the physical location of the Rose Bowl computer and the wires to the scoreboard but also the details of the language used to control the scoreboard. The latter was necessary in order to program the illicit, replacement computer. Thus the first field operations at the Rose Bowl itself were carried out in order to try to extract this information. One of the earliest of these expeditions, all of which were executed under the cover of darkness, soon confirmed the obvious, namely that the Rose Bowl computer was located in the press-box high up on the rim of that huge bowl. Whether Kegel and his friends used their rock-climbing skills to reach the press box I am not quite sure. In any case it was necessary to get through at least one locked door in order to gain entrance to the interior of the press box. For this purpose the expedition used a common student device called a "frosh door opener". This is used to get into a room when it is locked from the inside. It consists of some fairly rigid wires and a strap. The device is slipped through the gap beneath the door and, by rotation, the wires are used to place the strap over the door handle. The operator then pulls on the straps from outside in order to first grasp the handle and then to turn it. Such a device was used to enter the press-box. Once this was accomplished, the expedition quickly found the computer and began a search for documents detailing the language it used to communicate with the scoreboard. Fortunately they easily located the necessary manuals in an unlocked cabinet. I believe that several sorties were necessary to consult these manuals. On one occasion a manual was overlooked and left lying on a desk. Fortunately this did not arouse the suspicions of the normal operators.

Finally the construction and programming of the device was completed and plans for its installation had to be made. Kegel had located a junction box through which the wires from the Rose Bowl computer ran to the scoreboard. It was directly under the press-box and could only be reached using his rock-climbing tackle. One of my enduring visions of the whole incident is the picture of Kegel hanging under the press-box while installing the illicit computer. I understand that at least one diversion was organized during this critical phase of the operation. The strategy was that if the presence of the night-time intruders was detected then attention would be deflected by the diversion. It was to this end that at least a dozen students were recruited to enter the Rose Bowl at night in order to play a game of touch-football on that storied field in total darkness. Fortunately this strange game was never discovered, its purpose never put to the test. I suspect that if it had, the strategy would have worked since the Pasadena Police are accustomed to odd behavior on the part of our students.

In the post-mortem after the prank, it was alleged by the Rose Bowl authorities that the students had damaged the Rose Bowl computer. They then decided to ship it back to the manufacturers to have it repaired only to discover that it was, in fact, undamaged. They next claimed that there was damage to the wires where the illicit computer was connected. In fact Kegel took great care to splice in the new connections in such a way as to allow subsequent dis-

connection without damage to the wires. If the wires were damaged then it was because the Rose Bowl operators thoughtlessly ripped out the connections.

But to get back to the story, everything was now in place for the prank. Several hours before the game was to begin Kegel telephoned his instructor in an electronics project class he had taken the previous term to tell him to tune in to the game for a demonstration of Kegel's class project entitled "Bulletin Board Control".

During the final days of the project Kegel had received quite a bit of help from another student, Ted Williams, a senior in Lloyd House as well as a number of members of Page. On New Years Day Kegel, Williams and others stationed themselves on the nearby hillside in a location from which they could observe the scoreboard. It is rumored that an anonymous alum made available his strategically placed backyard for this purpose. They began their activities early in the game, though they were not noticed by the national television commentators until the third quarter. Initially they confined their activities to the moving message sector at the bottom of the scoreboard. Small animals that could have been beavers moved across the screen. Then came the traditional signature "DEI" followed by a number of other messages recognizable only to the cognoscenti. I believe a message of welcome from Caltech also appeared. All quite harmless and in the best traditions of Caltech pranks. Though others in the stadium may have noticed these initial efforts it was not until the third quarter of the lopsided game that the pranksters started to modify other displays on the scoreboard. Sensibly they never interfered with the score itself or any of the other important pieces of information such as the downs. However they did change the names of the teams so that the score read "CALTECH 38 MIT 9". At this point the change was noticed by all the media present and the pranksters were assured of everlasting fame. One of the few Caltech people present in the stadium was Murph Goldberger, sitting in his invited position amidst a now-irate group of Tournament of Roses officials.

In most retellings the story ends with that remarkable moment. For me, as Master of Student Houses, the events had just begun. Suddenly after but four months on the job I was faced with a major crisis. The media immediately descended on campus determined to seek out the perpetrators. Before I could become involved two had already identified themselves and had given numerous interviews both on and off camera. The two, Dan Kegel and Ted Williams, were front page news and featured on national television. Of the two, Ted was the more articulate and received the widest coverage though he was, by his own admission, only one of a large number of participants. Dan was the mastermind but was more wary of the publicity - for good reason as we shall see. The other participants subsequently became known to me but will remain anonymous.

Shortly after this moment in the spotlight the matter took an unpleasant turn for Kegel and Williams. First the Tournament of Roses Chairman voiced his displeasure to Murph in no uncertain terms and demanded disciplinary action. Second the Tournament of Roses Committee exerted their considerable influence upon the Pasadena Police and City officials to take legal action against the perpetrators who had so conveniently identified themselves in the media. I



The altered Rose Bowl score board and the start of the changes.

suspect that the Pasadena City Prosecutor, Michael Murnane, saw political profit to be gained with the Pasadena gentry who serve on the Tournament of Roses committee. Or perhaps he simply was misguided in the vigor that he now exerted to prosecute the “criminals”. My first direct involvement was a telephone call from a Pasadena Police detective by the name of Don Hyzy. All jollity on the phone he insisted to me that he just wanted an informal chat with Williams and Kegel in order to clear up some loose ends; no mention of any pending prosecution. Though wary I saw no alternative but to make arrangements for such a meeting. Williams was away from campus on a job interview but Kegel willingly agreed to meet with the detective when I innocently relayed the content of the telephone call to him. The interview was arranged in the Master’s office one morning. When Kegel, the two detectives, the Caltech Security chief Harold Ginder and myself were seated, the meeting immediately took an ominous turn. Hyzy started to read Kegel his rights in an antagonistic tone quite different from that he used in making the arrangements for the meeting. I interrupted this rigmarole with the remark that I had been led to believe that this would be a friendly meeting for the purpose of transmitting information and that if this were not the case I would have to ask the detectives to leave my office, in retrospect a naive remark motivated by my lack of foresight. But it generated an immediate response from the detectives who leapt to their feet, grabbed Kegel and began to handcuff him. Thanks mostly to the comments of Harold Ginder this confrontation between myself and the detectives was defused. Ginder suggested that we proceed cautiously with what was now clearly an interrogation and better conducted on campus than to have Kegel arrested and taken to the police station for questioning. Of course, the detectives may also have been bluffing; the adverse publicity that would have been generated by such an arrest would have caused considerable difficulties for the Pasadena Police. The whole incident taught me to be much more circumspect and suspicious during future dealings with City officials. I must also say that I admired the way in which Kegel handled himself. Despite this ominous start and my warnings to him that perhaps he should not say anything until he discussed the matter with an attorney, Dan decided to tell the complete story and to trust that the truth would lead to a just outcome.

This session also revealed another fact that had not previously been known to me. Hyzy told me that a tape recorder had also been installed in the computer package. In fact this was activated during the game and Wagner's "Ride of the Valkyries" was played over the public address system. Unfortunately (or perhaps fortunately because of what was to follow) this traditional music that is so much a part of Caltech tradition was not heard by most of the crowd or by the broadcasting networks because the predetermined volume setting was much too low.

During the last moments when the students were completing the device and the "Ride" had been recorded on the tape-recorder cassette there was, as always, space remaining on the cassette. On the spur of the moment Kegel decided to add a recording of a sketch by Monty Python's Flying Circus, the English comedy team that was so popular with our students. Kegel chose a sketch that contained many four-letter words and obscene remarks. These are rudely funny to the listener. However the entire sketch had been transcribed onto paper by the detectives and, written down in black-and-white without the overtones implicit in the human voices, it looked totally indefensible. Kegel stated that this was never played over the public address system and the detectives must not have been able to prove it. Fortunately the matter never received publicity for it would have degraded the enormous public sympathy for the students.

After the interview it quickly became clear that the City Prosecutor, Michael Murmane intended to vigorously prosecute the case. Fortunately an anonymous member of the Caltech community offered to pay the legal costs for the students and arranged an attorney for them. At the preliminary hearing Williams and Kegel were charged with four misdemeanors. Three were violations of the state code: (1) Interfering with a private computer system (2) Trespassing (3) Another misdemeanor. The fourth was a violation of the Pasadena City code, "loitering in the Rose Bowl at night". With tongue in cheek I suggested that their defense against the last charge should be that they were not loitering at all but were very busy.

When these charges were announced, there was a considerable upwelling of adverse publicity. Editorials in the local newspapers decried the effort spent on prosecuting this fairly harmless prank, when the city had much more serious crime to contend with. Public opinion was clearly on the side of the students though there were two flies in the ointment. The first was the Monty Python sketch though, fortunately it never came to public attention. The second was the claim that the students would receive academic credit for the project. The Caltech administration was embarrassed by this publicity and quickly tried to disassociate itself from this claim; indeed from the whole affair. Nevertheless public opinion stayed firmly on the side of the students and other city officials (in particular the mayor and the city councilmen) began to criticize Murmane for misplaced zealotry. This pressure resulted in the dropping of two of the charges against Williams and Kegel and a deal was worked out between their attorney and Murmane. It was agreed that the students would plead "nolo contendere" to the two remaining charges, that they would be placed on probation at the conclusion of which their records would be cleared and that they would pay for

the costs of the transport of the Rose Bowl computer to the manufacturer, a sum of \$1200. This deal was quickly consummated at the final hearing and the television lights outside shone on the participants for the last time.

But like all good stories this one has a few footnotes. The same anonymous patron who offered to pay for the legal costs also paid the \$1200. Williams went on to an excellent job and his fears concerning difficulties with his security clearance as a result of his prosecution were overcome. Kegel took a leave of absence from the Institute but returned and graduated with his Bachelor's degree. Shortly after the conclusion of the legal proceedings the City Prosecutor's office, which had previously been autonomous, was placed under the authority of the City Attorney's office. I remember a sunny St. Patrick's Day when my wife and I walked up to see the parade along Green Street. Michael Murmane was in the parade, passing in a large white convertible, sitting up at the back and waving at the crowd. As he passed us, an old lady standing next to us in the crowd turned to her companion and said "There's that silly man who tried to prosecute those Caltech students after the Rose Bowl prank". About a year later Michael Murmane was fired as City Prosecutor.

* * *

I now jump forward about two years to the second Rose Bowl prank with which I became involved, that in the 1986 Rose Bowl. The participants this time must remain anonymous but I think I can safely reveal that they resided in Ruddock House that had not been involved in the 84 Rose Bowl prank. They were undeterred by the consequences faced by Kegel and Williams as a result of that earlier prank. As I have previously indicated, the challenge represented by the long tradition of successful and unsuccessful Rose Bowl pranks has its own momentum. The students will not be deterred; but they should be cautioned of the danger to themselves, the need for an awareness of public reaction to their pranks and the possible legal consequences of their action. In this instance I was approached by several students during 1985. They sought to ask my advice assuming that, as always, I would hold what was said in strictest confidence. This had ever been the unique position of the Master in the organization of the Institute. It is to the credit of those who conceived the position that they saw the great value to both the Institute as a whole and to the students in particular of an individual who could act outside the normal confines of a bureaucracy and who could be relied on to handle difficult personal matters and embarrassing events in a discrete but just fashion. Having as usual acquiesced to such a conversation, I was informed of ongoing plans for a prank at the 1986 Rose Bowl. This time the intention was to install devices inside the goal posts of the football field. These devices would be radio-controlled. Upon transmission of the start signal, flags would emerge from the top of both goal posts. On these flags would be printed the words "Caltech" and "Welcome". At least one exploratory sortie had already been made, during which one of the goal posts had been dismantled so that measurements could be made of the interior diameter of the tube-like posts. Upon completion of these measurements, the posts had been reassembled

and, apparently, no one had detected the incursion. The devices to be installed were in the process of being fabricated; they essentially consisted of flagpoles that would be raised by springs once a remote-controlled trigger was activated.

The students main purpose in talking to me was to seek advice on what they should do if caught during the installation phase or if questioned after the event. I advised them of the possible legal consequences and urged them to avoid any danger either to themselves or to others. I reminded them that all officials in charge of large public gatherings are very sensitive to terrorist activities. The placing of any device with any remote resemblance to a bomb should be rightly viewed as a serious felony. I made this obvious statement simply to sensitize the students to this serious issue and not because their particular device would have any such resemblance. As it turned out it was a prophetic remark.

I heard no more about the matter until the middle of December, 1985. Then I received a message from the Pasadena police via our security chief, Harold Ginder, to the effect that several strange "catapults" had been found the previous night outside the Rose Bowl. The police lieutenant in charge of security at the upcoming Rose Bowl believed that these devices must be part of a prank that the Caltech students were intending to perpetrate. He speculated that these "catapults" were intended to launch missiles with flags over the stadium during the game. He had so informed the Tournament of Roses Chairman, who was irate at the thought of the danger these missiles would pose to the assembled crowd. I agreed that I would go to the Pasadena Police station with Harold Ginder to talk to the lieutenant and examine the evidence (no more interviews on campus!).

At the police station we were introduced to a pleasant lieutenant who wanted assurance that nothing would occur at the game on New Year's Day. I gave him my assurance that I would do everything I could to make sure that our students did not attempt any pranks on that day. I also expressed my incredulity at the catapult story and asked to see the devices. I also informed him that in addition to being Master of Student Houses I was also a professor of mechanical engineering and therefore qualified to give an expert opinion on the range of the "catapults". We then walked to an upstairs store room filled to the brim with paraphernalia much of it clearly intended for illegal purposes. There, in the corner, we found two devices about six feet long and consisting of flagpoles mounted in frames to which they were attached by long springs. I proceeded to examine these devices as though I had no idea as to their purpose but with an air of confidence in my own ability to assess their mechanical performance. I released the trigger while restraining the flagpole with my hand. I then repeated this demonstration several times with decreasing restraint on the flagpole. In this way I was able to convince the lieutenant that these devices, if catapults, could not propel the flags more than about ten feet into the air. No, I said assuming my most professorial air, it is much more likely that the springs were only intended to raise the flags up out of the frames. Then we proceeded to speculate on the purpose. I pointed out the narrow diameter of the frames. Could it be, I suggested, that they were supposed to be located in some hole in the Rose Bowl and to be erected at some auspicious moment? The lieutenant's

eyes sparked. Of course he said and I know of some such holes up on the rim of the stadium! I then turned my attention to the bag of tools alongside the devices. Some of the tools were inscribed "Electrical Engineering, CIT" which left no doubt as to the origin of the planned prank. But worse than this a tape measure was inscribed with the name of a student in Ruddock House, a particularly studious young man whom I shall call Lee Smith. Now I doubted very much that Lee Smith was in any way involved in the prank; it seemed much more likely that someone had simply borrowed his tape measure. Ginder and I then departed, the lieutenant thanking us for our cooperation and promising us that we could collect the devices after New Year's Day provided the game passed without incident. As I left the station I could not help but feel that I had evened the score with detective Hyzy.

Back on campus I discovered what had gone wrong with the installation phase. Apparently the pranksters had been proceeding with their plan and had been about to enter the Rose Bowl the previous night when a police car came racing up. It stopped and a conversation ensued in which it was clear that the police were in pursuit of an individual who had just robbed a nearby house. Though the police soon departed the students were so unnerved by this incident that they fled leaving the devices and the bag of tools behind. I then informed them of my visit to the station and my opinion that since they had committed no offense they should simply lay low until the New Year had passed. I also suggested that they speak to Lee Smith and ask him to inform me if he received any contact from the police.

I then awaited New Year's Day with the belief that it would pass without incident. Hence I was very disconcerted to learn during the afternoon that the "Caltech students" were being accused of having placed a "bomb" on one of the floats during the Rose Parade and that the float, representing the Big Ten schools, had had to be removed from the parade onto an evacuated side street until the bomb squad arrived. Apparently someone had been observed running out to the float during the parade and placing a device that might be a bomb on the float. After some tense moments it transpired that the device was "only" a fake bomb consisting of an electrical junction box and some wires. The Tournament of Roses officials had, without evidence, assumed that Caltech students were involved and several such charges were overheard during the day. Tom Branigan, in charge of Public Relations at the Institute, and I tried to communicate the fact that our students would never get involved in such a thoughtless and pointless act. But the suspicion remained and it was some months before the police found the criminals who, of course, had nothing to do with Caltech. At that time we did receive an apology and the police allowed me to recover the bag of tools and the "catapults". Left in my office, this paraphernalia was recovered by the students from Ruddock House.

And so it appeared that the 1986 Rose Bowl story had ended quietly and would be forgotten. But there is a sequel to the story for toward the end of 1986 I was approached again by some members of Ruddock House, the heirs to the preceding years equipment. I repeated my warnings adding that since "Lee Smith" was still a student in residence he might be in a rather vulnerable

position. Nevertheless I was not surprised to receive a phone call several weeks before the end of December in which I was informed by the student caller that “he might be rather late for breakfast”. And so I waited with slightly bated breath until I heard the next day that “breakfast had been successful”. Apparently rebuilt flag-raising devices had been installed without incident in the goal posts at the Rose Bowl and the intention was to activate them at the beginning of the half-time entertainment. Only one minor hitch had occurred. The radio controlled switches required line-of-sight to the top of the goal-posts in order to ensure reliable activation. And, surprisingly, one could not see the top of the goal-posts from the hill sides surrounding the Rose Bowl. It was determined that the individual chosen to activate the devices on the day would either try to get a ticket for the game (a difficult undertaking) or would try to achieve a line-of-sight through one of the tunnels through which vehicles could enter the Bowl at the south end of the stadium.

But these plans were all for naught because of one of those random coincidences that can upset even the best-laid plans. It so happens that the area around the Rose Bowl is frequently used by a model-airplane club that enjoys flying radio-controlled airplanes in the wide-open space of the stadium parking lots. Apparently, one of the frequencies that they used corresponded to the frequency employed for the flag activation switches. And so, one day shortly before the day of the game, these model airplane enthusiasts inadvertently activated the flags and they rose into full view of the stadium officials but not any larger audience. So passed into history another chapter in the long-tradition of Rose Bowl pranks.

* * *

Another of my favorite prank failures involved the “Fleming airship”. There was a period of time during the 1970s-1990s when the Rose Bowl was a frequent venue for the Superbowl (1977, 1980, 1983, 1987, 1993) and, given the success of the Caltech pranks at the College Rose Bowl Game on New Year’s Day, it was natural for the students to think of similar success on the even bigger stage of the Superbowl. When I was consulted on this possibility just after the failure at the 1986 Rose Bowl I warned the students that the Superbowl involved a whole new level of national security concerns and pointed out that the increase in terrorist activity necessarily meant an increase in the danger associated with any prank at a national event. Despite my warning, a group of Fleming students decided to attempt a prank at the 1987 Superbowl scheduled for the Rose Bowl on Jan.25, 1987. They had in mind the construction of an airship that would have CALTECH and a large red F on its sides and would overfly the Superbowl at half-time. When I caught wind of this idea I was appalled to think of what might happen. Indeed, just ten years earlier John Frankenheimer had made a movie called “Black Sunday” that featured a blimp pilot, deranged by years of torture as a prisoner of war in Vietnam, a failed marriage, and a bitter court martial. Along with a female Palestinian terrorist he planned to cause a massive suicide bombing by detonating a device attached to a Goodyear Blimp while

overflying Superbowl X at the Miami Orange Bowl. However, in so far as the Fleming plan was concerned and knowing the limits of my influence, I needed to bide my time in dealing with that craziness.

I knew through the grapevine that the Fleming blimp was under construction in the old power plant behind the Thomas building (now the site of the Sherman-Fairchild Library). I also knew that several of the Flems involved were currently enrolled in my junior level course on fluid mechanics and that they had seemed unusually interested in the design of airfoils and propellers. Finally one evening I was approached by one of these students and asked if they could consult me on a small, practical fluid mechanics issue with which they were wrestling. Upon offering to help, I was escorted into the old power plant where, lo and behold, a large airship was stashed. It was about 25ft long, 4 to 5ft in diameter, painted red with CALTECH and a large red F on its sides. My heart sank as I visualized a public confrontation high in the air above the Superbowl as security helicopters attacked this unknown intruder. However, keeping my cool, I proceeded to enquire as to the nature of the consulting advice they needed of me. It transpired that they were equipping the airship with maneuvering propellers and they needed advice on how large those propellers should be. They had purchased a number of 6 inch diameter, model airplane propellers and planned to use these unless I thought they would be insufficient to overcome the wind loads on the airship. Keeping my cool while recognizing a golden opportunity, I first indicated a need to examine the airship. It was beautifully designed. Fabricated in three sections it consisted of a lightweight wooden frame coated with thin plastic sheeting designed to contain the helium with which they intended to fill it. Four battery-driven electric maneuvering motors were mounted on the central section and each of these was equipped with one of the 6 inch plastic propellers. I think I recognized immediately that the propellers were too small to control the flight of the airship in any significant breeze but I said not a word and simply admired the construction of the blimp itself. I then departed after warning the students of the dangers they would be creating if they tried to deploy the blimp at the Superbowl; indeed, in desperation I tried to deflect them to the Rose Parade of the following year.

After this I heard nothing and waited with baited breath as Sunday, Jan.25 approached. I heard later that the Flems had “successfully” tested the airship on the Athletic Field in the dead of night. Then the device had been transported in a large van to the site of Superbowl XXI. Unfortunately (fortunately?) during that transport, one student had inadvertently put his hand through the plastic covering and the blimp had lost a fair amount of its helium before the hole could be patched. This limited its lift. But a more serious problem was the inadequacy of the propellers for the airship could not be prevented from taking off on a trajectory that did not even come close to the Rose Bowl. Indeed it disappeared off into the darkness in the direction of Glendale. Of course on the evening of the Superbowl I knew none of this as I sat glued to the television waiting for Caltech’s reprise of “Black Sunday”. For me it was tremendous relief as the game came to its end without any untoward incident other than the defeat of the Denver Broncos by the New York Giants.

The next morning I waited in my office for any possible aftermath of the failed prank. Soon the head of security, a jovial man called Harold Ginder, called to tell me that he had a little old lady from Glendale on the phone. She reported that a large blimp had come to rest in the front yard of her Glendale home and she suspected that Caltech students might have something to do with it. Harold put her through to me. She seemed mildly amused and was satisfied when I told her that I would take care of the matter immediately. I then made a brief call to the Fleming president and there the matter ended. I never did see or hear of the Fleming airship after that but the vision of it emerging from the darkness into the glare of the Rose Bowl floodlights has been with me ever since.

* * *

One of the most publicized events of my time as Master occurred in the months of March and April, 1986. The central character was the Fleming cannon. For those not familiar with this campus totem let me briefly review its history. The 1.3 ton breech-loading cannon was constructed in France for the 1870-71 Franco-Prussian war. However it was finished too late to see action and was stored in France for 25 years. In 1896 it was loaned to the United States and its 12 foot-long barrel was rebored to 5 inches to accept U.S. ammunition for use in the Spanish-American war. By the time the reboring job was finished the war was over and the cannon was returned to France. The last false alarm came in the early 1900s. The Russo-Japanese war appeared to be heating up and the French, apparently bent on ridding themselves of the gun, offered to sell it to the United States for coastal protection against the Japanese. Theodore Roosevelt negotiated an end to hostilities before a deal could be closed.

Eventually, a French consul in Santa Barbara decided that the cannon would look good on his front lawn. He sent for it and the cannon made its third trip across the sea. The consul kept it until 1924 and then presented it to Maurice Veronda who was starting Southwestern, a military academy for boys in what is now San Marino, California. The cannon sat out in front of Southwestern and became a symbol and plaything for the students. In 48 years it was drenched with more than 30 coats of paint, the butt of a traditional prank.

The Vietnam war saved the cannon from further drenchings. Southwestern had been converted to a co-educational boarding school. Its administration was concerned about being associated with that unpopular war and wanted to shed its military image. The cannon had suddenly become an embarrassing liability. So when it was rumored that a group of Caltech students from Fleming House might steal the cannon as a prank, there was no great opposition at Southwestern. One night in 1972 a group of about 80 Caltech students wearing black clothing sneaked through the streets of San Marino and dragged the gun from the academy to a site on the Olive Walk outside Fleming House. The rotten wooden wheels almost gave way and a number of repairs had to be effected on the spot.

Fleming House took great pride in its new acquisition. Further repairs were made to the wooden wheels and the students removed the many layers of paint, cleaned the breech and prepared the gun for firing. And fire it they did. It was used to signal the beginning and end of the school year. Then there was the Jello incident. The cannon, when it became the symbol of the sometimes ebullient Flems, also became the target of pranks by the other six houses. In that era the rivalry with Lloyd House was particularly intense. The cannon barrel was pointed directly across the Olive Walk at Lloyd House. Apparently, late one night the Loydies filled the cannon barrel with Jello. When this was discovered the Flems retaliated by opening the breech, inserting a charge and blowing the Jello back at Lloyd House. Legend has it that Lloyd House was covered with Jello. Legend also has it that a barrel-full of Tampax was also fired at Lloyd on one occasion. The administration took a dim view of these hijinks and, when one concussion in 1975 blew out the some windows in Lloyd House and the Master's Office, they ordered Fleming House to return the weapon to its owners, Southwestern Academy. That school kept the cannon in storage until 1981 when the Fleming House graduating class decided to reclaim it. With advance permission from Southwestern and a rental agreement giving Fleming House the use of the cannon for an unlimited period for one dollar, another nighttime raid was organized similar to that in 1971. As a result the cannon recovered its place in front of Fleming House. This time the students refrained from firing it until graduation day but failed to notify the administration before they set it off. Again the administration was angered and threatened to remove the gun. However, Fleming House presented them with an essay on the House's love for the old war machine and a list of rules that they would follow before future firings. These included getting written permission from both the Deans, the Master and the Vice-President for Student Affairs, one of whom had to be present when it was fired.

From then on the ritual was well established and generations of students witnessed the firing of the cannon on a number of special days during the year. The Fleming student elected to the position of Cannon-Master was responsible for these arrangements and the technique was passed down from each Cannon-Master to his or her successor. Traditional times for firing the cannon included the moment when the house picks were posted at the end of Rotation (7pm on the Sunday after the first week of the academic year), at the conclusion of the graduation ceremony, on Bastille Day (by arrangement with the Athenaeum that traditionally holds an evening party on that day) and several other auspicious moments during the year. Thus it was that the cannon rituals seemed to have settled into a modestly comfortable routine by the time I became Master and during the first few years of my tenure. The Interhouse Committee had declared the cannon off-limits to pranks some years previously so it was no longer the focus of other extra-curricular student activity apart from one occasion when it was splashed with pink paint by some unruly Page boys. The wheels began to seem rather unsteady and so I designed and built a stand upon which the axle rested. Otherwise the cannon faded from front-page news.

All of this ended early in the morning of March 29, 1986, and the cannon



The airship ready for launch and the end of the flight.



The Fleming Cannon and its return trip to campus.



The modified Hollywood sign and the view from the valley.

was back on the front pages of the local newspapers. I understand that the students at Harvey-Mudd College in nearby Claremont had made several earlier attempts to steal the cannon; if so I had no knowledge of these efforts. But on this night during the Easter break of 1986 they succeeded in their attempt to remove this trophy to their Claremont campus. How they managed this is rather amazing. First they were aided by the fact that few students were around during the Easter break and those that were in residence were highly unlikely to be conscious at 6 o'clock in the morning. Furthermore the intruders had devised a modest but adequate cover story. They had learned that parts of the south houses undergraduate complex were to be renovated in the summer of 1986 and, indeed, some preparations for this were already underway. They therefore decided to pose as contractors removing the cannon as part of the renovation project. Tongue-in-cheek they labeled their truck with the insignia "HM Salvage Inc." and wore similarly inscribed hard hats and tee shirts. Arriving about 6.00 am with their truck and a fork-lift they spent nearly two hours maneuvering the cannon onto the flat-bed. Several other students masqueraded as Caltechers playing frisbee and tossing a football to provide a diversion. One prematurely bald Harvey Mudd junior, 27 year old Joe Agnese, acted as the foreman of the "construction crew". When they were approached by a Caltech security man, Joe waved a piece of paper that purported to authorize the removal of the cannon for the ostensible reason of repairing a water main that ran under the location of the artillery piece. Though the security man attempted to check this with several Flems, he elicited no clarification and so hesitated to intervene. Needless to say this security man was subsequently excoriated by the Flems both verbally and in print. But I believe that he was not the only party guilty of not raising the alarm. In the next issue of the campus newspaper, the California Tech, whose front page headlined the story of the missing cannon, there appeared a photograph of the construction crew at work taken from a window in Ricketts House. It is also important at this point in the story to mention that the entire project was recorded on slide film by one particular Harvey Mudd student.

Despite minor problems, the prank was surprisingly successful and the cannon was placed in a prominent position on the Harvey Mudd College campus later that morning. At Fleming House the alarm was finally raised at about noon but only after a Flem had observed about 5 people deposit a keg of beer and a Harvey Mudd tee shirt at the spot where the cannon had once stood. There was an immediate panic and a number of Flems raced out to Harvey Mudd to determine the position, condition and security of the cannon. There was also discussion of various wild plans to recover the cannon either by stealth or by force. A group of hotheads who simply wanted to go out to the Harvey Mudd campus armed with baseball bats were only with difficulty restrained.

These discussions continued over the next week. The Deputy Master, Bernie Santarsiero, spent many long hours in discussions with Fleming House trying to make sure that any recovery plans were both legal and non-violent. The national publicity given to the prank further inflamed passions in Fleming House. For example, the headline in the March 31 Pasadena Star News read "Harvey Mudd fires challenge at Caltech". The situation was made even more complicated by

a group of Page boys who went out to the Harvey Mudd campus to try to load spaghetti into the cannon. And then the president, Murph Goldberger, had this idea to try to get the US Marines to lift the cannon out of the Harvey Mudd campus using one of their heavy-lift helicopters. How he visualized being able to do this without the entire Harvey Mudd campus being alerted was beyond me. Fortunately he was dissuaded from this or any other crazy plan.

Eventually, things began to cool down and I drove out to Harvey Mudd to discuss the problem with one of their officials who then agreed to load the cannon onto a truck and return it to Caltech and to Fleming House. I then returned to campus where I informed the Flems of the arrangement, warned them against any participation and waited the appointed time for the return. Unfortunately, the Harvey Mudd students decided to make the return a march of triumph. They festooned the cannon with signs and banners that would only inflame the Fleming hotheads. To make matters even worse, several of the more hot-headed Flems decided to drive out toward Harvey Mudd to accompany the cannon home. The result was inevitable. There was a confrontation on the road between Harvey Mudd and Caltech during which one of the Fleming vehicles came into contact with a vehicle belonging to the Harvey Mudd official with whom my arrangement had been made. The result was that the Harvey Mudd people turned around and returned to their campus with the truck carrying the cannon. When I heard of these shenanigans I was very angry with the Flems involved for I had given them explicit instructions. I now repeated the same instruction and arranged for a Caltech truck to immediately accompany me to the Harvey Mudd campus. Once there we loaded the cannon onto the Caltech truck and, without any fanfare or banners or Harvey Mudd involvement, brought the cannon back to Caltech. As we turned onto the Olive Walk with the cannon, I remember the walkway lined with Caltech students. Many were cheering; the Flems were silent but relieved that the saga was over.

* * *

Another of the famous pranks that occurred on my watch was the alteration of the Hollywood sign to read CALTECH. The year was 1987 and the 100th birthday of Hollywood was to occur in May of that year. Several months prior to that groups of students in Page House and in Ricketts had independently begun to plan to alter the Hollywood sign. Each group had done some reconnaissance that included making measurements of the huge letters and learning the difficulty of access to the letters. The method of alteration had already been demonstrated by several previous organizations including Fox Broadcasting who had used large quantities of white and black burlap to alter and eliminate the letters to achieve their objective. But the size of the task was not brought home to the Caltech students until they visited the sign during their nighttime reconnaissance. The individual letters are 45ft tall and 33ft wide, for a total length of 350ft! It had originally been constructed as a real estate advertisement in 1923 and read HOLLYWOODLAND (the last four letters were later removed). It had already been the target of many pranks and, to deflect further high jinks,

access to the individual letters (and to the ladders that allowed one to climb the back of each letter) had been blocked by razor wire. It was clear that a very large team would be needed to accomplish the task during the nighttime hours and so Page and Ricketts combined their efforts and recruited students from all the other houses to form a team of about five students for each of the seven letters of CALTECH. Instead of burlap, large quantities of black and white polythene plastic were purchased and a plan was made for each of the letters. I remember the evenings of the week of May 10-17 as the plastic for each of the letters was laid out in the Lloyd courtyard and the operational plan of attack was generated. Climbers were chosen for each of the letters and ropes attached to hold the plastic in place. Many of the students were aware of my backstage involvement in other pranks and so one evening that week I met with the primary organizers to advise them regarding the aftermath. The most important advice that I gave them was not to identify themselves to the press (or anyone else) for that would be an invitation to the authorities to pursue them.

The plan was put in motion about 10pm on the evening of May 17, 1987. A team of about 35 students equipped with climbing ropes and the plastic for each letter swarmed over the Hollywood sign and transformed it to read CALTECH. By 5am the next morning they were finished and by 6am they had escaped without apprehension. The media had been alerted and cameras were flashing all over Hollywood and in the air as the sun rose and revealed the transformation. Unfortunately the breeze that morning began to tear at the plastic and it was not long before the night's work began to disassemble. But not before the photographs of the altered sign had been broadcast throughout the nation.

The Hollywood Chamber of Commerce was livid. "We are not kidding and laughing about this at all," huffed Bill Welsh, chamber president. "The incident is under investigation by Hollywood officers - except for our Caltech graduates," Los Angeles Police Lt. Sergio Robleto said wily. The city's Department of Recreation and Parks rushed to remove the new plastic coverings, sending teams in with special tree-trimming equipment. It was not long before I received a telephone call from the police asking if I knew the students involved but also discretely implying that they were not about to come to Pasadena to investigate. I also heard from the Hollywood Chamber of Commerce during a not-so-friendly telephone call. Most importantly, the students heeded my warning and avoided identifying themselves to the press though several talked to the reporters anonymously. As always I went my own way.

Chapter 24

RAILWAY IN THE ETHER

*“For I dipt into the future, far as human eye could see,
Saw the Vision of the world, and all the wonder that would be;
Saw the heavens fill with commerce, argosies of magic sails,
Pilots of the purple twilight, dropping down with costly bales;
Heard the heavens fill with shouting, and there rain’d a ghastly dew
From the nations’ airy navies grappling in the central blue;
Far along the world-wide whisper of the south-wind rushing warm
With the standards of the peoples plunging thro’ the thunder-storm;
Till the war-drum throb’d no longer, and the battle flags were furl’d
In the Parliament of man, the Federation of the world.”.*

From “Locksley Hall” by Alfred, Lord Tennyson.

On this, the second night of their grand adventure, they had formed the four-wheel-vehicles into a circle beside the rusted remains of an old steam engine, half buried in the sand. Making their camp here under the desert stars, they lit a fire to ward off the chill of the desert night, to focus their conversation and companionship. Talk turned from their tiny and distant homeland of Northern Ireland, to the vast and empty expanses of this Saudi nation. From the great romance of Lawrence of Arabia who wrecked that steam engine, to modern Middle Eastern politics and, inevitably in this day and age, to the wonders of computers, the internet and global communication. They reflected how search engines had allowed a connected people who had dispersed throughout the world to find each other and to communicate again though separated by many thousands of miles - even when that diaspora reached into places as remote as this northwestern corner of the great Arabian desert. Justin listened as his friend described how he had recently used a new search engine to rediscover a great

friend from his college days. He resolved to try that when, after this adventure, he returned to the hospital in Riyadh where he was currently employed. But, for the moment, the present adventure was all-consuming and many hundreds of miles of the historic Hejaz Railway would challenge them in the days ahead. For Justin and his friends had set out to follow the route of the Hejaz Railway all the way from Tabuk to Medina, a distance of about 700 miles across one of the most forbidding deserts in the world. The rails and even the sleepers had long ago been borrowed for other purposes, but the raised embankment of gravel and rock along which the railway ran is still extant and can be followed in four-wheel-drive vehicles.

The Hejaz Railway was originally built to transport Islamic pilgrims from Damascus to Medina. For untold centuries before, the only method of travel was by camel caravan and the journey would have been arduous and dangerous. The one-way journey alone would have taken about two months. Travel through winter's freezing temperatures and torrential rains, or through the scorching heat of the summer would have been unavoidable. Settlements along the way were sparse and hostile tribes, no doubt, compounded the difficulties. But around the end of the 19th century, the Ottoman empire that dominated the region north of the Arabian peninsula and battled the Arab tribes in an effort to expand into the great desert, raised about eight million pounds from sources such as the Turkish sultan Abdul Hammed, the Khedive of Egypt, and the Shah of Iran to allow construction to begin. That construction posed multifaceted challenges. The engineering problems alone were considerable, since the ground was solid rock in some places, soft and drifting sand in others. Moreover, torrential rain storms would occasionally create flash floods, wiping away bridges and banks and causing the line to collapse. Yet most of the year water was in precious short supply. In addition, the construction crews had to contend with open hostility from local tribesmen and from camel caravan owners whose livelihood was clearly threatened by the railway. Thus most of the construction and maintenance of the line became the responsibility of the Turkish army. Of course, that was part of the Ottoman strategy for the railway would allow the empire to exert a control over the region that was otherwise impossible.

The railway was finally opened in 1908 and business boomed in the next few years; the number of pilgrims taking the train mushroomed from 30,000 in 1912 to 300,000 in 1914. In addition, the Turkish government was able to transport a substantial army into the heart of Arabia. With the outbreak of the First World War, the pre-existing struggle for dominance of the region between the Ottoman and British Empires, flared into open aggression. Recognizing the strategic importance of the railway (as well as its vulnerability) the British encouraged the local tribes to cripple that supply line. The most famous instigator of this activity was Thomas E. Lawrence, the legendary Lawrence of Arabia. Many of the trains he sabotaged still lie where they were wrecked. After the war, the Ottoman Empire was dismantled and, though some of the northern sections of the Hejaz Railway continued to function, the long stretch through the Saudi desert melted away leaving only skeletons in the sand. Much, however, still remains to be seen along the deserted route of the railway. The stations, built



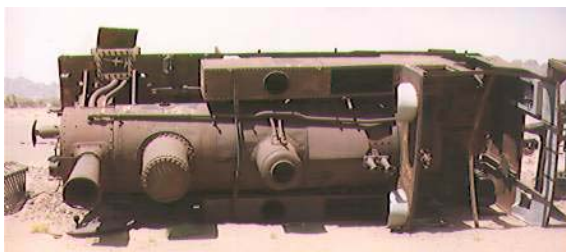
Train in the sand. Photo by Sami Sabat.



Bridge over a wash. Photo by Sami Sabat.



Left: A garrisoned station. Right: Maintenance shed at Mada'in Saleh. Photos by Galen Frysingher.



Train in the sand. Photos by Sami Sabat.

about 20 kilometers apart, served more as armed watch towers than as stops along the way. Their robust construction meant that they continue to preside over the empty desert.

Justin and his friends had resolved to follow the route all the way from Tabuk in the northwestern desert to the terminus at Medina, a distance of some 750 miles. Their four wheel drive vehicles had been “shipped” to that desert oasis, and there they began their southward journey. The going is rough but not excessively difficult since the rails were removed long ago, and local farmers used the iron sleepers as building supports and fence posts. In the grey, rocky hills outside Tabuk, the expedition first encountered the station at Al Awjariyah, a two-storey fortress built from natural grey stone. From there, following the track along the Wadi Saba for about 8 miles brought them to another station, where the track seems to double back on itself. From there it enters a deep gorge and then a tunnel. The eighth station, Ad Dar Al Hamra, is situated at the end of a wide, flooded section of the wadi and was built near the ruins of a Turkish fort that they enjoyed exploring. A subsequent station at Al Mutalla has several overturned carriages lying beside it. At Mada’in Saleh, the station is more extensive with an enormous old engine house, containing several rusting steam locomotives.

The station at Al Sawrah, about 72 miles south of Al Ula, is one of the most scenic. Situated in a wide, beautiful wadi, the three station buildings are constructed of an attractive yellow stone. Just outside the station one can see the shells of a couple of old pick-up trucks, probably the remains of an attempt to rehabilitate the railway line. Some 21 miles south of Al Sawrah twisted iron rails lie buried beside the remains of an engine, sitting bolt upright in the sand despite being some distance from the track itself. An explosion ripped open the metal at the back of the engine. Wrecked bogies, blown apart from their carriages, lie nearby. Nothing seems to have changed since 1917. It is not hard to see Lawrence’s white robes glinting in the desert sun. Further south is the site of the first mining of the Hejaz Railway at Aba el Naam.

Willie Howard and his wife Janine had journeyed from Lisburn in Northern Ireland to join Justin and two other families on this historic adventure. Thus the talk turned to their native land, to the scarred and battle weary city of Belfast. It was a joy to rekindle their origins but the talk left a shred of sadness as they remembered the lost connections with others that had left to seek a better life in distant lands. Yet there was now new hope of reconnecting. In a bygone age, the advent of railways had allowed families to reconnect; now the internet allowed one to find friends and relatives in the most distant corners of the globe.

Back in Riyadh, Justin logged onto the Internet and began his search by entering his name into the search engine Google. The number of responses was overwhelming but he soon learned to enter additional words to more narrowly focus the search. Suddenly, there it was - his father’s name, his mother’s name, even a brief mention of their lives together and of their children. There was even an old photograph of his grandmother as a young girl, standing in a portrait of his great-grandparent’s family. All on some webpage he had never seen before

on a website somewhere in the United States. In the vernacular of his homeland, Justin was gob smacked!

But he found my name at the bottom of the webpage and the name rang a bell in his distant memory. He vaguely recalled the visit many years ago that he made with his mother and sisters to a village called Magherafelt some 35 miles from Belfast where some distant cousins lived. He remembered the boys a few years older than he and the mother who had been such a good friend of his own mother many years before. Indeed his mother had acted as bridesmaid when Wilfred Brennen and Muriel Earls were married in the oncoming shadow of the Second World War. It was strange what the brain was capable of remembering when triggered by a word, a sound or a glimpse.

More importantly for the present, Justin found my e-mail address alongside my name and quickly rushed off a message through the new railway of the ether. He also e-mailed his older sister, Caroline Thorpe, who had lived within thirty miles of me for thirty years without knowing either of us was there. So it was that just two days later, I got a second e-mail from Caroline. She, it turned out, was the administrative assistant to the publisher of the Los Angeles Times. About a year earlier, the California Institute of Technology where I work, had held a reception for the publisher of the Los Angeles Times. Caroline had attended that reception. I had attended that reception. We undoubtedly saw each other at the reception. Yet we could have had no idea of each other's presence.

It seems really amazing to me that two relatives had come so close without realizing it. Instead it took a casual conversation around a campfire in a strange and remote land plus the magic of the internet for us to make contact and renew the genetic bond. Some technologies make us poorer as human beings; the internet, on the other hand, has an ability to truly enrich us.

Chapter 25

MOYOLA REVISITED

“When you finally go back to your old home town, you find it wasn’t the old home you missed but your childhood.”

Sam Ewing in National Enquirer (Readers Digest, April 1992).

We were going home to Ireland, my daughters, Dana, Katharine and I. For them it was a graduation present, an adventure and exposure to their heritage. For me it was a homecoming motivated by my father’s illness and a detour prior to a scientific conference in Scotland. But I also welcomed the time for reflection, the time for equilibration. I had felt somewhat disconnected due to the pressures of my job and the effects which that pressure had created in my relations with Doreen and the children. What better place for this than the quiet, familiar landscape of my youth? It would be a crusade to cleanse my soul, a pilgrimage to my beloved country and to the roots of my being.

Dana and Kathy were chilled to silence by the sandbag-lined air-terminal with its machine-gun nests and armored cars. We drove through towns and villages, along streets patrolled by black-bereted British soldiers carrying automatic weapons. The faces under the berets were boyish and bored. There was danger, yes. But England’s young men had lived with Ireland’s civil war for too many years. They didn’t care anymore.

We turned west toward Magherafelt, toward home, but the route was unfamiliar. Once, I knew every crossroads with its inviting public house, every horse in every field, every row of pebble-dashed houses. But that was 20 years ago. The narrow, two-lane highway had been widened and straightened. Now it was called something sinister like M5 instead of the Belfast Road. It had always been the main artery between the two big cities of Derry and Belfast. But after several surgical bypasses and reconnections it was not the same road anymore.

My mother had warned me of the changes, of the bombings and all the new buildings. She was right. Magherafelt had changed. We walked the length of its crooked streets but I saw no faces that I knew. I heard the whispers and felt



Left: The bomb that destroyed Cuddy's drapery shop in the center of Magherafelt in 1971. Right: Kerr's tailoring shop in Dungannon.



The Curran Bridge over the Moyola.

the stares, though. They knew who we were and where we came from. Small towns have few secrets.

The bombs had obliterated most of the memories of the urchin who had roamed the streets and alleys thirty years before. The policeman standing half hidden in an entry with a bazooka-like rubber-bullet-firing rifle only reminded me of recent television news stories. Yet here and there a red brick outcropping or the peeling paint of a sign above an old store sent my mind racing back to the time of roller skates and lollipops.

Another town represented my most substantial bridge to the present: Dungannon, for the first twenty years of her life the home of my lovely Doreen. On the second day we drove through the timeless countryside to the market town of Dungannon. But where was the dance hall in which, years ago, she sought me out after a brief rift and melted my soul? When my mother-in-law told me of the bomb in the car by the curb, I felt a sadness motivated not so much by the loss of a special place but by the loss of that special feeling.

After lunch we walked the few streets to where Doreen's father and grandfather had once built a thriving tailoring business in a prime location across

from the cattle market. There I had petitioned the chief of the Kerr clan for his granddaughter's hand in marriage. There Doreen's much-loved father had vainly strived until his death to turn back the economic clock. Now it was one of the few structures remaining on that street. The cattle market had passed into history, in part covered over by a used car lot. The cinema and the hotel had been blown to smithereens by a blast that had briefly lifted the roof from Kerr's tailoring shop. The old place was but a boarded-up shell. It had stood for almost 300 years. Now all it contained were memories.

On the third day we drove to the seaside. To Portrush, that fairy ground of my childhood days. Now the merry-go-rounds, slot machines and ice-cream parlors seemed shabby and broken, the place crowded by youngsters whom seemed unrelated to the Irish of my memory. Yet here we first met almost thirty years ago, when I chanced to say hello to a pretty little girl as she passed me on the street. A girl with gentle deep-blue eyes and a serene, sensitive smile. I had manipulated an introduction through a mutual friend with whom I saw her speak. And she had taught me a special kind of love I never knew existed. The little hope I had that this teeming place, this place of bombs and punks, could restore the special feeling rapidly evaporated. Dejectedly I headed for Ramore Head, a rocky promontory with an old harbor filled with memories. The sea walls were already old, broken and unused thirty years ago. Yet it was still there. Unbombed and unimproved for it was far from anyone's priority. I walked slowly savoring the memory of the rough, sea-worn concrete under my feet. I found the recess where I had taken her under my coat and her body had first told me that she might love me. I tasted tears mixed with the salt of the ocean.

It was on the fourth day that we went to the Moyola, our clear, brown river that curls through fields creamy with clover and sparked by wild purple thistles. On the rare days of summer, we used to swim in the Moyola, mountain-cold from its source in the Sperrins. We walked its banks and did forbidden things under the protection of its bridge. The old stone bridge built not to the straight lines on a computer-contoured plan but lovingly crafted to fit the idiosyncrasies of the place and people. I needed to feel that intimacy again. With a lump in my throat I asked my brother to turn right, casually inquiring of the fate of the bridge. Of course it's still there was the welcome reply; sure who would want to blow up that bridge, the road goes nowhere.

We used to walk from town to the Moyola, but now, California-lazy, we drove. The bridge had changed, too. It was gray where I remembered it sparkling white. It was narrow, no wider than an alleyway, with no need to be wider. The Moyola itself was a stream where I remembered a major river. But in some ways neither I nor the river nor the bridge over it had changed. I felt the same joy for life as I lay across its old, broken stones and looked down at the gleam of the water. Sprickleybacks still darted over its round pebbles. Clots of rushes spiked the banks where a red-brown cow drank, lifted its head to stare, then drank again.

Dana asked how I could bear to leave it those many years ago. I shook my head. There was no need for words. She knew. We had left Northern Ireland

for her, and for her sister, Kathy, and her brother, Patrick. “The Troubles” were with us then, too, less public, less violent, but still evident. We wanted a future for our children that was free from hate and prejudice. It hadn’t been easy to leave. And there were times when it would have been easy to go back. But for all that, there was always the love of this place.

I studied the bridge. Names I’d known in my youth were still there, scratched into the concrete. Frank Johnston, Lizzy Evans, Smokey McKeown.. Where were they now? One half-stone was blessedly smooth and unmarked. I fished in my pocket and took out my nail file. Scratching laboriously, bending to blow away the dust, I carefully carved my name. Then I drew a heart and below it I wrote her name, Doreen Kerr. Then I passed the file to my daughters, and they carved their names below that. I added Patrick’s name.

I thought of graffiti, of ugly black letters spray-painted on walls and on the sides of buildings, that I had condemned as a defilement of America. And here I was, having come thousands of miles, leaving my mark in the stone of a little country bridge. Our names would never be on an Irish tombstone. But as long as the Moyola flowed and the bridge stood, they would be part of Ireland.

(Adapted from “Going Home to Ireland - Change but no Change”, an article by Eve Bunting in the Los Angeles Times, 1983.)

Chapter 26

CANYONEERING IN THE SAN GABRIELS

“This range is more rigidly inaccessible in the ordinary meaning of the word than any other that I ever attempted to penetrate. The slopes are exceptionally steep and insecure to the foot, and they are covered with thorny bushes from five to ten feet high.”

From “The Mountains of California” by John Muir, referring to the San Gabriel Mountains.

Growing up in Ireland where all the mountains have been ground down by eons of ice sheets, I was fascinated by the precipitous San Gabriel Mountains from the first moment I laid eyes on them. That was more than 40 years ago when I first drove up the Pasadena Freeway to spend what turned out to be most of my life in the shadow of this vertical wonderland. The San Gabriels were to become one of the joys of my life, an infinite resource for adventure and for serenity. In the 1970s, with young children in tow, one of our favorite weekend pastimes was to hike as far as we could up the steep canyons of the front range that lay just a stones throw from our home. Eaton, Rubio and Bailey were great favorites especially since they all involved some adventurous climbing. In Rubio we would ascent the now buried Maidenhair Falls using an old wire cable that hung on the right side in order to get to the spectacular twin falls, Moss Grotto and Ribbon Rock. In those days there was a lovely little deep pool on the narrow shelf between the two falls and we would climb up there to go swimming. Not knowing any better, I used an old piece of hardware rope tied around their chests to belay my young daughters. The younger one still tells gleeful stories about dangling in the air after a slip. One of my favorite photographs is that of my elder daughter sitting by that pool. Bailey Canyon was similar with a series of adventurous climbs needed to ascend beyond the

first waterfall. But, perhaps, the greatest adventure was in Eaton Canyon and would be unrecognizable to most modern hikers. In those days at a point on the east wall of the canyon about 100 yards downstream of Eaton Falls there was a series of rickety wooden stairs interspersed with precipitous ledge trails that climbed about 200ft up the canyon wall. We would carefully ascend these ledges and stairs to a place where there was a tunnel through the mountain ridge that carried a water pipeline. Taking a deep breath we would walk through this dark and narrow tunnel only to emerge into what we thought was another, secret canyon. We would delight in the pools and falls in this special place. Later explorations would reveal that this was in fact another, upper section of the same canyon. But back then we thought this the height of adventure and loved the mystery of the place. Some years later, for appropriate safety reasons, the Forest Service tore down the old stairs and blocked the tunnel. But by that time my children had grown.

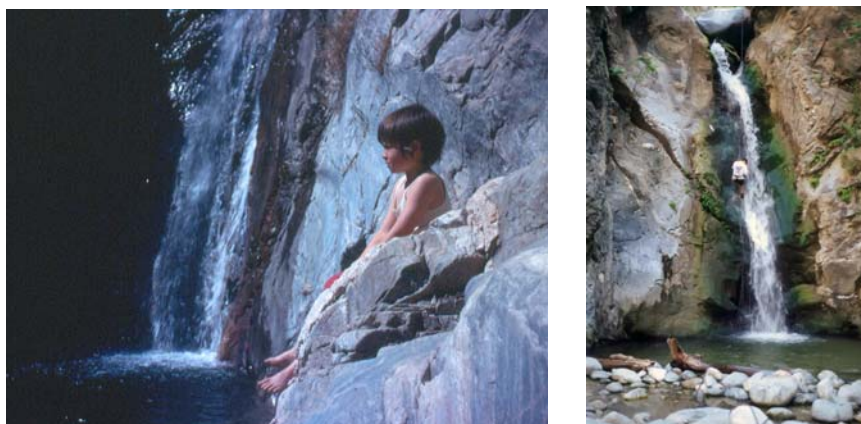
That is where it all started. In the increasing time I had alone I hiked almost all of the 100 trails in John Robinson's classic guide, "Trails of the Angeles" and, sometime in the late 1970s, early 1980s, I began to wonder what lay beyond the ends of the established trails, especially in the Devil's Canyon and Sheep Mountain Wilderness Areas. I was particular drawn to the waterfalls and to the canyons they lay in. It seemed to me they were among the most spectacular features of the San Gabriels and I wondered why they were not better appreciated and documented.

Geologically the San Gabriels are among the youngest mountains in North America. The kink in the San Andreas fault as it runs through the Los Angeles area has caused our mountains to be thrust up as the Pacific tectonic plate moves north relative to the North American plate (the San Andreas Fault runs along the northern foothills of the range and is, of course, the consequence of the movement of those great tectonic plates). The erosion and growth that smooth out other ranges have not yet had time to counter this growth and hence the rugged verticality of the San Gabriel Mountains. After several attempted ascents in the area of Eaton Canyon, John Muir wrote as follows in his "Mountains of California":

"This range is more rigidly inaccessible in the ordinary meaning of the word than any other that I ever attempted to penetrate. The slopes are exceptionally steep and insecure to the foot, and they are covered with thorny bushes from five to ten feet high."

Indeed, there may be canyons, perhaps in the Devil's Canyon Wilderness Area, where man has rarely, if ever, set foot.

The next phase of my explorations involved a new mountain bike that allowed me to go further along the established trails than my feet would carry me. It was inevitable, however, that I would push too far into the wilderness and the notorious result was an unplanned overnight spent beside the East Fork of the San Gabriel River, a consequence of assuming the red line on one of John Robinson's maps meant there was a trail all the way down that canyon. So I set the bike aside and returned to exploration on foot, venturing as far as I could both up canyons from the bottom and down canyons from the top.



Left: Daughter Dana in Rubio Canyon. Right: Rappeling in Eaton Canyon.

Often I was stopped by waterfalls that I did not have the skill to ascend or descend. One particular objective became an obsession and motivated my first true canyoneering adventure in the San Gabriels. Devil's Canyon begins high on the slopes of Mount Waterman and winds its way all through the Devil's Canyon Wilderness before emptying into the Cogswell Reservoir. Eventually I would traverse the entire length of this wilderness canyon. But in those early days I had only explored a short distance downstream from the end of the trail that drops down into the canyon from Chilao Flats. I had managed to reach the Devil's Canyon Falls that could be so awesome after winter rains but only after an exhausting all day walk there and back that left little time for exploration. A subsequent examination of the topo map revealed that it might be possible to reach the falls much more readily (and thus leave time to explore them) by descending a steep side canyon that dropped down from the Angeles Crest Highway at a place called Windy Gap. Several times I climbed down this steep gully only to be stopped by a dryfall that I could not descend. Moreover, I began to recognize that all this climbing alone was both irresponsible and dangerous.

Now it so happened that about this time I had a succession of graduate students who were hikers and a few who had some rock climbing experience. I persuaded several of them to accompany me on another effort to descend this side canyon (Skull Canyon) that we soon did successfully. Some of those young people never went hiking with me again. One, however, caught the fever and he happened to have some rock climbing experience. His name was Garrett Reisman and he not only became a very good friend but one of the pioneers of canyoneering in the San Gabriels. Later, he went on to even greater adventures as a NASA astronaut. To complete the story, it turned out we were able to find a safe way down that side canyon without using ropes. However, we were already discussing the need for technical equipment in our anticipated explorations of other canyons.

Several weeks later we assembled the necessary harnesses and ropes and set

off for a more ambitious descent in Bear Canyon, the other major drainage in the Devil's Canyon Wilderness. There were about seven of us and only Garrett had ever rappeled before. He claimed it was easy and he would teach us "on the job" as it were. Incidentally, in that group was another future astronaut, Bob Behnken, and Bob, I remember, came dressed in what he considered appropriate attire for this adventure, full army fatigues and big, black army boots. When I think back that somehow epitomizes how naive we all were - and we didn't have a single helmet in the whole group! Anyway we dropped down into Bear Creek from the end of the highway at Crystal Lake and got quite far before we encountered the first necessary rappel, a drop that would be trivial for us today. It consisted of a vertical 12ft drop into a deep pool. There was a very convenient tree about 10ft back from a sharp lip at the top of the drop. Garrett took over. After much talk he rigged the rope around the base of the tree and asked for the first volunteer. Bob stepped forward in his natty fatigues. Garrett instructed him at length and then Bob started backwards toward the lip and very slowly began to rotate backwards with his feet on the edge. Unfortunately Garrett had rigged the rope so low on the tree that this rappel entry was much more difficult than it should have been. Bob got about two thirds the way into his rotation before the inevitable happened. He lost his balance, swiveled sideways and ended upside down just over the lip with the black army boots sticking straight up. Fortunately he did not let go of the rope and we were able to rescue him before any harm was done. After that ignominious beginning things could only get better and we began to learn the art of rappeling by trial and error, by devising our own anchor methods and other rope techniques. But the reader might be amused to know that Garrett and Bob flew into space together in the Space Shuttle Endeavor in December 2007. Bob made two space walks, the first on the end of a robotic arm controlled by Garrett. I wonder if he recalled what happened that day in Bear Creek!

In the years that followed we became more and more ambitious in tackling canyons that presented more serious obstacles. Eaton Canyon was one that held an increasing fascination for us. We had hiked up to Idlehour Campground and explored down as far as a place we came to know as the "Point of No Return", where a small slide down into a deep swimming pool meant that return upstream would be exceedingly difficult without a rope. We had also conducted several expeditions in which we tried to get as far up Eaton Canyon from the bottom as we could. In these efforts we bypassed the big falls at the bottom by climbing over the ridge above where the wooden stairways had been. Upstream was a deceptively easy looking obstacle that we came to call "Naked Triumph Falls" after one of our party led the way by swimming the pool naked before climbing the small falls. But we never were able to get further upstream than the 12ft falls that everyone now jumps during a descent. Moreover, the topo map showed there could be many difficult obstacles between the "Point of No Return" and this 12ft falls. We were determined to attempt a descent but could find no information anywhere that might guide us. Finally Garrett and I decided we would do it alone and without beta. I don't think I will ever forget arriving at the top of the falls we now call "The Gully" and looking down at the pool

at the bottom that seemed hundreds of feet away. But it was only about 60ft and we made it down though the descent was exciting. The river was flowing lustily that day so we ended the descent behind the falls and had to do our first swimming disconnect.

In the 1990s others began to join our adventures. When Garrett moved on to high adventure with NASA, two other graduate students became key pioneers in the group, Clancy Rowley and Mark Duttweiler. We also made a valuable connection one day while buying a large quantity of webbing in the Sports Chalet mountain shop in La Canada. The grey-haired man serving us asked what we were going to do with so much webbing. We described our adventures and his interest was aroused. His name was Alex Kirkcaldy and he had once been head of the Montrose Search and Rescue Team. Moreover, during his time the Team had conducted a number of rescues from canyons in the Big Tujunga area, extractions of people who had become stranded at the top of waterfalls they could not descend. Alex proceeded to tell us of Fox Canyon, of Silver Canyon and of Suicide Canyon, all of which empty into the Big Tujunga and all of which contain big drops. He even mentioned a young man who worked at JPL and whom he had rescued from Fox Canyon; his name was Martin Regehr and more of Martin shortly. We took careful note of Alex's comments and resolved to get to all of the canyons he mentioned. It was great to finally get some real beta.

The following winter we conducted a bike ride down the fire road from Mount Gleason to the Big Tujunga. At one point near the bottom of that ride we were able to view one of the waterfalls in Fox Canyon from about half a mile away. It was an awesome, roaring sight and one that persuaded us to wait until summer before venturing into that maelstrom. In the intervening months we conducted several exploratory hikes during which we developed a rough trail down into Fox Canyon below the Gorge starting from the fire road on the ridge to the west. We also descended the Lower Fox Canyon Falls and even conducted a reconnaissance of the gorge from the air (Garrett was also a pilot). As the day of our planned first descent approached we again consulted Alex to glean every last bit of beta from him. During that conversation he introduced us to a young man working temporarily in the mountain shop, a climber by the name of Troy Sette. Alex persuaded us to allow Troy to accompany us and hence another of the pioneers joined the group. In the end the descent of the gorge we named the "Great Falls of the Fox" was a truly spectacular adventure and one we repeated many times. It is amazing to think that this jewel of the San Gabriels is not even marked on the topo map.

A short postscript before leaving the Great Falls. We later made Martin Regehr's acquaintance and he accompanied us on one of our trips down Fox Canyon, making his first "successful" descent. Susan Sette, Troy's wife, was also with us on that trip; we only discovered a week later that she was three months pregnant that day.

About that time in the early 1990s we first learned of the term "canyoneering" (up to then we just called what we did "adventure hiking") and we discovered Tom Jones' marvelous guide to Zion National Park and other Utah

destinations. It did not take us long to organize the first of many trips to Zion and later to the other great destinations on the Colorado Plateau. Several years later, three other great friends joined the core of the canyoneers who developed the San Gabriels, Death Valley and other southwestern adventures: the Marquesa de Canyonette, Randi Poer, whose blithe spirit enriched any adventure, Scott (Seldom Seen) Smith, one of the kindest people I have known, and the “Magnificent Marine” John Perry whose strength eased all obstacles. There were others, of course, and among them my great friend David Wales, but I have mentioned all those who made major contributions in the early days of canyoneering in the San Gabriels. And who were truly a joy to be with.

Chapter 27

INTO THE WILDERNESS

*“With a host of furious fancies
Whereof I am commander,
With a burning spear, and a horse of air,
To the wilderness I wander.
By a knight of ghosts and shadows
I summoned am to tourney
Ten leagues beyond the wide world’s end.
Methinks it is no journey.”*

From “Tom O’Bedlam” (17th century, anonymous).

On Christmas Day, 1983, at our temporary home on South Holliston Avenue in Pasadena, Doreen, the children and I were celebrating our traditional family Christmas. I do not recall anything that would allow my memory to separate that day from dozens of other delightful Christmases except for one thing. Instead of the traditional gift from under the Christmas tree, at the conclusion of that ceremony, Doreen, Dana, Kathy and Patrick wheeled in a brand new mountain bicycle. It was, perhaps, the best Christmas gift I ever received. The timing was perfect for I had had my eye on one of these new bicycle designs and was, at the same time, looking for a form of exercise that would not only improve my health but also be fun. It was a brand new Schwinn Mirada and seemed to require virtually no effort to propel. Shortly thereafter I began to make short trips into the nearby San Gabriel mountains. For the first few months I would impose upon Doreen to give me a ride up the tortuous road to Mount Wilson and, from there, I would ride down one of the two fire roads to Pasadena. Later I began to venture onto the various trails around Mount Wilson and into the canyons of the several forks of the San Gabriel river. During the week I would pour over my maps of the mountains, plotting out my next trip, making sure of the distances and the elevation changes. As my horizons widened, and my ambitions grew, one particular adventure began to intrigue me. I had, on several

occasions, ridden some distance on a trail up the East Fork of the San Gabriel River starting at the end of the road above Azusa. I noticed on the map that this canyon ran almost the whole way through the San Gabriel range. Indeed if one climbed up the Blue Ridge above Wrightwood on the northern side of the mountains then one could drop down from Vincent Gap into Vincent Gulch and, from there, into the canyon of the East Fork of the San Gabriel. My map indicated a trail through this canyon that one could follow all the way to the south end and thus emerge onto the road above Azusa. I recognized that this would be a very ambitious traverse but I reasoned that, if I started early and had the advantage of a downhill ride the whole way, then I should be able to make it. Circumstances were to prove otherwise.

Thus it was that very early on the morning of Saturday, Nov.11, 1989, Doreen and I set off for the Angeles Crest Highway that winds for about fifty miles along the spine of the San Gabriel Mountains. From La Canada Flintridge we climbed about 5000ft through the morning haze, past Red Box junction that had so often been my drop-off point and on to Charlton Flats, the Chilao Visitor's Center and Newcomb Ranch. I knew that Doreen was getting a little impatient as we climbed further and deeper into the mountains. Finally, when we reached the 7018ft Cloudburst Summit about 9.00am, I felt that I had reached a good starting point. So I turned the car around for Doreen, unloaded my bicycle and we parted ways, Doreen to return home and I to continue along the Angeles Crest Highway.

The air was crisp and filled with the morning scent of the pine trees as I rode along this beautiful road in the sky. Several gentle descents and ascents took me past the Eagles Roost and through the Mount Williamson tunnels to Islip Saddle where a precipitous road once connected with Route 39 coming up from Azusa. The road between Islip Saddle and Crystal Lake having been wiped out once too often by floods and earthquake-generated land slides, the State had given up trying to maintain that section and had allowed it to return to its natural condition. During previous adventures, I had navigated the remains of this route on my bicycle. This time my objective lay further along the Angeles Crest Highway and so I began the climb from Islip Saddle, past Mount Hawkins and Throop Peak to Dawson Saddle, at 7903ft the highest point on the Angeles Crest Highway. At Dawson Saddle I had come about 11 miles from my starting point at Cloudburst Summit. From there it was a swift and exciting ride of about 3 miles down to the 6560ft trail junction at Vincent Gap that I reached at about 11.30am. There I paused for lunch and reflection before continuing the next stage of my planned trip. Already I was somewhat apprehensive about the limited amount of daylight remaining. However I reasoned that, provided the trail that appeared on my map existed (and I had no reason to think that it did not for the map had proved reliable elsewhere), I should be able to reach civilization again before dark.

With eager anticipation, I left the road at Vincent Gap, following the trail that drops fairly steeply down Vincent Gulch toward the Mine Gulch junction. This is rugged, forested country and, during the descent, I entered the Sheep Mountain Wilderness, the home of a substantial herd of Nelson Bighorn Sheep

and a number of bears and cougars. The forest was a mix of conifers and deciduous trees whose autumn colors added to the spectacular scenery. The 9399ft Mount Baden-Powell formed a dramatic western wall to the canyon. About a year later I climbed this mountain, named after the founder of the Boy Scout movement. In the register at the summit I placed this message:

“Oct.6, 1990. In memory of my father Wilfred M. Brennen (1911-1987) who, as Chief Commissioner of Scouting in Northern Ireland, worked tirelessly to reduce sectarian violence by bringing together Catholic and Protestant youth within the Scouting Movement. Today he would have been 79.”

Though steep the trail was mostly rideable and I made fairly good progress with only the occasional need to carry my bike. I paused a number of times to admire this beautiful land. After a descent of about 2000ft from Vincent Gap, I emerged onto a flat area of sand and rock, the 4500ft Mine Gulch junction where Vincent Gulch, Mine Gulch and Prairie Fork all meet before the sum of their contents plunges into the canyon of the East Fork of the San Gabriel River. Another trail drops down to this junction from the Cabin Flat campground on Prairie Fork; it used to be possible to reach Cabin Flat campground by car using a dirt road from the Blue Ridge above Wrightwood. Indeed as I approached the Mine Gulch junction I came upon two young men who had hiked down Prairie Fork from Cabin Flat. They seemed truly amazed when they spotted me riding my bicycle towards them and looked at me with even greater astonishment when I told them of my destination.

It was shortly after leaving Mine Gulch junction and entering the East Fork canyon that I realized that I might be in some difficulty. First, it rapidly became obvious that the nice red line on my map that indicated a trail through this canyon was entirely fictitious. If there had ever been such a trail all traces of it had long been obliterated by the winter torrents that crash through this canyon. Second, time was marching on and, with only a few more hours of daylight left, it was clear that I would not be able to make my way out of this wilderness before nightfall. For the moment there was little choice but to press on. It would have taken me several hours to climb back up the way I had come and, after all, there was always a chance that a good trail would suddenly appear at some point further downstream. The terrain was now even more rugged and precipitous. The mountains on both sides had closed in, forming a canyon with unscaleable walls and a rock-strewn bottom. The river in the canyon was a substantial stream with alternating quiet sections interspersed with chaotic rapids. In many places it was necessary to carefully select a route by which to descend amidst waterfalls and large canyon-filling boulders. It was slow going, carrying or dragging a bicycle that, in several places, needed to be lowered by rope ahead of me. In still other places the canyon bottom was entirely overgrown with young saplings (alders?) that could only be penetrated with great difficulty. It was, indeed, a rugged wilderness.

I did attempt to keep track of my location but landmarks were rarely visible from the canyon bottom. Glimpses of the 8009ft Iron Mountain immediately to the east of the canyon did however allow some estimate of my position. As the light began to fade I guessed that I was somewhere in the vicinity of Fish Fork

at an altitude of 3400ft and about 7 tough miles from Vincent Gap. Ahead of me I still had two very hard miles of rugged canyon before connecting up with the trail that I knew led south from the “Bridge to Nowhere”, about which more later. Each time I turned a corner in the canyon, I kept hoping that I would see this imposing bridge but my calculations told me it would not be possible to reach it during the available daylight. The temperature had begun to fall and, since I was soaking wet from having traveled in the stream, I began to get cold. Moreover, both bicycle tires had gone flat probably because of water in the valves and they needed to be repaired. All of these factors clearly indicated that I should find a comfortable place to spend the night. It would be very dangerous and quite impossible to press on in the dark. Any injury caused by a fall could turn the situation from serious to critical. Yet, it took all the will-power I could muster to make myself stop and prepare for the night. Panic was a powerful force causing me to keep going. But common sense finally prevailed and I chose a spot on a sandy bench where I built a rudimentary stone fireplace. Dry, downed logs were abundant nearby and I soon had a substantial fire going. I was immensely thankful to Doreen for adding a small butane lighter to my bicycle kit only a few weeks before. In retrospect it is clear that this lighter saved me from a very threatening situation and made it possible for me to make it through the night in relatively good shape.

Once the fire was going I began the time-consuming but important task of drying my clothes and shoes. This took about two hours but I was able to complete the task before it became too cold. As it turned out the weather was very mild for November and the temperature did not fall too far at anytime during the night. At the end of two hours I had clothed myself in every garment I had with me and was reasonably dry and comfortable. During the drying process the only mishap was a slightly burnt sock, now missing part of its sole. I scooped out a place in the sand right next to the fire and lay down for the night. Though I was not able to sleep, I was able to rest in a warm and fairly comfortable position. For most of the night the moon was quite bright and I could look up and see the stars and the occasional airplane passing high overhead on its way to Chicago, New York, or dozens of other destinations. I reflected upon whether I would rather be down here or up there in one of those aluminum cigars and I was not entirely sure I knew the answer. Most of all, the night was extremely boring. I tried to resist looking at my watch every five minutes and eventually was able to stretch the interval to every twenty minutes. Many, many times I attempted to relieve the boredom by intricate planning of my remaining resources. In this regard, the most critical resource was water. I had about a pint of orange juice and a pint of water remaining. I decided to consume the orange juice through the night, saving some for “breakfast”, and to keep the water for the next day. Though I was fairly sure the stream water was safe in such a remote region as this, I did not want to risk drinking it until it became necessary, primarily because I feared illness. I did have a little food left in the form of two small packs of crackers and cheese (the kind available in vending machines) and two pieces of Doreen’s shortbread. Before settling down I dined on one pack of crackers and cheese and one piece of shortbread downed with



Left: Prairie Fork junction from Big Horn Mine. Middle: In East Fork Narrows. Right: Bridge to Nowhere.

orange juice. The other pack of crackers and cheese provided my breakfast and I kept the final, sugar-laden piece of shortbread as emergency glucose rations.

So I was reasonably comfortable in the middle of the Sheep Mountain Wilderness. On the other hand, back home in Sierra Madre, Doreen became increasingly alarmed as the sun set and the evening wore on without any word from me. I had told her that I would call once I emerged from the canyon and that I would need a ride home from Azusa. When no such call came by about 9.00pm, Doreen concluded that something had gone wrong, and she rightly felt that she had no choice but to call the sheriff and the mountain rescue team. Fortunately, I had given her a quite explicit description of the route I was going to take. So when she finally reached the appropriate office within the Sheriff's department, she was able to provide them with an accurate description of my route. They told her that there was little they could do before morning, but they were organizing two search teams, one that would start down the trail from Vincent Gap, and the other would set off up the trail from the East Fork Ranger Station. These teams would probably be ready to start about 10.00am the next morning. In the meantime, they said they would call her every hour or so to let her know whether there had been any developments. It was a truly agonizing experience for Doreen, and the aspect of the whole adventure that I regret most is that I caused her this pain.

As soon as light began to penetrate the canyon, I consumed my meager breakfast and made preparations to resume my journey. I inspected the tires of the bicycle and decided not to use the spare inner tube until I reached a rideable trail. Finally I doused the fire, and set off down the canyon. The going continued very rugged indeed but I began to detect signs of human passage and then encountered a substantial canyon junction where there were clear signs of human activity. This I assumed was Iron Fork (3200ft); I recognized the flattened area where gold miner George Trogden had his camp at the turn of the century. George was well known for his hospitality to all who passed this way. Occasionally things got out of hand as on Christmas night, 1917, when the gunslinging gold miner John Portwood shot and killed miner Herman Miller

after a poker game. Indeed the East Fork of the San Gabriel river was the site of a gold rush during the latter part of the 19th century after the precious metal was discovered there in 1855. Below Iron Fork, the canyon is dotted with mines and the remnants of tailings. Even today several prospectors still live and work in the canyon while a number of weekend panhandlers take out a few dollars worth of the gold for several hours work.

Below Iron Fork a rudimentary trail became detectable and I began to encounter other hikers traveling in both directions all of whom were more than a little surprised by my bicycle. Though I had begun the morning feeling quite fresh I did notice that my strength began to ebb quite quickly and it became harder and harder to lift my bicycle. I started to debate whether I should abandoned my much-loved vehicle but, apart from my sentimental attachment to it, I also realized that once I reached the Bridge to Nowhere it would be easier to ride from that point on than it would be to hike. So I pressed on. Toughest of all was the fact that, in several places, the trail climbed the canyon wall in order to get around waterfalls; it was becoming very hard to find the strength to negotiate such obstacles. Finally, however, after one such ascent, part of the way up the west wall of the canyon, I turned the corner and there was the bridge. My relief was tangible for I knew I had the capability to ride from here down to the trailhead and the ranger station.

The Bridge to Nowhere is one of the most bizarre artifacts to be found in the San Gabriel mountains. Back in the 1920s, Los Angeles County planned to build a highway all the way up the East Fork canyon to the Mine Gulch Junction. From there the road would climb over Blue Ridge and drop down into Wrightwood. It would be among the most scenic roads in America. Construction began in 1929, most of the work being done by County prison work crews. By the mid-1930s the highway had reached The Narrows (2800ft) where the East Fork flows through a very deep gorge, the deepest in Southern California. There it was necessary to construct a concrete bridge high above the waters of the gorge. A tunnel was also chiseled out of sheer rock. However, the winter after this difficult construction task had been completed, an unprecedented storm arrived on March 1-2, 1938, depositing many inches of rain on the San Gabriel Mountains. The result was a tremendous flood that roared down the East Fork, obliterating everything in its path including more than five miles of the painstakingly constructed highway. Only the bridge was high enough above the waters to be virtually untouched. The futility of the project having been so emphatically demonstrated, the County abandoned their plans leaving a brand new concrete road bridge standing alone in the middle of the wilderness more than five miles from the nearest highway. It became a popular destination for hikers who dubbed it the "Bridge to Nowhere". Years later the County planned another highway up the East Fork. This time they intended to build it high up on the western wall to avoid a repetition of the earlier disaster. Begun in 1954, this second highway was abandoned in 1969 after only 4.5 miles had been built. That second effort left substantial scars up on the western wall. Hopefully that will be the last time man will desecrate this wilderness and it will be left for future generations to enjoy in its nearly natural state.

I reached the Bridge to Nowhere about 8.30am and, high above the rushing waters of the East Fork, sat down to summon my strength for the last leg of the journey through the wilderness. I could not help but admire again the spectacular Narrows gorge below me. There are two ways up the canyon at this point. One is to follow the trail up the canyon wall, cross the Bridge to Nowhere and then descend along a trail to the canyon bottom. That is the easy way though it is not obvious since the canyon makes several turns during this traverse. Those who fail to find the place where the trail takes off to climb to the bridge must make their way along the canyon bottom, a much more difficult route. I was glad that I had located the trail for I fear I would not have had the strength for the Narrows bottom route. After a few minutes, I turned my attention to the tires of my bicycle and was able to make sufficient repairs so that I could ride on two inflated tires. It was a great relief to be able to mount my bicycle for the first time in about 19 hours and thus to make fairly easy progress toward the trailhead, some five miles away. Despite the fact that the day hike to the bridge is fairly popular and therefore this trail is well traveled, the frequency with which it gets washed out means that it is quite rough in places. Indeed it crosses the East Fork perhaps a dozen times between the Bridge and the trailhead. Normally it is fun to ride through the stream at these crossings but, on this morning, it was more of an effort. I had consumed the last of my water on the Bridge and began to recognize some of the symptoms of dehydration and exhaustion, a slight sense of confusion and disorientation. But I felt that the situation was under control as I negotiated the last stream crossing, climbed the bank, and entered Heaton Flat where gold miner William Heaton set up camp in 1891 and prospected until his death in 1924. A few hundred yards more and I came to the locked gate at the trailhead parking lot. I had traveled 14 miles through the wilderness and a total of about 28 miles since Doreen had left me on the Angeles Crest Highway.

Though I had not given the matter much thought, I nevertheless half expected to find a welcoming party of some kind at the trailhead. Since no such welcome occurred, I guessed that Doreen had not called the authorities as I expected she would. But my first priority was the water fountain where I was surprised by how thirsty I was and consumed about a quart of water. I also filled all of my water bottles in preparation for what I anticipated might be a ride of as much as ten miles to the nearest telephone. The entrance to the ranger station is right beside the water fountain and, as I was filling my bottles, a ranger drove by in his pickup truck. I thought that he looked at me somewhat unusually but since he drove on I thought no more about it at the time. After a brief rest, I felt ready to resume my journey and so started off down the East Fork road. After about half a mile, I paused briefly at the junction with the Glendora Mountain Road for no special reason that I can recall. As I stood straddling my bike, the same ranger who had passed me earlier drew alongside and leaned over from the driver's seat to speak to me. He asked me whether I was Chris Brennen. In later retellings of the story I have sometimes claimed that I hesitated before responding and made a mistake in saying yes. In fact, I meekly responded in the affirmative, recognizing that I was near the end of my

resources and that I probably needed some help. Within moments it seemed as though I was surrounded by about four or five emergency vehicles. I realized later that they had been about to set off on their search for me, and that they were headquartered at Williams Camp, about a quarter of a mile down the road from where I had stopped. That accounted for the speed with which they appeared once they were notified by the ranger. I had little choice in the succession of events that followed. They took my bicycle away from me and made me sit down by the side of the road. There they did a quick check of my condition, taking my pulse, my temperature, and my blood pressure, in addition to checking my lucidity. Shortly thereafter they drove me down to Williams Camp for a more extended examination and debriefing. Someone brought me several small cans of orange juice that tasted very good indeed. They also called Doreen to tell her that I was safe and well and that she should come and get me at Williams Camp. Having determined that there was little wrong with me other than thirst they then quizzed me about how I had spent the night and about the condition of the trail, if any. In fact they did not seem to know a great deal about the canyon north of Iron Fork. Eventually, they left me to my own devices while they reviewed their own preparations for the rescue attempt. During this time I realized that they were virtually all volunteers who gave of their own time in the service of the search and rescue teams. I confess that several times it crossed my mind that I might get an enormous bill for their services. Fortunately I never did. I do, however, have a lasting appreciation for the work they do and for their thoughtfulness and generosity.

Doreen arrived with Patrick and drove me home to Sierra Madre. They were, perhaps, too relieved to express appropriate anger over my antics. I was very glad to see them and was almost asleep in the back seat by the time we arrived home. I slept for a while and awoke refreshed toward the end of the afternoon. I assumed that was the end of the matter. However, when I opened the local newspaper, the Pasadena Star-News, the next morning, Monday, November 13, a headline jumped out at me: "SHERIFF'S DEPUTIES FIND TWO MISSING CYCLISTS". The story, which is completely erroneous geographically, read:

"Angeles National Forest. Search teams from the Crescenta Valley Sheriff's station were called out to find two separate cyclists Sunday in the San Gabriel Mountains. Deputies found Christopher Brennan, 48, near Crystal Lake just before 10 a.m. Sunday, nearly 24 hours after his wife had dropped him off on San Gabriel Canyon Road above Azusa. Brennan reportedly misjudged the time necessary to make his trip and was forced to spend the night in the mountains. Later in the day.....".

So much for my notion that the adventure would pass unnoticed by those outside of my own family. When I got to my office, one of the secretaries, Jackie Beard, had made a big enlargement of the newspaper article and plastered it on my office door and elsewhere in the building. There was also a telephone message from the President's office asking me to call them. This I did quickly, trying to reassure them that I was both safe and sane. Later that day, I learned from a number of people that the story had been on the local radio. Indeed the story spread like wildfire through the Caltech community and I acquired a reputation

that I had no way of controlling. The legend grew in the telling; indeed, it seems to have been passed down in more and more exaggerated form from one generation of graduate students to the next. At a graduate student banquet about a year later, my students Steven Ceccio and Douglas Hart presented me with a special kit for future trips. This consisted of a fluorescent yellow hat and a bright red tee-shirt with the following message in large letters on the chest: "IF FOUND RETURN TO CALTECH". When I climbed Caltech Peak with Douglas several years later, I made a point of having my picture taken on the summit wearing this outfit.

So I come to the end of this story. For me it was not a particularly trying ordeal though it was undoubtedly traumatic for Doreen and Patrick. When I think about those 27 hours, I reflect on my gratitude to Doreen for a small butane lighter and for caring about me. But I am also discreetly proud that I was able to handle a difficult situation quite successfully.

Chapter 28

CALTECH PEAK

“.....so I used the moveto do a little course track for him. I know how, Skipper. I read the manual. It’s easy, just like we used to do at Caltech to chart star motion....”

From “The Hunt for Red October” by Tom Clancy.

In 1991, the California Institute of Technology, my place of work for many years, celebrated its 100th birthday. In July of that year graduate student Douglas Hart and I marked our own celebration of the centennial by climbing the 13,832ft Caltech Peak near the northern boundary of Sequoia National Park in California.

Caltech Peak became the official name of a mountain about 15 miles northwest of Mount Whitney in December of 1961. Previously unnamed, the peak came to be identified with the Institute as a result of a weekend climbing trip by Jim Eder ('65), Dick Jali ('55) and Ted Matthes ('55) who made the third recorded ascent on June 25, 1961, following the route that we took 30 years later. The three Caltech alumni were struck by the fact that three California schools had nearby mountains named after them, namely Mount Stanford (Stanford University), Trojan Peak (University of Southern California) and University Peak (University of California). So, after their return, they petitioned the Department of the Interior and the Superintendent of Sequoia and Kings Canyon National Parks. After some months of successful lobbying, Dick Jali was able to tell the Caltech community of the naming of the peak in a letter published in the January 1962 issue of Engineering and Science. Since that time a number of alumni, staff and students have made the ascent, and been rewarded by the magnificent view from the summit. There is no campus record of those ascents. But we do know of a number of members of our community who have made it to the top in the thirty years since it was named Caltech Peak. On Aug.16, 1964, Thor Hansen ('64) left a glowing description of Caltech in the summit register. Five years later Eric Jensen ('70) and Roger Jensen (ex

'71) reached the top on Aug.21, 1969, and they were followed a couple of weeks later by Volker Vogt ('64). James Greenfield, the director of corporate relations, and Dick Mooney from the business services office climbed the peak on Aug.19, 1970. Dale Dalrymple ('73) made the ascent on Sep.12, 1971, spent the night on the summit, and made his way along the ridge to Mount Stanford the next day. Margaret Schaefer was probably the first female member of the community to make it to the top. She climbed the mountain by the more difficult western approach on Aug.20, 1972, in the company of her husband, William P. Schaefer, then the Registrar at the Institute. Bill, who was probably the first faculty member to reach the top, reported on their experience in a November 1972 letter to Engineering and Science. He also climbed it for the second time in 1978. To my knowledge, the only other faculty member who made the climb prior to myself was Professor of Mathematics, David Wales, also at one time Dean of Students.

My own interest in attempting the climb was formed from several different motivational strands. In the preceding few years, I had taken up mountain biking and mountain climbing as a recreational pursuit and in an effort to regain my health after some years of neglect. I had gradually progressed to higher altitudes including climbs of Mount Baldy, Mount San Jacinto, and Mount San Geronio. The High Sierras beckoned next. But an additional motivation arose about 1989. Louis Wilde, then Master of Student Houses, knew of my efforts to recover my health and of my mountain-biking exploits in the San Gabriels. At one point during a conversation with Louis, I rashly claimed that I could ride my bicycle to the top of Mount Baldy, a claim that was met with ribald disbelief. I recall a comment to the effect that I was "too old and too fat" to accomplish that feat. When I was so quoted in a campus publication, Louis protested that he had been misquoted. What he had said was that I was "too old and too feeble" to make it to the top. To maintain my self-respect I had no option but to challenge these slanders. I thereupon issued a "Centennial Challenge" to Louis that ran as follows. If, as a Centennial celebration, I could make it with my bicycle to the top of (i) the 9,138ft Throop Peak in the San Gabriel mountains and (ii) the 13,832ft Caltech Peak in the Sierra Nevada then he, Louis, would have to meet me at the second location. I would bring my wife's battery-powered horse shears and would be permitted to give Louis whatever haircut and beard cut I so desired. Shortly after this challenge was accepted, I completed the first leg of my task in June 1990 and so recorded the fact in the register at the top of Throop Peak. Perhaps frightened by the possibility that I might actually succeed in the challenge, Louis had his hair and beard cut during the fall of 1990, and so greatly reduced the incentive for me to take my bicycle with me. In the end, I carried a symbolic, plastic toy bicycle that I left at the summit in recognition of my friendship with Louis. By that time I had also recognized the magnitude of the task of getting to the top of Caltech Peak even without a bicycle. Besides, bicycles are not permitted on the trails in the National Parks.

So it was that Doug Hart and I set off on July 23, 1991, to climb Caltech Peak and, perhaps, also Mount Whitney. We drove separately to Lone Pine where I

obtained a wilderness permit from the Mt. Whitney Ranger Station. A limited number of permits are issued each day for entry to the wilderness through each of the High Sierra trailheads. Permits for the Mount Whitney trail beginning at Whitney Portal must be obtained many months in advance. However, other trailheads are much less popular, and we had no difficulty obtaining our permit for the Symmes Creek trailhead to the Shepherd Pass trail, the next entry point north of Whitney Portal. After last minute shopping, we left Doug's car at Whitney Portal in order to allow us to exit the wilderness from that point, and then drove on up US 395 to Independence. From there we navigated a route over dirt roads to the 6000ft Symmes Creek trailhead using the High Sierra Hiking Guide by Winnett. Spending the night there, we were on the trail shortly after dawn on July 24.

The Shepherd Pass trail is a long and, at times, arduous climb of about 6000ft. It begins with a series of switchbacks that ascend to a saddle at 9000ft between the Symmes and Shepherd creek valleys. This saddle provided the first of many truly exhilarating experiences on the trip for, quite suddenly, there unfolds a breathtaking panorama of the 14,375ft Mount Williamson and the dramatic cliffs that surround it. The memory of this magnificence lingers long after one leaves the saddle and begins a brief descent into the valley of Shepherd Creek before the trail starts upward again.

After lunch at a stream-crossing below Mahogany Flats, we resumed our climb up the valley. For me that afternoon was, perhaps, the toughest leg of the whole trip for the sun was hot and I was still adjusting to the altitude. The climb up to and around a very large moraine blocking the valley was exhausting. Late in the afternoon, we both struggled into Anvil Camp which is perched among the trees on top of the moraine. Perhaps because of our fatigue, we camped a little too close to the stream and were attacked by mosquitoes who seemed to find Douglas particularly tasty.

The next morning was clear and beautiful, and the views were magnificent as we climbed through increasingly rugged terrain toward the 12,050ft Shepherd Pass. The last part of the climb switchbacked up a quite dramatic chimney and traversed a small snow field before we finally reached the top of the pass. The view of the High Sierra that opens up as one achieves this summit is awe-inspiring. The mass of 14,018ft Mount Tyndall lies to the south, most appropriate for this location since it is named after the English scientist who first explained why the sky is blue. The northern skyline consists of the angular outline of Diamond Mesa which, for the moment, obscures the view of Caltech Peak. Below one's feet to the west are gently sloping meadows where Tyndall Creek begins and, in the distance, a marvelous panorama of Sierra peaks. Shepherd Pass also marked our entrance into Sequoia National Park and, because of this, several posted signs greeted us at the summit. One, in particular, I found puzzling. It read "No loose herding beyond this point". "Loose herding" being undefined I was not at all sure how I could avoid an inadvertent transgression!

It is an easy walk down the gently sloping trail toward Tyndall Creek. About the 11,400ft level, we left the Shepherd Pass trail and cut across country to meet the John Muir trail at a point some distance north of the junction of the two



Left: Climbing toward Shepherd Pass. Right: Shepherd Pass.



Left: View west from Caltech Peak. Right: On Caltech Peak.



Left: Mt. Whitney from Timberline Lake. Right: Doug on top of Mt. Whitney.

trails. During this cross-country leg, we rounded the south end of Diamond Mesa and mountains that lay to the west were gradually revealed. First the ridge that projects south from Caltech Peak and then the Peak itself became visible. We lunched beside the Muir trail and selected the equipment that we felt we needed for the climb to the Peak. Then we stowed our packs behind some rocks, and set off north along the Muir trail. Since there is no trail to the summit of Caltech Peak, we were guided by several prominent landmarks. The

first of these is the saddle on the ridge just south of the Peak. Also important to identify are the two small lakes in the valley below and east of the saddle. One is about 200ft higher in elevation and a few hundred yards north of the other, the former being slightly north of the saddle and the latter being slightly to the south. These landmarks allow you to identify the only safe route to the top of the Peak when approaching from the east. One way to find these lakes when traveling north on the John Muir trail is to notice a fairly prominent waterfall on the left about 100yards from the trail. Leaving the trail at a point where the elevation is about 12,000ft and climbing the slope to the south of the waterfall brings you to a point midway between the two lakes. From here you should climb straight up the fairly steep and rocky slope toward the top of the ridge, traveling due west. When most of the way to the top of the ridge (and south of the saddle), you can begin to veer north toward the summit. The easiest route is probably to stay to the east of the ridge until past the saddle and then to proceed northwards up a moderate slope to the summit. I should also point out that there is another but somewhat harder route that can be used when the Peak is approached from the west, beginning at Lake South America. Lest I have made the climb seem too difficult, let me hasten to say that as a late comer to backpacking at nearly 50 years of age, I had little difficulty with the eastern route that required no real climbing but a good deal of scrambling over rocks. Perhaps the only mistake Doug and I made was in not carefully marking our route on the way up. We had some difficulty retracing our steps on the descent; care needs to be taken in order to avoid difficulties at the lower altitudes where the slopes are very steep.

The climb up from the John Muir trail can be accomplished fairly easily in about two hours, and the reward is a truly magnificent view in all directions. To me it was substantially more interesting than the view we had two days later from the top of Mount Whitney. Looking north along a precipitous and narrow ridge one sees Mount Stanford (inappropriately about 150ft higher than Caltech Peak). To either side of this ridge, the dropoff is almost vertically down more than a thousand feet. To the northeast, massive cliffs stretch from Mt. Stanford to Junction Peak; the John Muir trail makes its way over this obstacle via the dramatic Forester Pass. To the east, the rectangular mass of Diamond Mesa encloses the lake land below where we began the last part of our climb. Off to the southeast, the view consists of a whole range of 14,000ft peaks including Mount Tyndall, Mount Williamson and, about 15 miles distant, Mount Whitney. Another range of spectacular mountains, the Kaweah Peaks Ridge, frames our view to the southwest with a whole maze of valleys and lakes lying between us and that range. Almost directly below one can recognize Lake South America by its shape. Finally to the west and northwest another range of mountains including Milestone Mountain, Thunder Mountain and Mount Ericsson define the valley beneath us and, as on the east, close in so that passage northwards out of this valley requires negotiation of the precipitous Harrison Pass. It felt as though I had climbed all the way to the sky.

After admiring the view for many, many minutes we began examining the small but interesting cache in the cairn at the summit. This consisted of two

metal boxes. One was the conventional Sierra Club model, containing a copy of the brochure “Facts about Caltech” (left, I believe, by Bill Schaefer about 1978) and a handsome log book containing the musings of those who had climbed the Peak in the preceding 30 or so years. Doug and I left our own records in this journal. Later we regretted not taking the time to make a list of all of those whose names appeared in this book. But I remember seeing Don Caldwell, the Director of Choral Music, and the names of a number of students and former students, for example Kirk Hazelton. I would estimate that perhaps 40 people had left a record of their ascent in this journal. The other container was clearly a labor of love. Made of aluminum, it had the name Caltech cast into the lid and contained another journal for which the box was custom-made. To this collection of artifacts we added the contribution that we had carried all the way from Pasadena, namely a stainless steel plaque measuring about 15in by 10in with the Caltech Centennial emblem engraved on it along with the following message:

Caltech Peak (13,832 ft.).

*Placed on this summit in celebration
of the 100th birthday of the California
Institute of Technology and with affection
for all of the students of the Institute.*

July 1991

Chris Brennen, Dean of Students.

Douglas Hart, Graduate Student.

This plaque had been made for us in the Mechanical Engineering Shop by Marty Gould and undergraduate Karen Hong. We affixed it to the rocks on the summit by means of two stainless steel cables using Vise Grips borrowed from Marty.

Finally, since the afternoon was coming rapidly to an end, we reluctantly began our descent. Upon reaching the John Muir trail, we collected our packs and hiked southwards, entering woods at the point where a number of trails converge near the Tyndall Creek camping area. Staying on the Muir trail, we crossed Tyndall Creek and made camp for the night a short distance south of that crossing where there is a row of small lakes just east of the trail. Fortunately, we chose a site further from the water so that the mosquitoes were far fewer in number though not completely absent. I slept soundly after the efforts of the day and awoke refreshed to another glorious morning. After breakfast, we set off southwards along the Muir trail traveling through beautiful, mostly wooded country highlighted by many magnificent views of the surrounding mountains. As we climbed gently toward Bighorn Plateau we looked back for a great view of Caltech Peak from perhaps its best vantage point. For the next seven or eight miles we did not gain or lose much altitude but dropped down into and climbed back out of several most attractive valleys with moderate streams. Here we met and chatted with Len, a schoolteacher from New Jersey who had spent about ten

days in the Sierras without any prior experience of backpacking “just to see if he could survive”. He claimed to have started with far too much gear and food, most of which he had thrown away at the end of the first day. This included his brand new boots! He had been surviving on oatmeal and peanuts ever since. He was a lively and interesting man with whom we had more conversations while camping that night at Guitar Lake.

At Crabtree Meadow, the Muir trail turns eastward and begins to ascend the valley of Whitney Creek. We had a very pleasant lunch of black bean soup at a pretty spot beside this creek, and even took time out for a siesta. Refreshed, we continued on up this attractive valley until we reached the picture-book Timberline Lake. Since we were well ahead of schedule, we stopped for about two hours at this beautiful lake. I rested while Douglas tried his hand at fishing. Though he caught several fish, none were large enough to keep for dinner. I spent time studying the massive bulk of Mount Whitney, looming above us, and the almost sheer cliff that extended south from Whitney and which the map said the trail climbed. I could not make out any trail, and still less could I visualize the possibility of any trail surmounting that impressive barrier. Late that afternoon we reluctantly left Timberline Lake behind us, and climbed out of the trees and up to the larger Guitar Lake immediately below the mass of Mount Whitney. Along with a number of others (including Len) we made camp for the night near the shores of Guitar Lake at an altitude of about 11,450ft.

Anticipating a long day we arose early, breakfasted and started out shortly after sunrise. The trail led through steeper and steeper rock-strewn terrain as it approached the almost vertical wall of rock above us. We then began a series of switchbacks that, despite my disbelief of the previous day, did climb the necessary 2000ft to the top of the rock wall. There, at an altitude of 13,500ft, our trail met the trail that ascends Mount Whitney from Whitney Portal. Leaving our packs at this junction, known as Trail Crest, we set out to climb the remaining 1000ft to the summit of Mount Whitney. Unlike the rest of our trip, we now seemed surrounded by hikers virtually all of whom were making the pilgrimage from Whitney Portal to the highest point in the contiguous United States. Many had climbed to this altitude too quickly, and were either in considerable discomfort, or had decided to try and sleep it off among the rocks beside the trail. Most were clearly laboring compared with Douglas and I who had the advantage of several days of acclimatization.

The trail from Trail Crest to the 14,496ft summit of Mount Whitney proceeds along a ridge, the route having been cut into the cliffs on the western side of the ridge. This part of the trail is quite spectacular. At intervals there are breaks in the ridge that form windows through to the other, eastern side and provide dramatically framed views of Owens Valley some 10,000ft below. The last leg of the climb through a field of rocks seems endless until, suddenly, one surmounts the last rise and there is the summit and the low stone warming-hut built as a refuge against the violent storms that can occur almost without warning on these mountains. Douglas had gone on ahead on this last leg and I was somewhat glad of that for I was quite unable to contain my emotions over that final fifty yards with the summit in full view. Nearly two years before,

at a time when I could barely walk I had dreamed of the possibility of being able to climb this mountain. I don't think I ever really believed that it was a physically viable objective. Since that day two years before, I had trained hard and slowly, often disappointingly slowly, I had recovered some semblance of health and begun to establish some reserves of strength. I have never thought of myself as particularly strong, and I had often doubted my ability to endure. I confess that, over those last few yards, tears of pride and accomplishment streamed uncontrollably down my face. It was a feeling I will never forget.

The view east from Mount Whitney is unforgettable. The immensity of the cliffs and the magnitude of the height are overwhelming. It was almost more than the mind could take in. The view from Caltech Peak had seemed kinder perhaps because of its variety. This was enormous and brutal. We took some photographs and signed the register in the shelter of the warming-hut. Then, subdued, we began our descent and collected our packs at Trail Crest. There followed a series of 97 switchbacks down the most immense talus slope. Some distance below that we had a pleasant lunch beside the stream just above Mirror Lake. The last few miles to Whitney Portal seemed endless and our feet were quite sore when we finally arrived at Douglas's car. Driving down toward Lone Pine we found a campground where we enjoyed a wash and a shave in the stream before pressing on to the Symmes Creek trailhead to collect my car. Then back again to Lone Pine where we treated ourselves to a meal in a cafe before the long drive back to Pasadena.

Thus ended a trip whose images and feelings will linger with me forever. They are a kaleidoscope of beautiful scenes from the pages of National Geographic merged with vivid personal emotions of exalted triumph and human frailty. Though I was to climb many peaks in distant corners of the earth in the years that followed, Caltech Peak and Mount Whitney represent a defining moment in my life and thus retain a special place in my affections and my chronicles.

Chapter 29

SORAKSAN

*“Old men ought to be explorers
Here and there does not matter
We must be still and still moving
Into another intensity.”*

From “East Coker” by T.S. Eliot (1943).

In the summer of 1992, I was scheduled to attend two conferences in the far east, one in Seoul, Korea, and one the following week in Hangzhou, China. This meant that, along with one of my former students, Steven Ceccio, and other participants, we had an intervening weekend to indulge in whatever activity we wished. Steven and others had elected to spend that time in Hong Kong since that city was a necessary transit point on the way to Hangzhou. They also seemed to be attracted by the shopping opportunities that Hong Kong provided, a feature that had no appeal whatsoever to me. Nevertheless, since I thought it might be interesting to see the Crown Colony, my initial flight plan was the same as that of my colleagues.

I think that it was during the long flight from Los Angeles to Seoul that I began reading a guide book for Korea, and started to take notice of the photographs of the rugged and beautiful mountains of Mount Soraksan National Park. Several times I returned to those pictures, and a possible alternative weekend plan began to form in my mind. One of the problems, however, was how to get there. Mount Soraksan is in the far northeast corner of South Korea, above the famous 38th parallel, and not far from the DMZ (de-militarized zone) that separates South Korea from North Korea. It therefore lies on the opposite side of the peninsula from Seoul and, although only about 150 miles(?) as the crow flies, the journey is a tortuous one because of the mountainous terrain and the deliberate lack of railways so close to North Korea. To reach the Park, it would be necessary to travel to Sokch'o, a fishing center on the eastern coast. This could be reached either by a 40 minute flight or by a 5.5 hour express bus

ride from Seoul. During the first couple of days of the conference in Seoul, my plan began to take concrete shape. If I could catch the flight from Seoul to Sokch'o on Friday afternoon, I could then spend Saturday hiking and catch a return flight to Seoul on Sunday morning in time to connect with a flight to Hong Kong. I finalized this rather tightly scheduled itinerary on Tuesday and looked forward with anticipation to my adventure in Korea. Only one prerequisite remained. With the help of one of the student aides at the conference, I located a map shop in Seoul where I purchased a hiking map of Mount Soraksan that had some English subtitles.

In the early afternoon of Friday, August 28, 1992, I took the free airport shuttle bus from Hotel Lotte in downtown Seoul to Kimpo International Airport, leaving adequate time to navigate the domestic terminal and catch the late afternoon Korean Air flight to Sokch'o. As I waited for the beginning of check-in to be announced, a message flashed on the screen: the flight to Sokch'o had been cancelled due to weather conditions at that airport. Unlike other parts of the world, in Asia that seems to be the end of the story; you then queue for a refund and are on your own in so far as alternate travel plans are concerned. I sat there bewildered, trying to figure out what to do next. I could return to my original travel plan and give up my visit to Soraksan. Or I could try to find my way to Sokch'o by express bus. The cosmopolitan nature of air travel means that, in airports, one can be fairly confident of finding someone who speaks English should difficulties arise. Bus travel is, however, a completely different story, and so I was somewhat apprehensive about setting off in a bus for a fairly remote corner of Korea. But my sense of adventure got the better of me, and I soon found myself on a crowded city bus bound for the Seoul express bus terminal. Thanks to a kind lady on the city bus to whom I communicated my destination by means of bus sounds, I alighted at the correct stop next to the large and scattered complex known as the Seoul Express Bus Terminal. Fortunately, each major destination had its own ticket booth and, after some searching, I finally located the Sokch'o booth, identifiable because I had memorized the Korean symbols for that city. The 5.00pm bus was fully booked, but I was able to purchase a ticket for the 5.30pm bus. The bus itself was clean and comfortable. Initially I failed to realize that I had purchased a ticket for a specific seat, and so had to be asked to move from my first stop near the front of the bus. However, my spirits were quickly revived when a beautiful young Korean woman in a red suit took the seat beside me. I guess she had no choice. I had the impression that she was a little taken aback by the strange foreigner in the seat beside the one allocated to her.

The bus set out on time for the five hour journey and initially traveled quickly on a brand new freeway. However, after an hour or so we turned onto a narrower, two-lane road called (somewhat inappropriately) the Yong Dong expressway. This wound its way through the mountains that occupy most of the western part of the Korean peninsula. We passed through very pleasant countryside, valleys filled with farms and separated by ridges of mountains. The land was green, the valleys fertile and the mountains covered in trees. Traffic was heavy on the Yong Dong Expressway and so our progress was slow in places

but otherwise the bus traveled quite quickly. At one point the young woman beside me seemed to summon the courage to offer me a can of fruit juice she was carrying. I declined but worried that I might thus have offended her.

Daylight was dwindling as we passed the city of Wonju and the peaks of Ch'iaksan National Park off to the south. With the advent of sunset the young woman and I embarked on our first conversation. Though her English was very limited, we made some progress thanks, in part, to the phrase book chapter in my guide book. Apparently, she worked in Seoul and was returning to her family in Sokch'o for the weekend. Like me, she had been booked on Korean Air and had to make alternate plans when that flight had been cancelled. The bus then arrived at a way station called Hoenggye in the mountains just south of Odae-san National Park. Here restrooms and food-stands were set up to serve the needs of bus passengers. I tried to find something to eat that I both recognized and could consider reasonably safe. I did not do very well. The young woman in red realized this and bought some delicious fried corn that she shared with me when we reboarded the bus. As we resumed our journey through the night, the weather worsened and it began to rain heavily. Worse still for the prospects of my hike the next day, the mist reduced visibility to about 20 yards. In these miserable conditions, the bus followed a long and winding road that descended from the mountains to the eastern coastal plain. We passed close to Kangnung and then turned north, following the coast toward Sokch'o. The bus stopped again at a rest stop where the 38th parallel meets the eastern shore. In Korea this latitude has considerable historical significance. Following the Second World War, Russia, Britain and the United States struck a deal in which Russia was to occupy the peninsula north of the 38th parallel and the United States the land south of that line. The dispute over this boundary eventually flared into the Korean War in which one side and then the other pushed deep into the other's territory. When the final armistice was signed, it established the current border and the broad Demilitarized Zone (DMZ) not far from the 38th parallel. On the east coast the border and the DMZ are some miles north of the 38th and hence the location of the bus stop has real significance for the Korean people. A large monument marked the exact location of the 38th parallel.

My new guide helped me again, this time to get some very welcome hot coffee and we then set off on the final leg of our journey as heavy rain continued to fall. The bus passed through the coastal village of Yangyang and, a few miles further, the woman in red pointed out the junction where the road to Mount Soraksan National Park joined the coastal highway. By then we had reached the outskirts of Sokch'o and very shortly thereafter stopped at the rudimentary Sokch'o bus stop consisting of a small, and almost unlit, shelter. Without the help of my new found friend I would have been left standing in the dark and the rain without much idea what to do next. There were taxis that pulled up and embarked bus passengers but none seemed to have any interest in a stranger. However, my friend buttonholed one cabbie who was headed for Sorak and persuaded him to add me as a passenger. And so I hurriedly put my luggage in his trunk and squashed into the front seat. In the rain I had only a moment to thank the woman in red and to say goodbye. I tried to give her my umbrella for

she had none and the rain was still pouring down; but I could not make myself understood and she would not take it. Time was too short even to understand what she said when she told me her name. As the taxi raced away in the rain I was saddened that I would never be able to write to her to thank her for her kindness to a stranger. I also reflected on how often, in the furthestmost corners of the earth, I had met kind and gentle people who had given me help when I needed it.

The cabbie had been directed to take me to Hotel New Sorak where I had a reservation and it was not long before I was checking in. The hotel, which was relatively modern and clearly designed for westerners, seemed almost deserted. Though the guidebook said they spoke English, I had great difficulty making myself understood. Nevertheless I was soon settled in a pleasant room and began organizing my hiking gear for an early start in the morning. As well as my boots, clothes, rain gear and emergency kit, I had brought my small back pack with me in anticipation of a hike such as this. In Seoul I had purchased some provisions such as bananas, crackers, canned fruit and orange juice. So I went to sleep hoping that the weather in the morning would be substantially improved.

I woke with the dawn, and was delighted to find that the rain had stopped and that the mist had cleared. From my window I could see that the hotel was in a broad canyon in the foothills of the mountains. Below me a fast and full river carried the substantial run-off of the last few days to the sea a few miles to the east. The rugged and steep, tree-covered mountains rose dramatically to the west though the higher elevations were still hidden in the clouds. My excitement grew as I anticipated some marvelous hiking and very soon I was walking up the road toward the entrance to the National Park about a half mile away. Here a substantial complex of souvenir stands and snack shops had been built to cater for the bus loads of tourists (mostly Korean school children) who visit the Park every day during the season. But as I walked through at 6.00am, the place was deserted. I intended to follow the trail toward the highest point in the Park that is sometimes known as Mount Sorak or Soraksan but whose proper name is Taech'ongbong Peak. I was not at all sure that I could reach that destination in the time available that day. The summit was about 6 miles away at an altitude of 5607ft and my hiking map suggested that it would take 6 hours and 20 minutes to get there. I would have to travel significantly faster in order to make it there and back during daylight.

The trail is initially broad and easy as it follows the main river valley past a series of snack bars and souvenir stands located at regular intervals along the part visited by the average tourist. It is a delightful valley with abundant mixed forest, waterfalls and pools. The weather was clearing rapidly and allowed me a view of the rugged mountain pinnacles for which this area is so well known. The sun even broke through and made the walking even more delightful. Soon the trail steepened, the canyon closed in and the scenery became more and more spectacular. The Park Service had installed metal bridges and staircases to allow one to cross the river or negotiate particular places that would otherwise have needed climbing gear. These bridges and staircases occurred with increasing

frequency as I progressed upstream. The trail itself also became noticeably rougher. In a dry climate like California's, the trails often get ground down to a fairly flat surface; on the other hand the rainfall in this part of the world washes away the finer material leaving a rough, rocky surface that is considerably harder to walk on. Soon I left the tourist area behind and entered the backcountry that only experienced hikers penetrated. I met several groups of hikers who were obviously returning having spent several nights in the wilderness. Here I began to encounter a curious phenomenon. The Koreans are very keen on hiking but the interest is primarily confined to the younger members of the educated class. Most of them have studied English extensively and are usually very keen to take any opportunity to practice conversation with a native English speaker. The further up the mountain I progressed, the more likely it was that anyone I met would fit into this category. Consequently, the further I penetrated the wilderness the more likely it was that anyone I met spoke English. Somehow that seemed very strange to me.

At just about the time I began to feel hungry, I reached a particularly beautiful set of waterfalls and pools and so I sat down to consume my mid-morning meal of bananas, crackers and canned fruit washed down with orange juice. Though odd, the meal was just what I needed for it contained lots of sugar. Soon after lunch, I encountered a young German couple who were descending and stopped to chat. They had clearly become somewhat dispirited by the downpour of the previous day during which they had tried to reach the peak. The rain and the mud had made for very hard going; they had given up the attempt and suggested that I would find it equally impossible. That was momentarily discouraging for I thought I had been making good progress up to that point.

A few yards later I came upon the first back country rest stop called Yangp'ok Shelter. Initially, I was not sure what to make of this shelter. It consisted of a small wooden shack with an awning and some benches arrayed in front of it. The front of the shack was constructed like a street vending stall and a limited range of goods were displayed for sale. There seemed to be hard-boiled eggs, candy bars and an assortment of canned drinks. Some of these were recognizable, for example the ubiquitous soft drink cans, Coca Cola, 7 Up, etc. Other products one could guess at by the pictures on the label, for example some of the orange juice cans. But other goods were labeled only with indecipherable Korean letters. All of these goods must be hauled in on the backs of the people who operate the rest stops and tend the vending booths. They seemed friendly though clearly unused to foreigners. The prices were a little high and, I would find out, rose as one ascended the mountain. But that seemed only fair. I purchased some orange juice and candy and also a can of Pocari that I had read somewhere was the Korean equivalent of Gatorade, though the name Pocari apparently means something like pig sweat. At any rate, it tasted very like Gatorade and I was glad to have identified it. Sitting down to enjoy my Yangp'ok snack, the other features of the rest stop came to my attention. A short distance away was a rudimentary two story brick building with openings rather than doors and windows. A number of young Korean hikers were seated



Left and Middle: Views from the trail. Right: Metal Staircase.



Left: Huiun-gak shelter. Right: On Taech'ongbong Peak.

in the openings packing their gear and lacing up their boots. I recognized that establishment as one of the hostels I had read about where one could spend the night under a roof for a very modest fee. I wondered, idly, what the place smelt like. But I quickly reprimanded myself for such a culturally-biased thought; chances are it was quite clean though I never checked. Finally I also recognized that the *raison d'être* for this rest stop was the presence of a nearby shrine that I did not visit.

Just beyond Yangp'ok Shelter the trail entered a truly precipitous canyon where passage was only possible because of the metal gangways and staircases. In several places these hung precariously from the sides of cliffs several hundred feet above the river. Progress required a good deal of effort to suppress my fear of heights. At the same time the canyon was fantastic, particularly the spectacular Ch'ondang Falls that came into view as the canyon made a left hand turn. Eventually, I came to a point where the canyon leveled out and the metal walkway ended; here the trail left the river to climb a steep and fairly

high slope to the ridge above. This climb was quite hard for the temperature had risen and it had become quite humid.

After many switchbacks, I finally reached the ridge and shortly thereafter the second rest stop known as Huiun-gak, equipped with vending shack and overnight shelter. Here, again, I purchased Pocari and sat down on one of the benches to enjoy a rest. A number of other young Korean hikers were similarly resting and struck up a conversation with me. They seemed genuinely impressed that an old (and presumably dissipated) Westerner could make it that far in one day and somewhat dubious about my prospects of making it to the top. The man tending the booth also joined in and, through translation by one of the young hikers, pointed out the best way to the summit. Patchy clouds were beginning to roll in as I started up the steep trail that followed a ridge to the summit. Though there were many places where I had to find toe and hand holds to ascend the ridge, the trail was well traveled and the climb was not too difficult so I made steady progress over the last 2000ft. The view at many points was quite spectacular, and made other-worldly by the patchy clouds below me. In several places I could look down over 2000ft to the valley through which I had come. Moreover, one could look north over the DMZ into North Korea though there were no visible signs of that demarcation line. Close to the summit, the clouds closed in completely so it was something of a surprise when the trail emerged onto a broad ridge leading to the peak about a hundred yards away. The cairn at the summit was decorated with several inscribed monuments, including one large one with the Korean characters corresponding to Taech'ongbong, the official name of the peak. Even up here there was a rest stop though it was discreetly placed about a hundred feet down the windswept slope from the summit. Again I bought a can of Pocari; at this elevation it cost about a dollar for a small can. There were some other low huts beside the vending booth but I could not discern whether they included an overnight shelter. I rested for a while and listened to the wind.

I could have tried to descend by a different route but eventually decided to take the safest course and retrace my steps. The descent was tiring and, because of the roughness of the trail, hard on the ankles and knees. By the time I approached the bottom, I was quite exhausted and stopped at several of the tourist shops for orange juice or Pocari. Unlike my passage in the early morning, this time the bottom was filled with crowds of school children. My fatigue made me impatient when they got in my way. They looked at this strange Westerner with puzzlement and I could not help but wonder what they thought. I stopped in one of the tourist shops for some supplies and then, exhausted but exhilarated by a marvelous day of hiking, returned to the hotel and a most welcome rest. After much difficulty, I was able to obtain a tuna fish sandwich from room service and prepared for an early start in the morning.

The morning brought rain and low clouds, and I felt very fortunate to have had such pleasant weather the previous day. I had arranged for a taxi to take me to Sokch'o airport for the early morning Korean Air flight to Seoul. There I would connect with my Korean Air flight to Hong Kong. However, when we arrived at Sokch'o airport, I discovered that my flight was cancelled, again

because of the weather conditions. Others arriving to catch the same flight departed resignedly as though this were a not unexpected occurrence. I protested that I would not be able to catch my flight to Hong Kong. The ticketing agent then engaged my taxi driver in animated discussion, the outcome of which was a plan to get me to Seoul in time to catch the flight to Hong Kong. The taxi driver would drive me to the airport in Kangnung (about 50 milesa down the coast) in time to catch a flight from Kangnung to Seoul. So we set off at break-neck speed along the narrow two-lane coastal highway. The driver seemed to revel in the challenge. Many times I closed my eyes and prayed. In the end we made it to Kangnung airport with time to spare and the flight to Seoul allowed me to catch the flight to Hong Kong with little difficulty. It was somewhat depressing to find myself enclosed again by aluminum and plastic. It had been another marvelous adventure in an out-of-the-way corner of a strange land and in a park of enchanted canyons and pinnacles. And I will always remember the woman in red.

Originally published in abbreviated form in the Korea Times, August 30, 1996.

Chapter 30

MOUNTAIN OF THE DEVIL

“Again, the devil taketh him unto an exceeding high mountain, and sheweth him all the kingdoms of the world, and the glory of them.”

From the Bible. Matthew 4:8.

The highest mountain in Baja California, Mexico, is a legendary peak known to the locals and all who attempt to scale her awesome walls as “El Picacho del Diablo” or “The Mountain of the Devil”. While the official name according to the Mexican government is “Cerro de la Encantada (The Mountain of the Enchanted)” and the mountain was known to some for many years as “La Providencia (The Providence)” the name, El Picacho del Diablo, seems so appropriate to all who have walked in its shadow that it is doubtful that it will ever be known by any other name.

This magnificent mountain is a part and yet not a part of a massive block of granite that rises from the parched desert of Baja California about 100 miles south of the US border and 30 miles inland from the dusty village of San Felipe on the shores of the Sea of Cortez. The range itself is called the Sierra San Pedro Martir most of which consists of a wooded tableland between 8000 and 9000ft above sea level. On the west, the land rises to this elevation through a series of rolling benches mostly covered in scrub and mesquite bush. The eastern edge is much more dramatic with great yellow granite cliffs soaring into the sky. In terms of vegetation, the tableland on top is quite a contrast to the desert below. Lush meadows and stands of fir and cedar are interspersed with delicate aspen groves. Great heaps of boulders, granite knobs and “chicken heads” protrude in many places as if to remind the explorer of the essential ruggedness of the land. To protect this beautiful place, the Mexican government in 1947 established the first National Park in Baja, the “Parque Nacional Sierra San Pedro Martir”.

The only road into this park is a tortuous ribbon of gravel and rock that leaves the paved road, Highway 1, about 80 miles south of Ensenada and climbs over the benches to the west of the tableland, eventually, 50 miles later, arriving at the gate to the park. Along the way it passes two small villages, San Telmo and Sinaloa, and, higher up, the Meling Ranch, about which more later.

The high points of the tableland are on the extreme eastern rim and the highest of these is the 9450ft peak known as Cerro Botella Azul or “Blue Bottle” though even this does not rise more than about 1000ft above the meadow. El Picacho del Diablo is part of a sharp ridge that protrudes to the east of the main massif. This ridge stretches east from Blue Bottle and then turns north, forming between it and the main block a dramatic chasm known as Canyon del Diablo. This canyon begins just below Blue Bottle, travels north about 15 miles and then plunges eastward through a gap in the mountains to emerge in the desert and form a great dry lake, Laguna Diablo, that is part of the San Felipe desert.

In his book “Camping and Climbing in Baja” John Robinson describes El Picacho del Diablo as “... *truly one of the finest mountains in North America. Composed of huge slabs of fractured granite, precipitous, almost inaccessible, towering almost two miles into the clouds, the peak is a challenge to climb, a wonder to look at.*” It was first climbed by the legendary Californian explorer and map-maker, Donald McLain, who, after viewing the mountain during a surveying trip in 1905, returned in 1911 determined to conquer it. His account of the ascent from the west makes it sound deceptively easy. Others who followed found it much more difficult than at first appears. This is particularly the case when approaching from the tableland to the west, the route taken by most of the early explorers. Viewed from that vantage point it seems deceptively close. Some tried to traverse the ridge that extends from Blue Bottle to El Picacho only to encounter crevasses and knobs (“chicken heads”) requiring technical climbing gear and considerable time and effort. Others recognized the need to climb down from the tableland into Canyon del Diablo only to find it difficult to find a way up the mountain from below, in part because of the impossibility of seeing the peak until one is almost at the top and in part because of the existence of many blind canyons. After McLain’s conquest, more than twenty years would pass before the second ascent by a group of six Sierra Club mountaineers in June of 1932. They set out from the tableland for what they thought would be a day hike along the ridge. Two days later they returned having reached the summit, but also having acquired a very healthy respect for the mountain. In the years that followed the mountain was climbed both from the east and from the west, but it was not until the fifties that Bud Bernhard discovered and described the one route up from Canyon del Diablo that requires no real technical climbing. This is known as Slot Wash and is the route that we were eventually to follow.

These days successful ascents are made just about every year and many hundreds of climbers have experienced the majesty of El Picacho del Diablo. As with any challenging endeavor, there are also mishaps. In 1967 two Claremont College students, Eleanor Dart and Ogden Kellogg, were lost for almost a month before Bud Bernhard found Dart wandering in Canyon del Diablo. The two

students were lucky to escape alive. That same year another climber was not so lucky. He had a heart attack and died while toiling up the precipitous Slot Wash. His friends buried him in a side canyon and continued on to the top to record the events in the summit register.

Sometime during the summer of 1991 I was browsing in my favorite outdoor shop, Sports Chalet in La Canada, when I came across John Robinson's little book. Upon a whim I bought it, thinking it might be fun to return to Baja and camp on the beach. I had never heard of El Picacho del Diablo before, but as I read Robinson's account of its history and the challenge it presented to mountaineers I became increasingly fascinated. Here was a truly awesome challenge and yet one that might just be within my power to conquer. I lent the book to my hiking companion Doug Hart and it had a similar effect on him. In fact, he went out and purchased his own copy of the book. In the ensuing months we often jokingly referred to the possibility of an expedition to climb the mountain, but it was not until the end of 1991 that we seriously began to consider a plan. Early on we decided to take the "easiest" route, involving very little technical climbing. This consisted of an approach through the eastern desert to a trailhead near the mouth of Canyon del Diablo. A long hike up the canyon would then take us to a base camp near the head of the canyon. The next day would involve a strenuous, all-day climb from this base camp up through Slot Wash to the peak and back down. The last stage would be a return hike down through the canyon. In February and March of 1992 we began to prepare for such a trip during the Easter break. It was my feeling, erroneous as it turned out, that we might be better off if we added a couple of others to our party. Several people at Caltech expressed interest, but, in the end, only a first year graduate student by the name of Steve Walton joined the expedition.

So it was that in early March of 1992 we made final preparations for our expedition to "El Picacho del Diablo". In addition to our normal hiking gear we acquired 50ft of climbing rope and a number of carabiners for the few places where such gear was apparently helpful or recommended for safety reasons. We had read of the waterfall at the entrance to Canyon del Diablo that, though only about 4ft high, was difficult to pass because of the depth of the pool and the smooth vertical walls on both sides. Pondering this obstacle, I had the idea of carrying a crude 6ft ladder made from 2x4s from the trailhead to the falls and so constructed such a ladder. With all this gear loaded into my 1981 Chevy Citation, the three of us set off at 6.15am on the morning of Friday, March 20, 1992, for our first attempt at the Mountain of the Devil. Little did we know of the trials and tribulations that lay between us and the moment we would conquer the mountain.

To begin with things went quite well. We drove southeast past Palm Springs and the Salton Sea to Calexico on the US side of the border. There we stopped to acquire the obligatory Mexican automobile insurance. It was, perhaps, an augur of things to come when, upon backing out of my parking space next to the insurance agency, I came into contact with the side of another car. Though the damage was not great, the incident was unpleasant. When the woman who was driving the other car failed to get a satisfactory response from me, she decided to

call the police. We waited for them to come and take a report. Unfortunately, the woman had made more trouble for herself because the policeman ended up giving her a ticket for not having any insurance. At the very least, the incident caused us more than an hours delay. Finally, we drove over the border into Mexicali and headed for San Felipe, turning west onto Highway 3 after about 90 miles. About 20 miles from that intersection, we encountered a clearly marked signpost for a dirt road toward "Col de San Pedro Martir". Four miles of that dirt road brought us to the edge of the large dry lake, Laguna Diablo. About 15 miles long but only a couple of miles across, this dry lake has clearly been formed by the run-off from storms high in the Sierra San Pedro Martir. After some difficulties, we managed to get the car onto the dry lake itself and headed off southwards looking for the dirt road that led from the other side of the dry lake to the trailhead. Unfortunately, we missed this turn-off, and found ourselves at the very south end of the dry lake with no dirt road in sight. We then turned around and headed north again, eventually finding what looked like the right dirt road heading west toward the mountains. This we followed for about four miles, eventually reaching a point where the road petered out. We were all fairly sure we were now on the right track though we had no way of being certain. It was, incidentally, a very beautiful spot for, in a strip of the desert close to the mountains, there is sufficient moisture to create the most magnificent cactus garden I have ever seen. Growing out of the sand and rock was a vast array of cacti of all shapes and sizes from giant Cardon cacti to whispery Ocotillo and the most delicate small cacti. And we happened to have encountered them when many were flowering.

All of this induced a sense of well-being as we prepared to set off on our hike. Our instructions indicated that we should proceed northwards parallel with the mountains in order to locate the mouth of Canyon del Diablo. So we set off in a jaunty mood, taking turns to carry one end or the other of the ladder. However, the mood began to shift as we began to encounter increasingly difficult terrain without any sign of a canyon mouth. So it was that we came to a halt in the gathering twilight after about three miles of hiking and, reluctantly, reached the conclusion that we had come up the wrong road and would have to retrace our steps. At this point a minor rebellion occurred for Steve and Doug refused to carry my "silly" ladder back across the desert to the car. The ladder was unceremoniously propped up against a giant Segora cactus and left standing there in the middle of the wilderness. If anyone ever happens by that spot, they will be greatly puzzled by this man-made artifact in the middle of the desert. Other than this light moment, the trudge back to the car through the gathering darkness was depressing, and, by the time we got back, it was very dark indeed. We ate dinner and settled down for the night, sleeping in the sand by the side of the car.

The next morning we set off again on our search for the right trailhead. Back on the dry lake, we drove northward again until we encountered clear markers for "Rancho Santa Clara" that we had missed the previous day. These led to a dirt road that was clearly the right one, and we followed it past a primitive ranch and corral and through about 5 miles of scrub to a trailhead containing several

old wooden shacks and various leftovers from previous hiking expeditions. Two other Americans were camped there and provided the final proof that we were now on the right track. However, they also spoke of how difficult the hike up the canyon was and of the even greater difficulty of climbing the mountain. They also observed, as had we, that the top of the mountain was covered in snow. The book indicated that the final stage of the climb was difficult even in the absence of snow. I began to doubt that there was any chance that we could make it to the top.

Nevertheless, with the enthusiasm of morning, we set off across the desert to find the elusive entrance to Canyon del Diablo, a task that was now easily accomplished. The stream leaving the canyon was quite full and provided assurance of a reliable water supply. As we left the desert and entered the canyon, it became clear that we were in for another scenic treat, for the stream had carved a magnificent gorge through these mountains, creating great granite cliffs and a canyon bottom with huge boulders and beautiful pools filled with crystal clear water. We stopped frequently to admire this rugged grandeur. But we also made slow progress because of the frequent need to climb around waterfalls or over giant boulders. Early on we were faced with the waterfall at the entrance for which the ladder was designed. Fortunately, someone had fixed a pin in the rock high on the left-hand wall and from this pin hung a steel rope. Douglas climbed up and fixed our own rope to the pin and we used this to swing ourselves and our packs up and over the waterfall. However, as we proceeded up the canyon, Steve began to labor. It became depressingly clear that he was not physically capable of hiking any great distance under such tough conditions. Shortly after midday, we reached a pleasant little campsite on a elevated sandy bench where we sat down to have lunch and evaluate our situation. Steve did not think he could go any further that day and yet we had only come a few miles up the canyon. There were, at least, another tough ten miles ahead of us before we would even reach the base camp. We encouraged Steve to sleep and, as he did so, Douglas and I conferred. We could not leave Steve overnight and it was clear that it would be pointless to drag him any further up the canyon. We had no option but to abandon our attempt on the mountain of the devil while consoling ourselves with the thought that, at least, we had conducted a useful scouting expedition. In that vein we fed Steve some Gatorade and left him to sleep while we explored about another two miles of Canyon del Diablo. We returned to camp with enough daylight left to climb about 1000ft up the canyon wall using a steep wash. From that vantage point we could make out the summit of El Picacho del Diablo and, on the opposite rim of Canyon del Diablo, the Mexican National Observatory. It was clear to us that we had greatly underestimated the effort it would take to conquer this magnificent mountain.

That night I slept soundly after the physical efforts of the previous day. We awoke to a beautiful dawn and, after breakfast, started our return trip out of Canyon del Diablo. This was uneventful though we had some excitement at the entrance waterfall where we met another group of three young hikers. They were attempting to transport their large dog over that obstacle in one of their backpacks. The dog was amazingly docile during its very precarious transit.



Left: Entering Canyon del Diablo. Right: 4ft Waterfall.



Left: El Picacho from observatory. Right: Citation's last stop.



Left: Climbing toward the summit. Right: The summit of El Picacho.

Back at the trailhead, we wasted no time in loading the car and retracing our steps down the dirt road, past Rancho Santa Clara, across the dry lake and onto the highway. We drove almost straight back to Pasadena, stopping only for lunch along the roadside south of Mexicali. We arrived home about 7.00pm, having had a most interesting and enjoyable time even though we had not come anywhere close to our objective. Nevertheless, both Douglas and I were quietly determined that this devilish mountain was not going to defeat us; we were both sure that, someday, we would return to Canyon del Diablo and El Picacho del Diablo.

As we reflected on our first attempt during the weeks that followed, we realized that the period during which one could expect reasonably comfortable weather conditions for the ascent of El Picacho del Diablo, was very narrow indeed. The winter and spring seemed to be excluded because of the snow at the summit. On the other hand, the summer temperatures in the desert are in the 100° to 110° range. This left only the fall, preferably late fall, when the desert temperature has fallen and before the snow arrives at the higher altitudes. As I looked forward to the future, I realized that Douglas would be leaving to take up his faculty position at MIT at the end of 1992, and that I would be spending most of the fall of the same year on sabbatical at Oxford University. Our window for the foreseeable future was reduced to a few weeks at the end of September 1992.

So it was that Douglas and I set off at 5.00am on the morning of Monday, September 21, to make our second attempt to climb the peak of the devil. The temperature in the desert was quite high, and we were concerned about a series of tropical storms that were traveling northeast over Baja and southern California. At least we did not have to worry about snow at the higher elevations. Our plan was the same as before except that, by making an early start and with knowledge of the route to the trailhead, we hoped to hike several miles into Canyon del Diablo before nightfall. This seemed eminently feasible as we crossed the border and drove over the desert toward San Felipe. Turning inland, we reached the dry lake, Laguna Diablo, before midday and managed to get the car onto the lake bed without too much difficulty. So it was that we set off across the dry lake bed in a direction we judged would lead to the right point on the far side.

Suddenly, and with little warning, adversity struck. Incredibly, I saw what I thought was water approaching us across the dry lake bed, and swerved to avoid this extraordinary phenomenon. Though only a few inches deep, the water caused the otherwise firm surface of the dry lake to become an instant quagmire in which the car would have become inextricably mired. At one point we did drive across a small rivulet and only just managed to get through it. Apparently, a storm, which we could see perched over the mountains, had released enough rainfall to create a flash flood that poured out of Canyon del Diablo to wet the dry lake for, perhaps, the only time this year. We were very fortunate that our second attempt did not end with the Citation stuck for ever in the middle of Laguna Diablo.

Having recovered from our astonishment, we began to try to find a way

around the water. However, this had spread on such a wide front that it rapidly became apparent that there was no possible access to the trailhead some seven or eight miles away. We briefly considered hiking to the trailhead but we were not even sure that it was safe to try and walk across the mud. We retreated to the dry side of the lake, and stopped to consider the alternatives. As we sat there, a magnificent white stallion came into view and pranced across the flats with several other horses in its wake. An omen, but for what? Perhaps to remind us of the majesty of nature and of the unpredictability of the mountain on which we had set our sights.

We could simply abandon, this our second attempt upon the mountain of the devil. But, if we did, when would we ever have the chance to make a third attempt. Or we could wait for the lake to dry. But neither of us had any idea how long this would take and, in any case, our confidence in the integrity and reliability of the lake bed had been severely eroded. Another possibility would be to try and approach the mountain from the west rather than the east. But this would require a long and arduous detour of about two hundred miles as well as a difficult sixty miles of dirt road leading up to the tableland. In the end, we decided that we would not be defeated by this mountain and that the greatest chance of success lay in the approach from the west. So it was that we drove back to the road that crosses the peninsula from San Felipe to the Pacific Coast, and began the detour by driving 100 miles northwest to Ensenada. There we turned south and drove 85 miles through Santo Tomas and San Vicente to the point 10 miles south of Colonet where we were to leave the asphalt highway. It was with some trepidation that we turned left off Highway 1 onto the rough dirt road that leads, eventually, to Sierra San Pedro Martir National Park, some 60 miles to the east and some 8000ft higher. Initially, we made slow and steady progress, often climbing quite steeply from bench to bench as we ascended the mountain range. We drove through the village of San Telmo, and, after 30 miles, passed the Meling Ranch. This 10,000 acre cattle ranch dominates the western foothills of the Sierra San Pedro Martir. Founded by the pioneering Meling family in the early 1900s, the ranch house was rebuilt after it was destroyed in the 1911 revolution. The Meling ranch has, for many years, been a favorite, out-of-the-way resort for those who enjoy remote spots. It dominates this entire area including the National Park.

After passing the Meling Ranch, the road again climbed steeply toward the tableland, and the flora began to change from desert scrub to firs and aspens interspersed by meadows. It was on this remote stretch of gravel, as the sun was setting, that the old Citation finally began to show serious signs of distress. The slipping of the transmission began slowly, and was initially avoided by running in low gear. I had detected signs of transmission failure early in the trip but had chosen to press on. As I tried to nurse the old car up the hill, the slipping increased dramatically and clouds of smoke began to appear. We made it through the gates of the National Park but, about a mile further, the transmission quit completely for the first time. It was now very dark and we were utterly alone many miles from anywhere with no means of transportation other than our legs. It was a somewhat worrying situation. We waited for a little while to see if the

transmission would work better after it cooled. When it was topped up with transmission oil, we tried again and managed to go another mile or so before we again came to a halt in a cloud of smoke. There was nothing more that could be done, and so we made camp by the side of the road. Perhaps, the morning would suggest some way out of our predicament. Curiously, two large trucks passed by in the night but it was too dark to make out anything other than their silhouettes. It seemed to me that the coyotes howled quite ominously that night.

The bright and crisp morning improved our spirits and revealed a number of options. We could try to drive the Citation down the mountain. But the downgrade included some upgrades that I doubted we could surmount. And there seemed no hope that the car could make it back to the USA. On the other hand, perhaps it would be best to dump it here where we would not be observed and then wait for a ride down the mountain in a truck such as had passed us in the night. But that meant dumping a lot of general gear that I kept in the car; and the thought of the long slow ride back to the US in a beat-up Mexican bus was not very appealing. However, a third alternative began to form in our minds based on the Observatory that was apparently located some four or five miles further up the mountain, indeed at the end of the dirt road. We suspected, correctly as it turned out, that the trucks were part of the normal traffic to and from the Observatory. We also thought it likely that the Observatory would have a means of communicating to the outside world, and that we might be able to use this means to seek help from home. We even considered the possibility of continuing with our assault on El Picacho del Diablo if we could arrange to be picked up some three or four days hence. After some discussion, we settled fairly quickly on this last plan. So, again, the transmission was filled with oil and we crossed our fingers hoping that the car still had a few miles left in it. Such turned out to be the case, and we managed to climb the last few inclines before emerging onto the large meadow called Vallecitos that comprises the tableland and the heart of the Sierra San Pedro Martir National Park. As we sped across the flat meadow, we spotted the observatory on a ridge to the east. We left the car at the bottom of the incline leading up this ridge, and walked the last couple of miles to the Observatory.

A group of cruciform Quonset-like huts set amongst the pines formed the hub of the support facilities for the Observatory. We approached cautiously, in part because of two loudly barking dogs, and in part because we were uncertain of the reception two wandering gringos would receive. There were a number of people hanging around but none took much notice of us, so we headed for the hut that seemed to contain the canteen. It was breakfast-time and the canteen was filled with people. After a pause, a young man stepped forward to greet us; we took him to be the foreman for he emanated a sense of authority confirmed by the walkie-talkie at his belt. We tried to explain our circumstance but it was clear that he spoke little English. I then turned to an older man who had a look of easy authority and whom I guessed was an astronomer. He had initially seemed unwilling to become involved but, when approached, was most cordial and, luckily, spoke excellent English. The two men, the foreman and the

astronomer, conferred with us and with each other. First, it was decided that I should compose a message that would be radioed to their office in Ensenada; the operator there would then telephone the desired party at Caltech and relay the message to them. Doug and I had decided that the best idea would be to call the Mechanical Engineering Office at Caltech where either Jackie or Dana would be sure to be present to receive the message. So it was that we sent off a brief communique telling of our car trouble and asking Yan to come and get us at the Observatory on Thursday, some three days later. Yan Kuhn de Chizelle was a French graduate student of mine with some knowledge of our plans and an automobile that we thought capable of making it up to the observatory. More specifically, we asked Yan to meet us at 2.00pm on Thursday at the white gate in Vallecitos meadow on the tableland below the Observatory. The white gate was chosen because it was an unmistakable point on the road through the meadow, and because we could hike there from the trailhead without having to climb to the Observatory. We could only hope that the message would not become too garbled as it was translated into Spanish and then back into English.

This accomplished, we had to make appropriate arrangements to dispose of the car that, in its present state and location, was worth negative dollars to me. I therefore decided on a grand gesture that I was fairly sure would impress our new friends. Thus I approached the foreman (who had arranged the message transmission) and told him that I wished to give him the car. I think that both he and the astronomer were somewhat startled by this gesture but also surprised and pleased by it. Our relationship with them that had begun to warm when they discovered that we were from Caltech, was enhanced considerably by the offer of the car. They drove us back down the hill to the car that I was able to drive up to the observatory since the transmission had had time to cool.

By this time we had discussed our planned assault on El Picacho del Diablo with our Mexican hosts. It so happened that the astronomer was also a mountain climber and, most remarkably, that he had, that very morning, returned after a successful four day climb of the peak with a visiting French astronomer. This common interest strengthened the bonds of our new friendship; they supplied us with a better local map showing the best route to and up the mountain. And, when it came time for us to head off on our hike the foreman, Alfredo, and the two astronomers decided to take us to the best starting point in their four-wheel-drive Jeep. Thus we drove down to Vallecitos meadow and turned south along a narrow, dirt track, traveling in a southeasterly direction for several miles until the track became so rough even the Jeep could go no further. Here we parted company with our Mexican friends and set off for El Picacho del Diablo. For the first time we had some confidence that we might finally be able to conquer this devil.

Initially, the trail was fairly well ducked and wound its way up a very beautiful valley with a mix of trees, firs, cedars and aspens whose leaves were beginning to turn yellow and red. Further up this valley the trail became less distinct and seemed to divide. We followed a line of ducks that led in a more southerly direction than I would have liked but we assumed that the ridge above us was the edge of Canyon del Diablo and therefore it did not matter very much how

we climbed it. However, when we reached the top of the ridge, it was clear that we still had some way to go before we would reach the edge of the canyon. Mistakenly assuming that the mountain ahead of us was the 9450ft Blue Bottle, we left the poorly ducked trail to climb this peak for our climbing notes recommended that we do in order to get our bearings. When we reached this summit, I managed to persuade Douglas of our error and the need to return and find the earlier trail. This we did in a somewhat dispirited mood for it was proving much harder than we anticipated to get to the edge of Canyon del Diablo. While Doug prepared lunch, I climbed a nearby rock pile in order to try and determine our location. After lunch, the trail began to climb more steeply and we grew increasingly pessimistic for the hours of daylight were dwindling. Finally, and rather suddenly, we arrived at a rocky peak, the top of Cerro Botella Azul (Blue Bottle) at 9450ft. The view we expected unfolded in awesome majesty before us. The bottom of Canyon del Diablo lay almost a mile below us and yet, rising again on the other side, was an immense buff-colored wall that culminated in the twin peaks of the magnificent El Picacho del Diablo. It was quite overwhelming; on a cerebral and physical level it challenged me; on an emotional level I had great difficulty believing that it was possible for me to climb it.

But we could not dally long for time was of the essence. It was clear that we would have to make it to the bottom of the canyon before sunset. The next obvious objective was the saddle to the north and about 1000ft below Blue Bottle. Fortunately, a ducked trail seemed to lead down the steep slope toward this objective and we reached it with little difficulty. From there we knew that we had to contour around the south wall of the Canyon Diablo to our right before attempting to descend. The more direct route straight down is known as Gorin's Gully and contains several vertical sections requiring ropes and technical climbing gear. Such difficulties can be avoided by contouring far enough around to a large rubble strewn gully known as Blue Bottle Wash. Fortunately this route was well ducked and we found our way fairly readily to the wash and began to descend. There were several difficult places during the descent where large blocks of granite had created substantial obstacles and each of these required some route finding and some climbing. But, for the most part, the descent was very long and extremely hard on the legs as we stepped from boulder to boulder. We could not afford to stop for any extended periods for it was clear that we would only just make it to the canyon bottom before nightfall. Such haste is often unwise and so it proved in this case for both of us suffered falls. Fortunately I escaped relatively unscathed. Douglas, on the other hand, sprained his ankle quite badly and was thus handicapped for the rest of the trip. The Motrin which I happened to have with me proved invaluable in easing the pain of the ankle while, at the same time, providing muscle relaxant.

Though the descent seemed endless we did, indeed, reach the bottom just before nightfall. The need to do so was not dictated by the desire for a comfortable campsite but by the more basic and essential need to find water. Indeed, we had run out of water about two thirds of the way down the wash. Therefore, it was a great relief to come upon a small but sparkling waterfall tumbling out of a side canyon to form a clear and inviting pool of water directly ahead of us.

Having sated our thirst and refilled our water bottles, we pressed on through fairly thick brush to find a suitable campsite for the night. Fortunately, we had only to go a few hundred yards before we came upon a small flat clearing by some rocks and another pool and, with relief, we shed our packs and quickly made camp. After dinner, we bedded down to try to get as much rest as we could before the major effort of the following day. It was a beautiful, still night. We had been lucky with the weather; though we had seen a number of thunderstorms in the distance none had come our way.

Perhaps we should have made an effort to arise before sun-up but the efforts of the previous day required as much recuperation as possible and so the sun arose with us. The weather seemed ideal and our excitement grew as we began preparations for the final assault on El Picacho del Diablo. We correctly surmised that we were still some distance upstream of Camp Noche, the starting point for the ascent of the mountain. Nevertheless we decided to stow our packs at this pleasant little site and to return here after our climb. There seemed little point in carrying our heavy packs down to Camp Noche and then have to bring them back up. I had brought along two large plastic trash can liners and, to be safe, we covered our packs before we left. So we set out on the final leg of our ascent with just one light day-pack.

As we proceeded down Canyon del Diablo, we were able to identify several reference points. After a few hundred yards, we encountered a clearing surrounded by thin logs on a bench to the west of the stream. This small site was Camp Cedaroak at an elevation of 6600ft. About a half mile further downstream, we came upon Camp Noche (6300ft), a larger site on a bench to the east of the stream. An enticing swimming hole nearby helped to confirm our identification. We also found a small Mexican flag that had been placed in the middle of Camp Noche by the preceding expedition led by our astronomer friends.

We wasted little time in embarking on our ascent of the large, shallow gully immediately above Camp Noche, named Night Wash by a group from UCLA who had descended this way after night had fallen. It is a steep but easy climb up a rocky slope that eventually reaches a saddle at about 7400ft. This saddle leads to the much larger gully known as Slot Wash. The reason for this sideways entrance into Slot Wash is that the latter is too steep to be climbed in its lower reaches. From the Night Wash Saddle we contoured around and then dropped into Slot Wash. Here the going became significantly harder because one had to surmount many large boulders and a few steep falls. About 7800ft we were pleased to encounter running water and stopped by a small pool to refresh ourselves. It was clearly going to be a very tough climb, not so much because of the height but because the terrain was extremely rough. Moreover, while the route was well marked by ducks for some stretches, there were others in which ducks were few and far between. Worse still, there were ducked trails that went off in what were clearly wrong directions. Thus there were numerous stops for navigational purposes, and there were many times when we were quite unsure whether or not we were on the right path (though that word was quite alien to the terrain in which we found ourselves). However, as we proceeded to thread

our way past the boulders of Slot Wash, we did not have too much difficulty in identifying the prominent rock mass that divides the Wash at an elevation of 8200ft. Here, our navigational notes told us to take the left branch but, almost immediately, we had to climb onto a shoulder on the left side of the canyon in order to circumvent several large waterfalls. This was the most dangerous part of the ascent and a slip could have been fatal (on the way down I persuaded Douglas to anchor me with a rope while I negotiated these sections). Having completed this stretch of the climb we came upon a junction where I made the only serious error in navigation. We had climbed a rough dirt and rock slope to a point where a steep wash branched off to the north; the ducks appeared to lead in this direction. According to our notes, we needed to find a wash like this, called "Wall Street" that would lead us directly up to the north summit of the mountain. At this point, I should explain that the summit of El Picacho del Diablo consists of a very steep and ragged ridge of granite. At each end of this short ridge are the north and south summits measuring 10154ft and 10152ft respectively. It is a difficult, technical climb to get from one summit to the other, for there are several gaps and knobs that present substantial obstacles along the granite ridge. We sought the branch to Wall Street for that would take us to the north summit whereas to continue straight would take us to a point midway along the summit ridge. The reason I chose not to take the steep wash that I now suspect was Wall Street, was because it appeared to be headed north and I thought Wall Street was in a northeast direction. Therefore, we contoured around to our right in an attempt to find Wall Street. We found ourselves in a steep narrow wash which, at the time, I thought was Wall Street but that was, in fact, the upper reach of Slot Wash.

We were now very excited about the fact that the summit of El Picacho del Diablo was but a few hundred feet away. At the same time, we were quite exhausted and so struggled up the last few hundred feet to the summit. The last fifty feet or so were over bare rock and culminated in a sharp ridge. Then, quite suddenly, a truly awe-inspiring vista exploded before our eyes and I felt as though I had been propelled into space. The drop on the far side, to the east, was several thousand feet straight down. We could see the notorious dry lake 10000ft below us and could even discern the various dirt roads leading to and from it. Beyond this lay the inland coast and the Sea of Cortez. Turning around to look back in the direction we had come, we could make out the Pacific Coast through the desert haze. Most mountain summits evoke a sense of exhilaration and that emotion is heightened when the climb is difficult or when the view is spectacular. In this case, not only had we expended great effort and overcome substantial difficulties but also the view was truly mind-blowing. I was overcome, even frightened, though I was in no danger. It was an experience that I doubt I will ever have again because I think the climb taxed me to the furthest limits of my physical and emotional resources. I had met the devil and had survived. And, still, this mountain was like a magnificent, wild animal that should forever remain unshackled. We never, in fact, reached the actual north summit for it was a few yards away and a few feet higher. We were separated from it by a knob and a gap that would have required rock climbing expertise

and equipment to traverse. While we had reached the top of this mountain, in some strange way it seemed appropriate that we had to leave the absolute summit untouched. We had developed a special, mystical relation with this mountain that would be with us the rest of our days.

But time was short and we had to start to descend to have any hope of reaching our camp site before dark. We were also concerned about the very active thunderstorm that we could see off to the west in the vicinity of the entrance to the Park. Up to now the weather had treated us very kindly for the summit ridge is often hidden in cloud and had, in fact, been so hidden the previous day. El Picacho was not yet finished with us and had at least one more surprise for us resulting from this storm that we could see in the distance. But the weather was just fine during the early part of our descent. We made good time because it was quite easy to navigate, retracing the route we had taken on the way up. We tried to hustle along because it was becoming evident that we would not make it to the bottom of the canyon before nightfall and we were apprehensive about finding our way in the dark. Then it also began to rain. We donned our waterproof jackets though not the pants since they would have been torn to shreds. Fortunately, we only felt the edge of the storm and the light rain soon abated. Of more concern was the impending darkness. We reached the saddle leading from Slot Wash to Night Wash while it was still light and so it only remained to descend through Night Wash. Douglas, fearing the darkness, set a very rapid rate of descent. Trying to keep up, I took one head-over-heels fall, fortunately without injury. Darkness fell but we reached Camp Noche in the bottom of the canyon without further incident. There we rested and took advantage of the pause to congratulate ourselves on our conquest of El Picacho. The elation persisted as we made our way by flashlight up Canyon del Diablo to our camp site about half a mile upstream. I was glad that I had noted in my mind the fact that there was a large, fallen tree lying across the gully just downstream of the campsite for we might otherwise have had difficulty finding it in the darkness. We were also thankful for the trash can liners that had kept our packs and all our stuff dry during the rain.

It had been an extraordinary physical effort for me that day, and, by the time we returned to camp, I only wanted to climb into my sleeping bag. This I did while Douglas cooked and ate dinner. Both of us slept soundly after all our exertions and awoke at dawn to another bright and clear morning. We anticipated a long and tough climb up and out of the canyon while carrying our packs and such proved to be the case. One must be careful not to leave Blue Bottle Wash too soon to begin contouring toward the saddle on the rim below Blue Bottle. But mostly it was a hard slog punctuated by rest stops during which we could again admire the magnificent view behind us. Finally, we reached the Blue Bottle saddle about lunchtime and so paused for Top Ramen. Thus replenished, we began the gentle descent through a shallow valley traveling northwest in the direction of Vallecitos meadow. We soon discovered that we still had much further to go than we imagined but the going was fairly easy, and we knew that, as long as we headed northwest, we had to intersect the dirt road along which we had traveled to the trailhead when we began our hike. The

trail was initially very well ducked and passed through some beautiful aspen groves. But it then seemed to evaporate and we crossed from one canyon to another on several occasions. Finally, we came upon the trail again in a flat, sandy-bottomed canyon and were able to follow it all the way to the dirt road. This was the very first point at which we thought we might possibly encounter Yan if he had indeed come to get us and had learned of our route from our friends at the Observatory. That seemed a really long shot, so we were not at all surprised when we found no-one at the junction with the dirt road. After a brief rest, we set off to walk along the road to Vallecitos meadow. We were both quite exhausted and hoping that Yan would show up at every turn. But there was no sign of anyone and, after about three miles, we reached the junction with the main dirt road to the Observatory. There we sat down beside the road somewhat dejected. Not only was there no sign of Yan but I could not remember whether the white gate was to the east or west of us. I volunteered to hike along the road in order to try and find the white gate while Douglas stayed by the packs. But I had gone only a short distance when we spotted the cloud of dust associated with a vehicle coming up the road. Our spirits rose only to fall as the vehicle came into sight and proved to be a beat-up old pick-up instead of Yan's Subaru. It was loaded with a refrigerator and other supplies clearly headed for the Observatory. I tried to find out from the driver whether or not he had seen anyone waiting by the white gate further down the meadow but this was much too complex an issue to have any hope of communicating given the severe limits of our common language. I did not want the driver to begin to question our sanity and so switched to a much simpler request, namely that he give us a ride to the Observatory. Thus we completed our epic hike to El Picacho while hanging on to a refrigerator bouncing along in the back of a pick-up truck. At the Observatory, there was no sign of Yan or any other rescuer. We were, however, greeted by our new friends who seemed pleased that we had returned safely though they were clearly somewhat amused by our bedraggled appearance. Both my shorts and Douglas's new hiking pants had been torn to shreds by the rocks of El Picacho. At least Douglas's pants had provided some protection; my knees, on the other hand, were almost devoid of skin.

We sought out our English speaking astronomer friend to find out whether he knew anything of Yan's whereabouts. He radioed our other friend Alfredo the foreman who was somewhere out on the road. The story that was relayed to us from Alfredo made little sense to us. Apparently two women had come to rescue us but had been stopped at a point on the dirt road up to the tableland by the fact that the storm of the previous day had washed out part of the road. Who these two women were was a mystery to us. Apparently, Alfredo had taken a four-wheel-drive truck down to the point where the road was washed out in order to inspect the damage. There he had found the two women and was driving back up to the Observatory, bringing them with him. They would arrive in about a half-hour. But, at this point, I must backtrack to tell of the events that were set in motion when our original message was radioed down the mountain.

Apparently, the telephone and radio operator in Ensenada had called Caltech

and Dana Young, one of the secretaries in the Mechanical Engineering Office, had taken the message that told of our car trouble and of our request for Yan to come and rescue us on Thursday. Also received were some instructions on how to find the turn-off for the dirt road to the Observatory. Though we had tried to couch the message in as low a key as possible, it inevitably caused significant consternation. The first problem was that Yan, having a French passport, had serious doubts as to whether he could get back across the border into the US. On the other hand, Beth McKenney, another graduate student of mine, was used to the mountains and seemed eager to be part of "the rescue". She and Ann, Douglas's wife, decided that they would drive Douglas's Volvo down to the Observatory. They even started out on Wednesday evening and stayed the night in San Diego before crossing the border on Thursday morning. They had some difficulty identifying the turn-off onto the dirt road leading to Observatory but made good progress up that road until halted by the washed-out road just beyond the gate to the National Park. Indeed, their circumstances had become quite problematic since they no longer had sufficient gasoline to get back to the highway. They were very fortunate to meet up with the group from the Observatory who were inspecting the damage to the road. In any case, it was clear to all that Ann and Beth would now, also, need to seek refuge at the Observatory. So it was that, after the gate attendant had helped park the Volvo beside his cabin, they set off with Alfredo on his way back up the mountain. It was dark before they reached the Observatory and we were finally able to identify *"the two women who had come to rescue us"*. We were delighted to see them and excitedly swapped the stories of our respective adventures. Our hosts quickly arranged a room in one of the cabins where the four of us could camp out for the night. Then we all repaired to the canteen for dinner and an impromptu party at which I was introduced to the local delicacy, roasted pine nuts.

The rest of the story is briefly told. The next morning the four of us walked the mile or so to the telescopes perched on the rim above the rest of the Observatory facilities. We did this for a last look at El Picacho and the magnificent view of the desert and sea to the east. Then our hosts loaded us and all our gear (including the stuff from my car) into a pick-up truck. We said our goodbyes to my car and to our marvelous hosts who could not have been more helpful to us, and set off for the ride down the mountain. The morning was again clear and bright and it was exhilarating to stand in the back of the pick-up and to enjoy this beautiful land as it swept past. We crossed the washed out road with little difficulty and then loaded all our stuff into and onto the Volvo. The Observatory staff had even given us some cans of gasoline and we were, therefore, well supplied for the drive down the mountain. It was necessary to negotiate some damaged sections of road just below the gate but, after that, we made steady progress down to the paved Highway 1 and north on that road to the US border in Tijuana. After crossing into the US, it was time for a celebration. We had discovered that it was Beth's birthday. So in her honor and in celebration of our rescue, we found a small Thai restaurant near San Diego. The food was marvelous and we had a most enjoyable meal though I am not quite sure whether

our impressions were entirely objective given the circumstances. About three hours later, we were back in Sierra Madre. It was very hard to believe that only five days had passed since we set out on our adventure.

So another chapter in my mountain travels drew to a close. We had succeeded in our ascent of the “mountain of the devil” despite the many difficulties that we encountered. Even subtracting those, it had taken a great physical effort that strained my endurance to its limits. I will always be proud of that achievement. But I wonder whether or not it will be that aspect of the adventure that I will remember with most joy. Maybe not. Maybe it will be the example of generosity and kindness shown to two, and later four, strangers by that marvelous group of people at the Observatory. They would not even accept our proffered payment for the gasoline. Maybe, someday, I will be able, in my turn, to provide such help to a foreign adventurer in my mountains. I certainly hope so.

One ironic footnote needs telling. Alfredo, “the foreman”, had written his name and address on a piece of paper for I had promised to send him the pink slip for the Citation when I reached home. At the time I did not look closely at the paper. A few days later I fished it out of my pouch in order to fulfill my pledge only to discover that his name was Alfredo Meling, and therefore a member of the family that owned the entire area. Perhaps I had chosen to give my car to the richest person at the Observatory. I hope not.

Chapter 31

MT. FUJI IS CLOSED

“Any man can lose his hat in a fairy-wind”

Popular Irish proverb.

Most hikers have an unwritten list of mountains that they would like to climb. Mount Fuji is on many of those lists because of the hallowed place it occupies in the Japanese culture and mythology. The Japanese regard the symmetry of its nearly perfect conical shape as implying a sacred origin and the number of paintings, view points and photographs that celebrate Fuji are numberless. Yet this same monotonous symmetry makes the hike up Mount Fuji somewhat boring. The Japanese have a saying that everyone should climb Fuji once but only a fool would climb it twice. What makes the hike even less enjoyable is that, for the few summer months when the snow is gone, there is an almost unbroken queue of people trudging up to the summit.

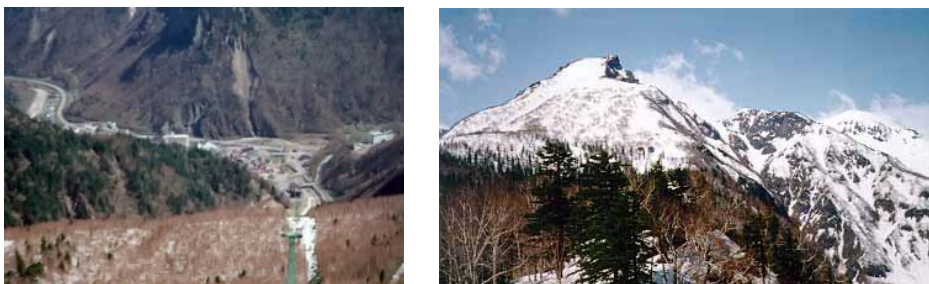
Despite all this, when I went to Japan for a couple of months in the spring of 1993, one of my private objectives was to get to the top of Fuji-san. When I mentioned this plan in a letter to my principal host, Professor Akira Shima of Tohoku University, he replied that this would not be possible because *“Mt. Fuji is closed”*. It seems that the Japanese, who love rules and usually obey them without question, had long ago established “a season” for climbing Fuji that begins on July 1. I, being singularly unimpressed by arbitrary rules, still thought I might be able to sneak away some weekend and attempt the climb. It seems, however, that my reputation had preceded me for it became clear that Shima and my other hosts had arranged a schedule that did not have the two successive free days that would be necessary for the attempt. And so my ambitions were thwarted. Of course, it must also be added that during the month of April when I would be within striking distance of the mountain, the depth of snow and the severity of the weather make it foolish for anyone to attempt the climb and particularly foolhardy to try to do it alone. Nevertheless, I felt some sense of frustration especially since I had come well-equipped for the

snow. Early the previous winter I had purchased crampons (spiked frames you strap to your boots) and had practiced snow climbing with them on the slopes of Mount Baldy in California.

During the first month and a half of my stay in Japan I did have the opportunity to climb a number of mountains in central and southern Japan. Almost always some fellow academic accompanied me. Thus I climbed To-no-dake (4892ft) in Tanzawa Quasi-National Park with my friend, Yoichiro Matsumoto, of Tokyo University. With another friend, Yoshi Tsujimoto of Osaka University, I climbed two very interesting and very different mountains. One day during “Golden Week” we drove to the village of Dorogawa in the wilderness area south of Osaka and climbed the sacred mountain of Sanjo-go-take (5640ft) also commonly known as Omine-san (see “Ominesan”). Later, during a visit to the beautiful island of Yakushima south of Kyushu, we negotiated our way past a large group of Japanese macaques and through fantastic semi-tropical forest and meadows with crystal streams on our way to the magnificent 6007ft summit known as Kuromi-dake. These climbs were very enjoyable and interesting but not exceptionally challenging. I still harbored a desire to climb a really challenging mountain, to escape from my chaperones and, perhaps, to demonstrate that I could have climbed Fuji anyway if I had been given a chance. Call it Irish stubbornness.

Then, in late May, I traveled to the relatively remote northern island of Hokkaido. Because of the severity of the winters this island was only settled about 150 years ago by the Japanese or “Yamoto” who displaced the native inhabitants known as the Ainu. The island is still sparsely populated and that population is almost entirely confined to the flat valleys between the snow-covered mountain ranges. Consequently the government has been able to set aside large sections of the most beautiful mountains as National Parks. Moreover, the people of Hokkaido, descendants of frontiersmen, have a better developed sense of personal liberties. As a result I was allowed to travel to the outback on my own to visit the largest national park in Japan, the rugged wilderness known as Daisetsu-zan National Park. Specifically, I traveled first by train and then by bus to a small mountain village called Sounkyo that lies in a deep gorge in Daisetsuzan National Park. High above the rim of the gorge is a range of towering, snow-covered peaks and the most dramatic of these is the spectacular 6509ft peak known as Kurodake or “the black peak”. The name was clearly motivated by the basalt cliffs that surround three sides of the summit and stand out in stark contrast to the snow-field on the fourth side. In its shape, Kurodake is often likened to the Matterhorn though, in all honesty, it is much less steep than that fabled alpine landmark. Kurodake and the other peaks of this range are inaccessible except for a brief period in the late summer when the snow dwindles to patches. Then, when most of the snow has melted, Kurodake is easy to climb. But in late May it is very clear that to all intents and purposes “Mt. Kurodake is closed”.

However, no one was there to stop me. Moreover, in an effort to draw tourists to this remote place, the local authorities had very recently constructed a cable car that climbs from Sounkyo up to the rim of the gorge and provides



Left: Kurodake. Right: Sounkyo from above.

a substantial start in climbing Kurodake. So early in the morning, I took the first cable car to the top station and sneaked off onto the surrounding snow field. No one kept any special watch for no one would dream of doing such a thing since “*Mt. Kurodake was closed*”. After about a quarter of a mile I was out of sight of the top station and turned toward the mountain. The first hour and a half of the climb was fairly straightforward. My crampons made climbing in the snow quite easy and I made steady progress up the snow field that led toward the summit. But toward the end of the second hour, the slope began to get quite steep. I progressed by digging in the toe spikes of my crampons and using my gloved hands to maintain my stance. Only occasionally did I encounter snow into which I sank to my waist. But as I neared the summit, the snow began to get very deep and the mist began to thicken. I began to fear an inadvertent encounter with the edge of the black cliffs. Eventually, despite my stubbornness, I had to conclude that it was too dangerous to continue. Though I felt that the summit might be only a few yards further, it would have been extremely foolhardy to continue. And so I turned around.

It was only then that I realized the true precariousness of my position. Climbing a steep, snow-covered slope is one matter. Trying to descend is an entirely different matter. It was much more difficult to secure a firm foothold when descending than when ascending. I barely inched my way down the slope. There were several moments when only the slimmest margin separated me from a life-threatening slide down the mountain. It took many minutes to recover my nerve after those moments. I would breathe very deeply to regain my composure and then take another small step. It also occurred to me that I definitely did not want to die on that mountain and that I very much wanted to see my wife and children again. Eventually, I made it to the lower slopes where I could have confidence in my ability to stop any slide. Then I made rapid progress walking down the snow field, retracing my steps in the snow. The hours of daylight were rapidly dwindling as I sneaked back into the cable car station. I half-expected an official “unwelcoming” reception party. But no one seemed to have noted my long absence and I caught the last descending cable car to the base station.

An odd sort of euphoria came over me once I reached the safety of the cable car. Perhaps it was the oft-described, heightened appreciation of life that seems to follow any brush with death. Perhaps the accumulated adrenalin provides a

natural narcotic. I know I thought especially of Doreen and my children. And, for the moment, I lost that sense of purpose that usually governs my travels. At the base station, I lingered somewhat aimlessly amid the souvenir stands. It occurred to me that I had bought very little for my wife and children. Yet, like most souvenir stands, there was little here that was worth buying and I would normally have passed straight on. But, for reasons I still do not fully understand, my attention was transfixed by one particular object, a bright pink baseball cap proclaiming "Hokkaido". Acting on impulse, I bought this garish hat, imagining that I would give it to my eldest daughter. Perhaps it was that the cap reflected the fluorescence of my life at that moment.

So I still had not overcome the kind of challenge I had sought. I had failed to climb Mt. Kurodake; I had discovered that indeed "*Mt. Kurodake was closed*". Yet I now understood why I felt such resentment when I heard that phrase. Mountains are wild and free and dangerous and beautiful. They are never conquered; one merely trespasses upon them for a brief moment in time. For anyone to arbitrarily declare that a mountain is closed seemed an insult to that spirit and to its reflection in my soul. I felt some measure of satisfaction that I was stopped by my own frailty and not by some arbitrary rule. Some measure of joy for having experienced the wild beauty of that mountain at that particular moment in time. And some measure of pride that the moment was mine alone.

Moreover, I was to find out just how close I did, in fact, come to conquering Kurodake. I stayed the night in Sounkyo and the next morning dawned bright and beautiful, sunny and clear. I had a couple of hours before my bus left and so I decided to ride the cable car again in order to take some photographs of Kurodake from that vantage point. I was rewarded with a magnificent view from the observation deck on the roof of the top station. Kurodake and the other neighboring peaks rose majestically above me, shining in the morning sun. The observation deck was also equipped with the standard telescopes one often finds in such locations and so I idly focussed one of these on the summit of Kurodake. And there, clear as day, were my tracks in the snow in the otherwise pristine snow field. They led directly up toward the summit and came to a halt only a few yards from the peak. Though I did not know it at the time, a small effort would have placed me at the top. There were no other tracks in the snow near the summit. Clearly I had been the first person to attempt to climb Kurodake that year.

I knew that one day I would return to Japan during late July or August. I would catch the bus from Tokyo to the Fifth Station more than half-way up Fuji and I would follow hundreds of others as they make their way up the well-worn trail to the summit of that symbolic mountain. Maybe, like many others, I would climb in the dark in order to enjoy the beauty of the sunrise. No doubt I would experience some sense of accomplishment. But it would not come close to the raw power of my experience on Kurodake and my elation at seeing my footprints reach toward the summit of that mountain. Perhaps I am crazy.

Chapter 32

ON THE PEAK OF THE RISING SUN

*“He who climbs Fuji-san once is a wise man,
he who climbs it twice is a fool.”*

Popular Japanese saying.

And so it was that, some four years later, I took a taxi to the Kyoto Central Station and was soon speeding along at close to 160mph on the shinkansen bound for Fuji City, about 200 miles to the east. The Kodama or limited express (for Japanese trains of various degrees of expressness are given useful identifiers) arrived exactly on time at 10.52am at Shin-Fuji station. There I was met by my friend Yoshi Tsujimoto and one of his students, Masayuki Tanada, who had promised to carry both of us oldies to the summit of Fuji. Or so we teased him; in reality he was the very essence of quiet civility.

From Shin-Fuji station it is an increasingly tortuous drive of some two hours through the town of Fujinomiya and up the lower slopes of Mount Fuji. You start in the typically dense built-up area around Fuji City and Fujinomiya and rise gently through crowded, rolling farmland. Soon, however, this gives way to dense semi-tropical Japanese forest of low trees and a thick ground-covering of bamboo. Higher up this forest begins to change with increasing numbers of larger pine trees and a thinning of the bamboo. Eventually the bamboo disappears completely to leave an attractive highland forest of firs.

Our goal was the highest point reachable by road on the south side of Fuji, namely the mountain station of Shin-go-gome (“new fifth station”), high on the steep sides of the great volcano. By way of background, know that Fuji is a sacred mountain topped by a shrine. Pilgrims who begin at the base of the mountain are aided by ten stations roughly equidistant along the climb to the top. There are several routes up the mountain each with its own chain of ten

stations. However, these days most hikers with a less devotional objective, drive as far as they can up the mountain. Roads on the north side and on the south side climb to just over 7500ft where the fifth station, Go-gome, is located. The most popular route is up the Kawaguchi-ko trail from the Go-gome trailhead (7592ft) on the north side of the mountain. We followed the Fujinomiya trail that begins at Shin-go-gome (7874ft), the new fifth station, on the south side.

It was mid-afternoon before we reached the large parking area at Shin-go-gome and managed, somewhat fortuitously, to find a parking space. The weather had been very cloudy and misty as we drove up to this point and we had resigned ourselves to very limited visibility during the climb. But, as we readied our equipment in the parking lot, we began to catch glimpses of blue sky and sunshine above us. Buoyed in spirit we began our climb upwards from the crowded fifth station at about 2.00pm. It is only a short climb up to the sixth station, Roku-gome, the intervals between stations being quite irregular in places. The sixth station also coincides with the tree line so that the terrain from here on was everywhere volcanic rock strewn with ash and geologically recent ejecta. We made steady progress up the rough and worn trail. Soon we were in bright sunshine with an uninterrupted carpet of clouds below us. The famously regular shape of Fuji was evident as the sun cast its shadow on the parchment of the top of the clouds. But the bright sun also meant that we were soon sweltering in the heat. We could see Shichi-gome, the seventh station, above us and it seemed deceptively close. But it took a depressingly long time to get there and we were struggling when we arrived at 10,000ft and Shichi-gome about 4.00pm.

Our plan was to climb some distance during the daylight hours and then to find a place to stay the night so that we could climb the last part before dawn the next day. In doing so we would be following the traditional timetable for climbing Mount Fuji. The idea is to reach the summit in time to enjoy what the Japanese call “goraiko”, the semi-mystical experience of viewing the sunrise from the summit.

In theory it is possible to stay overnight in one of the many lodges on the mountain; almost all the stations have such a lodge. They consist of three or even four levels of wooden shelves installed in a moderate, single storey hut. Hundreds of hikers are packed in like sardines on these shelves equipped with heavy cover-blankets. As we were climbing toward Shichi-gome, we heard word that many of the lodges were closing or had already closed for the winter. Shichi-gome lodge still seemed open for business. But it was very small, already crowded and a very long way from the summit for a pre-dawn hike. We decided to risk our chances further up the mountain since we still had a couple of hours of daylight.

And so we pressed on. It was harder going now, both rougher and steeper. We had to pause quite often to get our breath in the rarefied air and so, though the large eighth station did not seem very high above us, it took a long time to reach it. At one rest stop, we had confirmation of the rumors we had heard further down the mountain. The lodge at the eighth station, Hachi-gome, was full; the proprietor could not pack another single soul into his establishment. This was depressing since we also had confirmation that all the higher lodges (mainly

those on the summit) were closed for the season. But almost immediately, we had some more encouraging news. Apparently, there was another Hachi-gome lodge just a short distance around the mountain. This was on one of the other, less popular trails; apparently it was still open and even had some space left for the night. And so we pressed on in a somewhat more encouraged mood. Light was already beginning to fade as we reached the large and full Hachi-gome lodge and trudged past onto the cross-mountain trail that would take us about a half-mile to the east. There, at 11,150ft, we found the other Hachi-gome and, with great relief, purchased three of the last available spaces. The fact that the cost was a highly inflated \$60 per person seemed of little consequence compared to the alternative.

And so we checked in to the Akaiwa Hachigome or “Eighth Stage Red Rock Lodge”. In its literature it advertises itself in these lyrical terms:

*You can be relaxed since it is not crowded.
You can enjoy the best sunrise from the room.
You can climb faster since the Gotemba trail is less crowded.
You can have as much curry and rice as you want for dinner.
Please enjoy wonderful Fuji with us. We are waiting for you.*

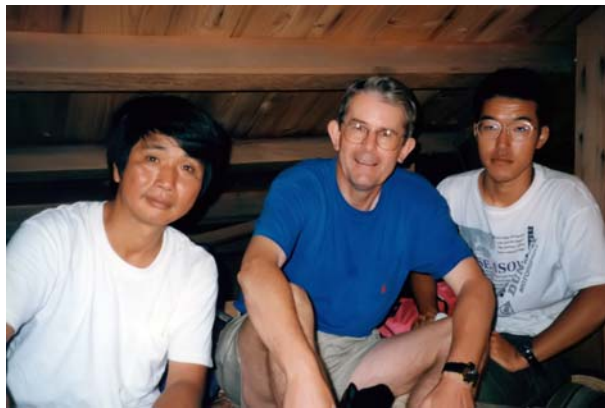
though, of course, in Japanese, not in English. A few of the other inmates, spoke a little English, but otherwise I had to rely almost exclusively on my friend Yoshi.

As in all Japanese dwellings, we took off our shoes in the entrance way, in this case a small, sunken open space inside the doorway. Then, in our stocking feet, we stepped up onto the lowest of the carpeted platforms. The last few spaces that we had felt fortunate to claim were on the third and highest platform, with just about three feet of headroom below the wooden roof. To reach our precious space, it was necessary to climb up onto the second platform, carefully choosing our footing to avoid stepping on sleeping bodies and then to crawl over more bodies to the roughly 6ft by 2ft space that each of us had been allotted. But it was warm, comfortable and clean. And there was a sense of camaraderie and of shared adventure that made the atmosphere friendly and hospitable.

After stowing our belongings, we climbed down again to enjoy the evening meal of curry and rice, prepared in two great iron pots bubbling over the stove in the sunken hallway. We washed it down with cups of hot tea and it tasted marvelous after our exertions of the day. Crowded around the three small and low tables set up to serve as a temporary eating area, conversation was inevitable. We met the three young Tokyo women who been allotted the very last places just after us and beside whom we would spend the night. I also had a publicly entertaining conversation with a very old Japanese woman who had somehow managed to climb this far despite her arthritis and her bent frame. Later Yoshi related to me what he remembered of the banter over the dinner table. The old lady was from Tokyo and was climbing Fuji to visit a temple in which the mummy of a monk is kept (unfortunately that temple was closed). She was also a vegetarian and claimed that all the confusion in today’s Japan



Left: On the slopes of Fuji. Right: Hachigome lodge.



Left: Hachigome lodge entrance. Right: In our sleeping spots.



Left: Sunrise. Right: On the summit of Fuji.

came from eating meat. She was the soul of the party and, since I was the first foreigner she had ever talked with, she had a number of observations on me and the circumstances that the crowd found very amusing. Though her wry comments were lost on me, I felt I knew her thoughts when she asked for my hand and gently stroked it. In that quite public moment, I had a strange sense of quiet humanity and peaceful compassion. Seconds later the feeling was gone and the amiable chatter resumed. Later, when the conversation ebbed, we retired to our assigned spaces on the shelves to try and get some sleep before our early morning start. But just before the room lights were extinguished, I was moved to glance down to where the old lady was sleeping by the door. There she lay curled up without mattress pad, bed cover or head rest.

We arose about 4.00am and made preparations for a pre-dawn departure. During our brief sleep, I and others had been awakened by the obvious distress of one of the other guests. He was having difficulty breathing and even the oxygen bottle that his friends had brought did not help very much. Eventually, the whole group dressed and left in order to get this man back down the mountain to medical attention. It was dramatic testimony to the effects that altitude (in this case 11,150ft) can have on some people. As we were rising, we discovered that Yoshi was also feeling some of the effects of the altitude including headache and nausea. He decided to remain in the lodge while Tanada and I went to the summit. It was cold and dark as we set out, now following the Gotemba trail. Most of the other guests had a similar plan; while a few left before us, most followed and, looking back, we could see a twinkling line of flashlights winding its way up the mountain. The trail is well traveled and therefore not difficult to follow in the dark; the main problem is the rough and loose footing that can cause an occasional stumble in the dark. It took about an hour for us to reach the torii gate that marks arrival at the crater rim at about 12,000ft. It was lightening fast and so, along with crowds of others, we found a good vantage point from which to await the 6.00am sunrise. The dawn was quite spectacular though too cold to stand and watch for long. Soon, we were off again, hiking around toward the west side of the crater rim aiming for the 12,385ft summit of Mount Fuji. Unfortunately, a most unsightly weather station has been built right on top of the summit; this is not only an eyesore but it also spoils that rich excitement normally experienced in reaching a raw, high peak. Nevertheless, it was a moment of accomplishment for I had been through many adventures since I first dreamed of climbing Mount Fuji. There seemed a rightness to the moment and a sense of completion, of closure. There would be other dreams and other trials but they would be part of later chapters.

In the annals of the vulcanologists, Fuji is a young volcano whose most ancient lava is only 8000 years old. It has been dormant for almost 300 years, the last eruption in 1707 occurring not in the impressive summit crater but much lower down on the southeast side of the mountain. This eruption produced a still-recognizable crater and a side cone known as Hoei-san that we would later pass during our descent. Though dormant recently, Fuji has been very active during the historical period; for example, 18 eruptions were recorded during the period from 781AD to 1707AD. Despite its recent inactivity, the crater at



Summit and crater of Fuji.

the summit is still an impressive 300ft deep and almost half-a-mile across. Its interior walls are almost everywhere vertical and are highlighted by slashes of the stark volcanic colors, red, yellow and black.

There are other, less obnoxious buildings on the summit. The ancients clearly had a more refined sense for they built their shrine in a discreet and unobtrusive site on the rim opposite the summit. Indeed, the Japanese records tell of pilgrimages to the summit over a thousand years ago. The earliest recorded ascent was in the 870s and shrines were built near the summit in the 1100s. Today the Sengen shrine, where the cherry blossom is worshiped, is a most ecumenical establishment, tending to the needs of climbers from all around the world. Established climbing routes to the summit were first created by monks of the Shugendo sect. Initially, the most popular route was the one that we followed; it starts far below at a shrine in Fujinomiya. The stations and lodges appeared about 1430, first on the Fujinomiya trail and later, in the 1600s, on the most popular route today, namely that on the north side. Until about 100 years ago, only monks and priests climbed Fuji; indeed women were forbidden to do so until 1872. Now, during the official, open season in July and August nearly 200,000 people set off for the summit. On busy weekends, this can mean an almost continuous queue of people on the most popular trails.

One of the popular rituals is to purchase a wooden staff or “kongozue” and have it branded with the name of each station that you visit. All of the stations feature a brazier and branding irons for this purpose. A long queue of people were waiting at the Sengen Shrine on the summit for that particularly sought-after brand. Despite the queue, the shrine is a dignified and busy place; only the NTT telephone is incongruous.

After circling the crater, we began our descent and made rapid progress

down the Gotemba trail by which we had ascended in the pre-dawn hour. Only one incident of note occurred. About 500ft above the Akaiwa Hachi-gome lodge, we encountered the last of the previous night's guests, making very slow but steady progress up the mountain. It was the old lady using two canes to aid her balance on the rough trail. She seemed oblivious to our approach, intent on the effort required to labor up the steep slope in the morning sun. I thought for a moment of breaking into that reverie, but then realized I could not communicate with her at all without Yoshi. And so I just stood to the side as she inched her way slowly and silently by. No special feeling accompanied that moment, only a sense of loneliness and sadness. I stood wondering why she was so determined on climbing Fuji and on doing so alone. In her traditional Japanese clothes and thongs, she seemed to be from a different age and place than the middle-aged, affluent and meticulously-equipped women who were part of many of the groups of hikers we encountered. I still think of that old woman, wishing that I had made more of an effort to understand her, her unquenchable spirit and the feelings she invoked in me.

Back at the Hachi-gome lodge we found Yoshi much revived. This very day the lodge was closing for the season and the owners were busy packing their equipment and installing the shutters that would protect it from the winter storms. After breakfast, we resumed our descent, having decided to take a different route over this last leg. Thus we hiked down to the Shichi-gome lodge on the Gotemba trail and there forked right to circle the Hoei-san crater. For the next couple of miles, the steep trail was composed of deep and loose sand/gravel known as "sunabashiri". This allows for a quite novel and rapid mode of descent, a cross between skiing and running, in which one can safely take large sliding steps much as one would on a sand-dune. It also provides fascinating views of the Hoei-san crater itself and its interesting combination of vertical striations of solid rock and slopes of sunabashiri. We kept to the right fork at each trail junction and circled down along the inside of the crater, eventually arriving at its base. From there it was a short hike along the cross-mountain trail back to Shin-go-gome and the car. Without much delay, we packed up and drove down the mountain to the Shin-Fuji station where I caught the shinkansen bound for Tokyo and Yoshi and Tanada began the long drive back to Osaka.

As I had imagined, it had not been a particularly difficult or scenic hike. Rather it had been an intriguing cultural experience, highlighted by my brief encounter with an old lady from a very different time and culture. In the days that followed I retained an eerie memory of that encounter and yearned to know what happened to her on the slopes of Fuji. I fervently hope she made it down safely.

Chapter 33

MOUNT WILSON TRAIL

“Mountains, like men, have their history. They too are born, grow decay and die. One cannot claim that, like men, they love, but it is true - and how true - that they are loved.”

From “No Picnic on Mount Kenya” by Felice Benuzzi (1953).

Before the white men invaded their lands, Gabrieleno Indians enjoyed the warm, dry climate of Southern California and the acorns and berries that grew in abundance in the canyons of the San Gabriel mountains. In winter they would come down out of the foothills to fish and hunt on the plains of the Los Angeles basin. But when spring came and the heat began to rise they would retreat to enjoy the fruits and coolness in the depths of the canyons. Untold centuries of habit had established Indian trails that led into these canyons and even over the mountains to the desert beyond. One such trail entered the foothills just north of the modern-day community of Sierra Madre and followed a canyon we now know as “Little Santa Anita Canyon”. It eventually wound its way to the highest point in the local range, a mountain now known as Mount Wilson. Like many Indian trails this path was less than a foot wide and, in places, exceedingly steep and dangerous. But, it allowed access to one of the most beautiful wooded glens in the whole range, an idyllic glade at the head of Little Santa Anita Canyon. There, for many, many centuries, the foothills witnessed the same cycle of life. And, some years before the Spanish explorers passed in their ships, a small acorn took root in the fertile soil of the canyon bottom and began a 500 year odyssey, leading to the magnificent oak tree that now presides over the spot we now know as “Orchard Camp”.

In 1841, early in the days of the pioneers, Benjamin Davis Wilson, a fur-trapper born in Tennessee in 1811, came west to California. He claimed that he was on his way to China, though it seems unlikely that there was much future for a fur-trapper in China. Arriving in the Los Angeles area he decided to stay and bought land near Riverside with the intent of trying his hand at cattle

ranching. In 1844, his fortunes seemed to take a major step forward when he married Ramona Yorba, the daughter of a prominent and influential Spanish-American family. Two years later, however, came the Mexican war that pitted the largely Anglo-American Northern Californians against the predominantly Mexican-American Southerners. Wilson sided with his fellow Anglo-Americans and spent most of the war in jail in the south. With the victory of the northerners, Wilson's fortunes changed again and he entered both business and politics in the still small pueblo of Los Angeles. At that time, the population was about 500. One measure of Wilson's revived fortunes was his election as mayor in 1851.

Wilson's political and business successes allowed him to purchase his own ranch and, in 1854, he bought the 128-acre Rancho La Huerta de Cuati at the top of the San Gabriel Valley in the lee of the San Gabriel mountains. That ranch represented the nucleus of a larger dominion that "Don Benito" (as he became known to the largely Spanish population) accumulated in the years that followed. His hacienda came to include large parts of the present cities of San Marino, Pasadena and Sierra Madre.

A shortage of timber in the desert-like surroundings of the valley prompted Wilson to glance up with increasing frequency at the wooded peaks of the mountains towering over his lands. In 1864, he sent his Mexican and Indian ranch hands to explore and improve the old Indian trail that began in Sierra Madre and led up the Little Santa Anita to Mount Wilson. Wilson recognized that this trail could give him access to the stands of pine and spruce that covered the higher slopes, and he decided to widen and improve the trail in order to harvest the timber. But, the slopes of the geologically young San Gabriels are steep and rugged and progress on the trail was painstakingly slow. By April, the work crew had reached a point near the head of the canyon where there was a particularly beautiful, wooded glen dominated by a magnificent oak. Since this glen was almost exactly halfway to the summit, Wilson decided that it was a strategic spot at which to build a "Halfway House". A wooden shack was constructed in the shade of the great oak. Eventually, the way station also included stables and a blacksmith's forge for the horses.

Impatient to see what lay beyond his Halfway House, Don Benito and his children's tutor, William McKee, decided one April day to press on to the summit without the benefit of a trail. Loading their horses with food and camping gear, they scrambled up the steep slopes and through the dense brush at the head of Little Santa Anita Canyon. Eventually they reached the saddle between Mount Harvard and Mount Wilson and made their way, just before sunset, to the summit of Mount Wilson. There, amidst the stands of pine and spruce, they could look out over a magnificent panorama. The valley below was dotted with ranches. The pueblo of Los Angeles may have been visible in the distance, and they could certainly make out the ocean with the profile of the mountains of Catalina on the horizon.

The remains of two log cabins on the summit provided mute testimony to previous, unknown adventurers. The tracks of a bear testified to a more dangerous visitor. In those days, California grizzly bears were common in the San

Gabriels. The grizzly is now extinct and the brown bears that roam the mountains these days are a recent import. The group were relieved to find a spring of fresh water a few yards west of the summit and settled down to spend the night there.

Late in the summer of 1864, the trail was completed. Wilson built a cabin and other facilities on the summit and his men began to harvest the timber. However, after a few weeks, it became clear that the project was not very practical and Wilson abandoned the enterprise. Nevertheless, his name was now permanently associated with the mountain and the trail he built became one of his most enduring legacies. Indeed, for many decades it remained the only access to the top of Mount Wilson.

A few years after Wilson abandoned his timber business and his "Halfway House", the latter was homesteaded by George Islip, who planted a small orchard of apple, pear, cherry and plum trees on a narrow bench near the house. The trees soon bore fruit and an increasing number of hunters, fishermen and even hikers began to enjoy this natural rest stop in the shade of the huge oak tree. At this time, it acquired its modern name, Orchard Camp. Islip was later joined by another mountain man, George Aiken, and they supplemented their income by keeping bees and making wooden singles both of which they transported to the valley below. For reasons that are unclear, Islip and Aiken abandoned Orchard Camp prior to 1880 and, for about a decade, it lay derelict though a favorite camping spot for hikers, horsemen and hunters.

As the population in the valley grew, the recesses of the canyons became a favorite weekend retreat. It was the dawn of the great hiking era. In the middle of the 1880s as many as 70 people might spend the night at Orchard Camp, the ladies in the old wooden shelter while the men braved the open ground. Mount Wilson remained a favorite weekend destination and it became customary for hiking parties to build a large fire to signal their arrival at the summit to family and friends waiting in the valley below. With this rapid increase in the use of the trail, there was clearly a place for a way station to serve the needs of visitors. Capt. Fred Staples, an old "fortyniner", had homesteaded Halfway House sometime before 1889 and, a few years later, sold the property to A.G. Strain. Strain leased it out to a series of individuals who operated it as a way station and weekend resort. The first of these proprietors was James McNally who turned the cabin into a refreshment stand and built cabins and tent houses nearby. To improve access to this increasingly popular resort, burros could be rented from the Mount Wilson Stables in Sierra Madre. In 1912, McNally sold his interest in the resort to Foster W. Huston who enlarged and improved the facilities, adding a dance hall and a croquet court as well as more accommodations.

For more than fifty years, Orchard Camp served the needs of all who passed that way. It became one of the most popular retreats in all of the San Gabriels. And when the interurban railway of the Pacific Electric Company brought the "Big Red Cars" to Sierra Madre in 1906, crowds of hikers would arrive early on Saturday morning bound for the local canyons. Come Sunday evening the reverse migration would occur. At its peak in the year 1911, over 40,000 people

signed the register at Orchard Camp.

The hiking era came to a close soon after the automobile began to dominate people's lives. Roads were driven into the San Gabriels and few people ventured more than a few hundred yards from their automobiles. Orchard Camp was abandoned in 1940 and the remains of the buildings were demolished by the Forest Service shortly thereafter. But the great oak tree remained and, today, that beautiful glen has reverted almost completely to its natural state. The number of visitors is probably a few percent of the number who came in 1911. For me it is a special place and I am glad of that silence.

Other weekend cabins and way stations were constructed in Little Santa Anita Canyon. Halfway between Sierra Madre and Orchard Camp, the trail first encounters the stream at a point that is now called First Water. It is a pretty place with shady trees and a stream that forms a series of small swimming pools, connected by waterfalls. It rapidly became a favorite picnic spot. There, in 1888, Emil Deutsch built a cabin for his family and gave it the logical name, Quarterway House. Later, this cabin was leased to George Damon, the Dean of Engineering at Throop Polytechnic Institute (that later became the California Institute of Technology) during the period 1911-1917. Several other cabins were built nearby. Nothing remains of these structures but First Water still serves as a welcome rest stop after the tough climb up the wall of the lower canyon.

In its early days, the Mount Wilson Trail also witnessed a number of other important events. The burgeoning interest in science during the second half of the 19th century gave rise, in the 1880s, to major developments in the field of astronomy. Scientists began to seek out high mountain-top locations around the world where clear air and good weather would allow the sharpest view of the heavens. It occurred to some of the local leaders that Mount Wilson might be an ideal site for star gazing and that an observatory on that peak might bring both prestige and business to the region. Consequently, they set out to attract a reputable astronomer to lead such an enterprise. Eventually, they persuaded the director of the Harvard University Observatory, Professor Edward Pickering, of the merits of the idea and the director dispatched his brother, William, to the west coast along with a small, 13-inch telescope, that would serve as a test experiment.

Prominent among the local boosters of the Observatory scheme was Judge Eaton, a resident of Pasadena, who offered to arrange to transport the telescope up the trail to Mount Wilson. The telescope would be dismantled for the journey. However, when it finally arrived in Sierra Madre on February 20, 1889, the Judge was crestfallen to discover that, instead of the anticipated weight of 1600 pounds, the telescope was found to weigh 3700 pounds! Nevertheless the Judge set to work immediately. The trail was improved and widened in places. The parts of the telescope were loaded on a specially constructed dolly, and a team of six men and two horses began the slow process of transport to the summit. In some places the two horses pulled the dolly; more frequently the dolly had to be winched forward with the help of a block and tackle. Progress was painfully slow. Though the event was not recorded, one can imagine the day when the team paused in the shade of the great oak, girding themselves for the second half

of the journey. Progress continued without major incident until they reached a point about two miles from the summit. There, a late winter storm suddenly arrived and dropped about two feet of snow. The team had no alternative but to abandoned their cargo to the elements and beat a hasty retreat to the shelter of Orchard Camp. However, within a few days they were able to resume their task and, on April 3, 1889, Judge Eaton lit a large fire on the summit to signal the success of the venture. The journey had taken more than thirty days to complete.

Though Harvard University removed the 13-inch telescope just a few years later, the instrument had clearly demonstrated the value of the site for an observatory. Though a hesitant start, the experiment did represent the beginning of a glorious history for Mount Wilson in the annals of astronomy research. Later, a number of ground breaking telescopes including the Snow solar telescope, the 60-inch reflecting telescope and the spectacular 100-inch Hooker reflecting telescope placed the Mount Wilson Observatory in the international forefront of astronomy research. It is said that during more than 50 years of operation, the 100-inch telescope contributed more to man's knowledge of the universe than any other single instrument. For 31 years it remained the most powerful telescope in the world and witnessed many remarkable discoveries in the furthest reaches of space. These later developments were made possible by the construction of a new road to Mount Wilson. This new road, initially constructed as a trail in 1891, was improved to carry vehicles in 1907 and then began operation as the Mount Wilson Toll Road. It followed an easier but longer route up Eaton Canyon, some distance west of the old trail. The two routes met at a point just below the Harvard-Wilson saddle.

The construction of this new road reduced the use of the old Mount Wilson Trail. Nevertheless, the old trail continued to attract hikers for many years until it fell into disuse during the Second World War. Fortunately, several dedicated Sierra Madre residents devoted substantial time and effort to the maintenance of the old trail. It might otherwise have disappeared entirely for each winter the rains inevitably cause significant damage. During the 1950s, Bill Wark and a group of volunteers put much effort into restoring the trail and, for over thirty years, Ambrose Zarro (who became known as the "Grand Old Man of the Trail") almost singlehandedly maintained it in good condition. The hiking community mourned Ambrose's death in 1990.

The Mount Wilson Trail Race was inaugurated in 1908 when a very tough group of young men, raced up the trail from Sierra Madre, rested for half and hour at the summit, and then raced down to Sierra Madre again. Thus began the tradition of the second oldest foot race in California. The event was held sporadically until the early 1950s. After a hiatus of more than ten years, it was revived in the fall of 1965 and then, in the spring of 1967, it took its present form as part of "Search and Rescue Days", held to promote interest in and support for Sierra Madre's volunteer Mountain Search and Rescue Team. The present race is about half the length of the original event. The start and finish lines are in Kersting Court in the center of Sierra Madre. Participants race up Baldwin Avenue, turn right on Mira Monte and then left onto the trail. They proceed

up the steep trail to Orchard Camp, about 4.2 miles from the start, where, after touching the large oak, they turn around and retrace their steps. The elevation gain is about 2100ft along a trail that is rarely more than three feet wide and has vertical drops of several hundred feet in many places. The return run downhill is almost as difficult since the front runners and back markers must negotiate their way past one another on the narrow trail. The difficulty of the event depends somewhat on the state of the trail and this varies considerably from year to year depending on the extent of the storm damage during the preceding winter. Therefore, records are not kept; however, the winner in 1992, Michael Gottardi, completed the course in 58 minutes and 19 seconds.

Looking back, I cannot be sure of the exact progression of events that led me to enter the 1994 Mount Wilson Trail Race. I know that I became aware of the race shortly after we first moved to Sierra Madre in 1980. At some point in the middle or late 1980s, my son and I began to jokingly challenge one another to enter. Each year, about two weeks prior to the race, the city would erect a banner over Baldwin Avenue, announcing the event. By that time it was too late to prepare for the race and so another year would go by. I had serious doubts that my rugby-damaged knees were strong enough to participate without buckling and thereby causing debilitating injury. However, by 1994 all the hiking had strengthened my knees to the point where participation seemed feasible. Moreover, early in 1994, an announcement of the race in the local newspaper, the Sierra Madre News, caught my attention in lots of time to allow for preparatory training.

In my entire life, I had never entered a contest of this sort and therefore I had many trepidations. But I loved the trail and Orchard Camp in particular. Many, many times I had hiked up to the shadow of the great oak and it became a significant symbol of the enduring wonder of the San Gabriels. Almost wilfully I entered the race and, about a month before the event, I made my first very tentative attempts to run up the trail. The first few times, beginning at our home, I could not even run to the trailhead without stopping. The slope of Baldwin Avenue was more than I could surmount and I would have to stop to haul great lungfulls of breath into my body. I would then force myself onward at a modest walking pace only to find that, on the steep trail, I could not even keep that up without stopping. It was all most humbling especially since I thought I had acquired some level of fitness. Even when I turned around to come down after only a mile or so, further indignities awaited me. The jarring motion caused by running downhill was very hard on my knees, but that I expected. What I did not expect was that my belly flopped up and down in a way that rapidly became painful and caused me to stop even before my knees did. It was all quite depressing. I should have concluded that my participation in the race was foolhardy at best; I could probably have minimized the teasing of my family by claiming that my knees simply could not absorb the punishment. But I also remembered a moment from my youth when I gave up during a cross-country race because I felt sick. I have never quite forgiven myself for that failure and I knew I could not repeat it. So I forced myself to attack the trail again. I went to the athletic store and purchased a corset of the kind worn by many

athletes and that helped damp the motions of my belly. I bought a proper pair of running shoes and that helped my knees. As the days past, I found I could go a little further without stopping and that I could get further up the trail without turning around. I still had to walk most of the way up the steep trail but at least it was a fast walk and, after three weeks, I managed, for the first time, to make it all the way to Orchard Camp without stopping. Now, however, only a week remained before the race.

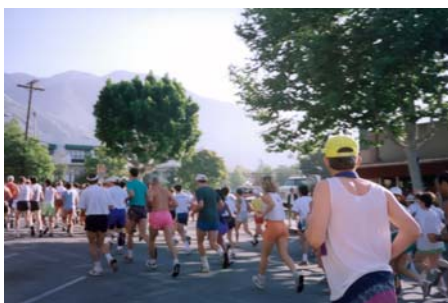
I had, clearly, left it much too late to begin training. There was no alternative but to allow my body to recover somewhat before the big day. So, during that last week, I concentrated on shorter efforts. I tried each day to reach First Water as fast as possible. One of the first such efforts coincided with a day that was significant hotter than at any time during previous training. The higher temperature caused me to overheat, bringing on an attack of nausea. I had to stop before First Water to be sick at the side of the trail. As I sprawled on the sand at the side of the trail, I could not help but question my own sanity. Yet I knew that much of what I had ever achieved had come from an uncompromising determination to persevere and that I would have to continue. When the nausea subsided, I resolved not to be defeated and struggled on to First Water. I avidly hoped that it would be cooler on the day of the race.

Thus my inadequate training came to a close two days before the race. I was fairly sure I could finish the race even though I had only completed the full course once. I had encountered others training on the hill and had few allusions about my own prowess. But I hoped that I would not finish last.

On the morning of May 28, 1994, I arose before dawn and began my physical and mental preparations with too much time to spare. About 7am Doreen drove me down the few hundred yards to the center of our village, the intersection of Baldwin Avenue and Sierra Madre Boulevard. Already this was a hive of activity with numerous volunteer race officials and other spectators. The prospective participants milled around exuding a nervous energy as they trotted on the spot or made brief sprints up the hill as much to test their resolve as to warm up. I figured that I would be warm quite soon enough for the morning showed all the signs of being hot. I made my way over to the check-in table and, very efficiently, received a plastic bag containing my commemorative tee shirt and my number plate. I hesitated for a moment before attaching the latter to my chest for I recognized that I would then be committed to participation. My number was 19. I thought that this moderately-sized prime number was appropriate to my circumstances and idly wondered if it would be notorious in the annals of the Mountain Wilson Trail Race.

Nearly 200 runners had shown up but only a few were determined to jostle for the most advantageous places on the starting line. The rest seemed less competitive, more focussed on simple survival. We gathered in a dilute group, behind the Start banner strung across Baldwin Avenue. As the starting time approached, I placed myself strategically at the back and side of the pack.

It was a genuine thrill when the starter's gun went off and we moved, en masse, up Baldwin. There was a sense of epic, of sallying forth where only the brave would venture. But this did not last long for that surge of adrenalin



Left: Starting up the hill. Right: Approaching the finish.

made me begin too fast and I had barely reached the turn onto Mira Monte before I was gasping for breath. Near the start of the trail itself I slowed to my accustomed fast walk and began to settle into a pace I could maintain. Already I was near the rear of the pack, just a few stragglers behind me. However, there was a continuous line ahead of me so I was still “in contact” with the mass of participants. As the trail wound back and forth I could see that line snake up the mountain, stretching as it went. The initial steep ascent up the switchbacks that climb the western wall of Little Santa Anita, was made more difficult by the heat. There is little shade on this part of the trail and the morning sun seemed merciless. But I breathed as deeply and regularly as I could and fended off the nausea, knowing that this was the worst part of the course. I knew that, had it been cooler, I could have gone faster but not by that much.

The first water stop manned by the Boy Scouts was, appropriately, at First Water. This was a most welcome way station for the psychological lift as much as for the water. Another steep but short section follows First Water and as I ascended this section, I felt an increasing strength and my rhythm increased slightly. I began to experience the pleasure of passing other runners; indeed, I was clearly making progress relative to the others at the back of the pack.

An exciting moment occurred when shouts of “Runner coming!” were relayed down the mountain. The leader (and eventual winner), Michael Gottardi, came gliding down the trail at an amazing speed. We all stood to the side of the trail to let him pass unimpeded and to marvel at his grace. It still looked like a suicidal speed to me but he made it seem easy. He was well ahead and it was some minutes before the cry of “Runner coming” went up again. Soon it became so common as to be superfluous.

There is a small clearing on a ridge, used as an emergency helicopter pad, that marks the three-quarter point on the way to Orchard Camp. Here the trail becomes less steep and I was able to sustain a run over this flatter section. Moreover, the canyon is heavily forested along this stretch. The cool of the shade and my rising excitement and confidence as Orchard Camp grew nearer, gave me further strength. I continued to pass other runners. As I reached the summit and ran the last hundred yards downhill into Orchard Camp, it was with a real joy for life that I greeted the crowd of officials and Boy Scouts

gathered under the great oak. They had placed a hat on the ground to mark the turn-around point but I walked on a few paces to the trunk of the oak. I placed my hands on its ancient surface and, for a brief and silent moment, paid reverence in my own way.

But only for a moment for there were still 4.2 miles to go. By now the back markers were widely separated and so, for long sections, I was running alone. For the first downhill mile, I encountered the stragglers on their way up the mountain but soon even they were gone. Still exhilarated, I looked forward to passing the Mountain Rescue people stationed at each of the danger points and amused myself by asking "Where's the bus?" as I passed. The later part of the descent was hard because my knees became sore and then numb from the continuous pounding. The numbness induced a sense of instability and inevitably I slowed a little, losing a few places to younger and more robust bodies. But the descent takes about half of the time required for the ascent and so it was not long before I neared the end of the trail. People were gathered at the intersection on Mira Monte and they seemed to cheer and clap for me as much as everyone else.

On Mira Monte there is a brief uphill rise to the intersection with Baldwin, and it took substantial will-power to extract the energy to mount that rise. My lungs and legs seemed about to collapse as I turned the corner. Then I could see the Finish Line in the distance. All I had to do was to coast down the hill in order to finish. The pain seemed to evaporate and my speed increased. Though truly exhausted, the die was cast and I was going to finish in some respectable fashion. Then Doreen was there and smiling broadly. And many folks still formed a crowd on both sides of the road over the last 30 yards or so. Their claps and cheers had almost a direct physical effect in spurring me on over the last few yards.

And then one of those moments arose that colored my memory of the race for ever after. For a period during the ascent I had run along with a young couple who were obviously deeply in love and who ran with joy in themselves and joy with the mountains and the world. I had taken a vicarious pleasure in their happiness. They were among those I had passed during the later stages of the ascent. But now, as I approached the finish they were rapidly gaining on me though without my knowing of their approach. Within yards of the finish they drew level and I suddenly became aware of their presence. Surprised, some basic instinct caused me to accelerate and, in addition, to say something like "Oh no!" as if to say "Please don't pass me now!". It all occurred so quickly that I cannot be sure of exactly what happened, but either because of my acceleration or because they slowed down in response to my remark, I finished a few feet ahead of them. I have always felt a sense of guilt about that moment. What possible difference did it make whether I finished ahead of or behind them! Surely it would have been especially nice for both of them if their final, joint effort could have been rewarded by passing a competitor at the finish. If I had it to do again with the benefit of hindsight I would have it otherwise but, then, one cannot dwell on such regrets. Hopefully, they were so absorbed in each other that they were oblivious to the moment.

Soon, however, we were all lost in the crowd at the finish. Someone stripped off the tab at the bottom of my number plate so that my official finishing position and time could be registered. I had completed the course in 2 hours, 11 minutes and 28 seconds. I was the 25th and last male resident of Sierra Madre to finish. I was the 26th finisher in the 50-59 age bracket. But I was third in the category of Sierra Madre residents aged 50-59! Admittedly this category was not a large one.

But whatever the statistics, the Mount Wilson Trail has left in me the complementary memories of an ancient and enduring beauty, the magnificent oak of Orchard Camp, and the fleeting, ephemeral beauty of two young people running together with joy and love on a balmy summer day.

Chapter 34

MOUNT LASSEN

“May your trails be crooked, winding, dangerous, leading to the most amazing view. May your mountains rise into and above the clouds.”

From “Earth Apples: The Poetry of Edward Abbey” by Edward Abbey (1994).

She crept up the steep trail behind me, not daring to look down the huge drop-off just feet away but staring at my boots and mimicking their steps. This was a foreign and frightening place, this barren, rock-strewn side of the great volcano, a place she could not imagine venturing to in the normal course of life.

Mount Lassen is a beautiful snow-covered volcano in northern California, part of the southern Cascade Range and not far north of the Sierra Nevada. Along this sector of the “Ring of Fire” as the tectonic edge of the Pacific basin is known, volcanoes are born, live and die in the monstrous battles between the plates of the Earth’s crust. Thus the Pacific coast is lined with a march-step procession of these fiery giants from Lassen to Shasta, from Crater Lake to Hood, from St. Helens to Mount Rainier and so on all the way to Alaska. Remnants of ancient volcanoes such as Mount Tehama also abound, though that volcano is long gone, having collapsed as Crater Lake has done and St. Helens may be doing. About 10,000 years ago Mount Lassen began its rise from the ashes of Mount Tehama, eruption after eruption sending silica-rich lava called dacite tumbling down from the summit craters and adding to the great talus slopes. After a period of quiet, Lassen Peak suddenly erupted again on May 30, 1914, with steam explosions continuing through the next year. Then on May 19, 1915, lava welled up in the summit crater and spilled down 1000ft of the western slope. More dramatically, lava also poured down the eastern flank where it melted the winter snow pack. The result was a catastrophic mud flow that accelerated down the steep mountainside, leaving a mile-wide path of destruction whose scar, called the Devastated Area, can still be seen today. But, more was to come. Three days later, a violent explosion threw ash 30,000ft

into the air and propelled huge rocks miles from the mountain. Minor eruptions continued until 1921 and fumaroles spewed steam into the summit crater as late as the 1940s.

Now, in the late 1900s, it lay peaceful, the jewel in one of California's lesser known parks, Lassen Volcanic National Park. The lower slopes are gloriously pine-forested with many lovely glades, meadows and lakes that present endless serene vistas for the summer traveler. A scenic road snakes up the side of the volcano, eventually climbing through the tree line. There the landscape suddenly changes to steep slopes of barren lava fragments interspersed with great fields of snow. At the road's highest point beside the frigid Lake Helen there is a parking area (elevation 9222ft) for the trail that leads to the summit.

Doreen and I had passed this way once before in July of 1970. We had driven this scenic road with our two young daughters and played in the snow beside the trailhead. I had looked up at the tiny figures high above our vantage point, climbers ever so slowly making their way to the summit. Though I wanted to follow them it was not possible to do so then.

Two years later, we embarked on another of our epic camping trips, this time venturing further north and visiting several more sites along volcano alley, among them Crater Lake and Mount Hood. We also spent several lovely days in Mount Rainier National Park, another beautiful forest setting in the shadow of a giant volcano, in that case the awesome, 14410ft Mount Rainier. Our campsite in Longmire near the west entrance to the park was in deep cedar forest and, despite the nightly visits of the black bears, provided a pleasant sojourn. As usual in the evening at a campground, we made our way along to the campfire program. It was there that I first learned of the possibility of climbing Mount Rainier with the guided help of a park-supervised program called Rainier Mountaineering Inc. Much more significantly, Doreen also listened to this possibility. Sitting around our own fire after the kids had been put to bed, she startled me by commenting that she would like to climb Rainier. Of course, she knew it was not possible at that moment but she was nevertheless serious and I did her a grave disservice by laughing at the proposal. It was a moment and a reaction that I deeply regretted in the days and years that followed. There was no doubt that she was physically capable, but she had never been an athletic or outdoors person and so this professed ambition seemed out of character. But everyone should be permitted dreams without the scorn I used that evening. Moreover, Doreen had spent a half a lifetime and much of her youth supporting my dreams and ambitions. It was time I started to allow her the freedom and space she had given me.

In later years as I reflected on that moment, it rightly became a turning point in our relationship though I certainly did not recognize it in the immediate aftermath. We both continued to be entirely engrossed in building our future and nurturing our family, neither of us having quite enough time for each other. Occasionally, Doreen would make reference to her desire to climb Rainier. Recognizing the unfairness of my initial reaction, I would express my willingness to help her achieve that goal. But little came of it.

As the years rolled by, I myself became increasingly interested in hiking



Left: Mount Lassen. Right: Lassen from trailhead.



Left: View from summit trail. Right: At the summit crater.

and mountaineering. One obvious and natural ambition was Mount Rainier. I researched the climb and learned of its difficulties and dangers. Mount Rainier is quite unlike Mount Lassen, its gleaming mantle of ice being composed of more glaciers than any other mountain in the United States outside of Alaska. Even by the easiest route, the summit climb is a very strenuous two-day adventure requiring experience with ropes, crampons and ice-axes. After a one-day basic climbing school, participants in the organized climb start at the high-point of the road at Paradise (elevation 5420ft) and climb over trails and permanent ice fields to the mountaineering hut at Camp Muir (elevation 10,000ft). Overnighiting there, you set out before dawn for the 14,410ft summit, traveling roped up over glaciers, wielding crampons and ice-axes. Among other attractions, the summit features huge ice caves created by the volcanic heat below the icecap. It is a spectacular arctic island in the sky. I wrote for application forms to the Rainier Mountaineering Inc.

I never pursued it further. Not because it was beyond my capabilities; indeed I climbed more difficult peaks like the Grand Teton and made a serious attempt on Switzerland's Matterhorn. But Mount Rainier was in some sense Doreen's dream, however unrealistic, and I had no right to tread upon it. Then, in June

1994, there came a chance to make some restitution, to find some resolution. Doreen and I had driven to Lake Tahoe to attend a conference. Afterwards, we took a few days to ourselves and made our way north to Lassen National Park which we had not visited for more than 20 years. We stayed in a little motel in Chester and made several day trips into the park. On one of those days we drove up to the summit trailhead beside Lake Helen, resolved to climb a short way toward the summit. The trail starts easily, but as you gain elevation, the slopes steepen and the exposure becomes intimidating. Compounding the difficulty, the wind rose making it difficult to maintain balance on the narrow trail. I assured Doreen we would turn around whenever she wanted. But on we climbed passing the white bark pine growing horizontally across the volcanic boulders. She asked to hike behind me, holding on to my backpack to steady her in the wind. The landscape continued to open up below us, spectacular vistas of rock and snow, of forest, lakes and distant mountains including Mount Shasta. Doreen avoided looking at the exposure by concentrating on my boots. We slowed in the thin air, breathing hard to get enough oxygen into our lungs. But on we climbed. I am not sure I knew what she was thinking but I did not need to in order to marvel at her courage and her determination. Then, quite suddenly about 2.2 miles from the trailhead and 1200ft higher, the trail gradient eased and we surmounted a rise to find ourselves there, on the cragged, 10457ft summit of Mount Lassen. We had made it and we could enjoy the spectacular vistas without the intimidating exposure. Doreen sat down beside the snow-filled crater to get her breath and recover her composure. I sat down beside her. Not much was said; I had said too much all those years ago. We asked another mountaineer to take our picture together and the smiles tell of the satisfaction of that moment. But, it was too cold to linger and we soon started down again.

I won't pretend to know whether she felt some resolution but I hoped that was the case. Back at the trailhead we drove south to the park restaurant and tourist shop near the southern entrance where we enjoyed a leisurely meal and a celebration drink. We then strolled through the shop. Stopping at the tee-shirts, she picked out one with "I climbed the volcano" emblazoned across the chest. She smiled at me as she paid for it. She is a beautiful, spectacular woman.

Chapter 35

VOLCANO

“These men set out and made every effort to climb to the summit but without success on account of the thickness of the snow, the repeated wind storms in which ashes from the volcano were blown in their faces but they reached very near the top, so near in fact that being there when the smoke began to rush out, they reported it did so with such noise and violence that the whole mountain seemed to fall down”

Except from a letter to King Carlos V of Spain from Hernando Cortés, dated Oct.30, 1520 (translated by J. Bayard Morris).

About 50 miles southeast of Mexico City, two massive volcanoes rise together out of the valley of the sun, reaching almost 18,000ft into the sky. The Aztecs called them the “Smoking Mountain” or Popocatépetl and the “Sleeping Woman” or Iztaccihuatl, and viewed them with awe and reverence. According to their legends, the warrior Popocatépetl fell in love with Iztaccihuatl who was the daughter of the emperor. After he had won a great victory against the enemies of the Aztecs, Popocatépetl resolved to return and claim her hand. However, his rivals sent forward word that he had been killed in the battle and, distraught, Iztaccihuatl died of grief. To assuage his pain, Popocatépetl built the two great mountains placing the body of Iztaccihuatl on one. He stands forever on the other, holding her smoking funeral torch aloft. Despite this association with their gods, Aztec belief did not forbid the exploration of these mountains and it is therefore possible that they climbed these peaks though no written or verbal record remains to confirm this. High on the side of Popocatépetl is a rocky projection known as the Ventorrillo on which were found the remains of a small enclosure that was built by the forerunners of the Aztecs about 900 AD. In the same vicinity, a number of artifacts including pieces of pottery, and parts of a jade necklace and obsidian knife were also found. In view of these relics it

would be surprising if some young and adventurous Aztecs had not ventured up another three thousand feet to investigate the source of the noise and smoke.

Geologists tell us that, for the past 10,000 years, Popocatepetl has alternated between periods of vigorous explosive activity and periods of less effusive behavior. The activity has varied from mild steam-and-ash emissions to plinian eruptions accompanied by pyroclastic flows and surges. The current active period began about 1200BP with an explosive eruption that enlarged the summit crater. Another explosion about 1000BP produced a pyroclastic flow that descended the northern flank. The Aztec codices provide a historical record of many eruptions beginning with one in 1345AD. Another large explosive eruption occurred in 1519 and another, perhaps, in 1663. Lava flows in the vicinity of the summit may also have occurred in historical time but cannot be attributed to specific eruptions. The last significant activity occurred in 1920-22 though minor ash clouds were observed in 1923-24, 1933, 1942-43 and 1947.

In March of 1519, Hernando Cortés landed in Veracruz at the start of his epic quest to conquer the land of the Aztecs. By chance, when Cortés arrived in Cholula (near Puebla) in October, 1519, Popocatepetl was erupting. In a letter to King Carlos V of Spain, Cortés described the scene:

“Eight leagues from this city of Cholula there are two marvelously high mountains whose summits still at the end of August are covered with snow so that nothing else can be seen of them. From the higher of the two (Popocatepetl) both by day and by night a great column of smoke comes forth and rises up into the clouds as straight as a staff, with such force that although a very violent wind continuously blows over the mountain range, yet it cannot change the direction of the column.”

The Indians advised Cortés that it was not possible for anyone to reach the summit and survive. But, rising to the implicit challenge, the conquistador responded as described in the same letter:

“... I was eager to know the secret of this which seemed to me not a little marvelous and accordingly I sent ten men such as were well fitted for the expedition with certain natives to guide them to find out the secret of the smoke, where and how it arose. These men set out and made every effort to climb to the summit but without success on account of the thickness of the snow, the repeated wind storms in which ashes from the volcano were blown in their faces, and also the great severity of the temperature, but they reached very near the top, so near in fact that being there when the smoke began to rush out, they reported it did so with such noise and violence that the whole mountain seemed to fall down; thereupon they descended, bringing a quantity of snow and icicles for us to see....”

The leader of this expedition was Diego de Ordaz who claimed that, contrary to Cortés's account, he had, in fact, reached the summit. A number of

chroniclers of the time give credence to his version of the story. Ordaz claimed to have looked down into the spectacular crater on the summit and compared it to an oven in which glass is made. Cortés may have down-played Ordaz's accomplishments because of a developing rivalry between the two of them. King Carlos V granted Ordaz the right to include a volcano in the family crest, thus giving a seal of royal approval to Ordaz's account of the adventure.

During his legendary march from the coast, Cortés approached the Aztec capital by climbing the pass between Popocatepetl and Iztaccihuatl and the saddle, at an elevation of 12,000ft, is now called Paso de Cortés. Two years later, in 1521, after his conquest of the Aztecs, the conquistador's army was running short of gunpowder and so Cortés dispatched Francisco Montano and four other men to climb Popocatepetl in an attempt to obtain sulphur from the crater. Unlike the earlier adventure, the story of this second expedition has been confirmed by historians and so must rank as the first known ascent of the mountain. With great publicity, Montano and his companions set out accompanied by Indians carrying supplies including ropes and blankets. A crowd of spectators gathered at the base of the volcano and waited with curiosity to see how matters would unfold. At the end of the first day, the expedition camped some distance above the snow line by digging a snow cave. However, during the night they were driven from their cave by sulphur fumes and the cold. Outside the night was black, the stars being obscured by the clouds and smoke. As they moved about to keep warm, one of the soldiers fell into a crevasse, from which he was lucky to be rescued unharmed.

At daylight they resumed their ascent only to be halted by a eruption that caused them to run for shelter from the falling debris. Though one soldier could not continue, the rest pressed on and eventually reached the crater at which moment another minor eruption took place. When the smoke cleared, they could see roiling pools of lava below. They cast lots to see who would venture down into the crater first and, appropriately, it fell to the leader, Montano, to be the trail-blazer. Thereupon, he was lowered by means of a makeshift rope, some 600ft down into the crater. Not only did he risk the possibility of failure of the rope, but also the very real hazard of asphyxiation, not to mention the risk of another explosive eruption. Apparently, he survived seven separate sorties into the inferno bringing back a load of sulphur each time. Another soldier then took over and, after six additional trips, they had accumulated some 60lbs of the sulphur that had motivated the expedition in the first place. This they hauled down the mountain to be greeted like conquering heroes. A triumphal procession accompanied them back to the capital where, it is said, that Cortés himself came out to greet them. However, this method of procuring sulphur was not the most efficacious and, in a later letter to the king, Cortés admits that it was easier to order shipments from Spain. However, Montano and his companions achieved immortality for the first documented ascent of Popocatepetl.

Thousands of climbers have reached the top of Popocatepetl since the days of Cortés and Montano and it is now such a well-traveled trail that even fairly inexperienced climbers can succeed without undue hardship or danger. A winding, asphalt road was built from the town of Amecameca (elevation 8070ft) right

up to the Paso de Cortés at an altitude of about 12000ft. From this saddle, the road continues some distance up toward Popocatepetl, terminating at Tlamacas (12960ft) where several facilities have been built to serve both day trippers and climbers. In particular, the Vicente Guerrero Lodge provides dormitory accommodations and facilities for climbers and other visitors. From Tlamacas, there are several standard routes by which to climb Popocatepetl, all of which we found described in R.J.Secor's book, "A climbing guide to Mexico's volcanoes".

After our successful ascent of the Mountain of the Devil, Doug Hart and I began to think about our next Mexican adventure and naturally started to consider an ascent of one of the large volcanoes. Eventually, these plans began to solidify and, with the help of one former Caltech student now resident in Mexico, Francisco Avila Segura, and one current Mexican student, Roberto Zenit Camacho, we made the necessary reservations. The party would consist of a Caltech graduate student, Garrett Reisman, Doug Hart and myself; Doug's wife Ann would accompany him but would not climb the mountain. We arranged flights to arrive in Mexico City on Jan. 8, 1995, and made reservations at the Tlamacas lodge for at least four nights starting on Jan.10. We had allowed time for acclimatization and visualized the possibility of climbing both Popocatepetl and, a day or two later, Iztaccihuatl.

Date: Wed, 21 Dec 94 05:58:34 -0700

From: Francisco Avila Segura jfas@iimtemix.unam.mx;

To: brennen@accord.cco.caltech.edu

Dear Dr. Brennen,

El Popocatepetl sent tons of ashes to the atmosphere today in the morning, it was not the usual 'fumarolas' but something else, you should be aware of this when you come and ask around. Roberto tells me I wish you the best of fun in mexico and a happy new year,

Sincerely Yours,

Francisco

Date: Thu, 22 Dec 94 04:27:25 -0700

From: Francisco Avila Segura jfas@iimtemix.unam.mx;

To: brennen@accord.cco.caltech.edu

Dear Dr. Brennen,

Last night 75000 people were evacuated from around Popocatepetl, so it may be quite serious. It has been trembling and having small (apparently) eruptions. I call the people in charge of the reservations in Tlamacas to ask for information but so far they have none.....

Francisco

Date: Wed, 21 Dec 1994 22:18:05 -0700 (MST)
From: Global Volcanism Network ;MNHMSO17@siu.edu;
Subject: Popocatepetl, 21 Dec 1994

A UPI news story reports that three explosions on the afternoon of 21 December (between 1330 and 1400 local time) caused ash fall in Puebla, about 45 km E. A resident was quoted as saying "The street is all white, as if flour had been thrown." Servando de la Cruz (UNAM) was quoted as saying that the activity was similar to 1921 and in the 1940's, but that there was no other activity, and microseismicity was continuing "in a very moderate manner". NBC News (USA) showed a few seconds of footage of the steaming volcano, apparently taken from a helicopter, tonight (21 Dec).....

Date: Thu, 22 Dec 1994 14:34:46 -0700 (MST)
From: "Rick Wunderman, Global Volcanism Network"
Subject: Popocatepetl, 21 December Eruption

..... A 21 December Associated Press story by Lawrence Kootnikoff said Popocatepetl, "spewed a column of roiling black ash Wednesday, dusting villages and farmland but causing no injuries." "Television footage from traffic helicopters showed a dense column of ash belching from the summit. Reporters aboard the helicopters said the ash appeared to be blowing away from Mexico City to the southeast." A 21 December Reuter story stated Popocatepetl had "five minor eruptions". The story also noted that authorities estimated the mass of ash fall as about 5000 tons and that they had only evacuated a few people.

Date: Fri, 23 Dec 1994 16:47:45 -0700 (MST)
From: Rick Wunderman, Global Volcanism Network
Subject: Popocatepetl

..... A helicopter flight at 10:30 showed that most of the ash was issued near the lower rim of the inclined crater at the NE sector. A radial fissure could be observed on the NE flank of the cone. Some steam-producing vents could also be observed along the fissure, though the cloudy conditions makes this interpretation doubtful. Old cracks in the glacier appeared to have extended a significant amount toward the W....

..... At this stage an evacuation of the most vulnerable towns and villages of the East sector of the volcano was started around 21:00 of

December 21, and about 31,000 persons were moved during the night to shelters in safer areas.

..... As of Friday, 23 December, an AP report stated that the Puebla state government said 75,000 people would be evacuated from the countryside around the volcano. One of the evacuated towns, Santiago Xalitzintla, is located about 13km NE of the summit and sits along the road over the pass between Popocatepetl and Iztaccihuatl.

Date: Tue, 27 Dec 94 12:48:49 -0600 (CST)

From: Mena Iniesta Baltasar-IIM jmena@redvaxi.dgsca.unam.mx;

To: Christopher Brennen jbrennen@cco.caltech.edu;

Subject: Roberto calling....

Dr. Brennen,

I've been following the news about Popo. The Tlamacas lodge has been closed. Twenty thousand people were evacuated. Reports from today's paper said that the volcano's activity hasn't increased in the last few days, but they are still under alert. It isn't clear when this alert state is gonna change. It is impossible to get to Tlamacas right now. Let me know what you think. Right now I wouldn't suggest you to come. It's unfortunate....

Roberto

And so, just days before we were to embark on this adventure, the mountain balked and we were forced to cancel our attempt to climb Popocatepetl. The volcano continued to rumble for several years and the lodge at Tlamacas remained closed. Thus, even if we had wanted, foolishly, to attempt the climb, the logistics would have been considerably more difficult. In fact, we did make preliminary plans to reschedule the trip the following year but cancelled again when it was clear that there was little change in the situation.

Date: Tue, 5 Mar 1996 16:58:49 MST

From: Global Volcanism Network jMNHMSO17@sivm.si.edu;

Subject: Popocatepetl Eruption, 5 March 1996

At 03:49:30 on March 5, an ash emission event was detected at Popocatepetl Volcano. A continous seismic signal of variable amplitude started abruptly at that time.... Mild ashfalls have been reported in the immediate area around the volcano, particularly in the North sector. During a helicopter reconnaissance flight, at 1200, ash deposits were confirmed, especially in the close neighbourhood of Tlamacas, and covering the snow cap. An ash and gas column about 800m high rising vertically could be seen, height at which it dispersed in a long plume towards the NorthEast. A sulphur smell



Eruption of June 1997.

could clearly be perceived near the crater. The emission of gas, steam and ash appeared to be generated from the same three sources in the eastern internal side of the crater that produced the 1994-95 activity. In general terms, this event seems very similar to that of December 21, 1994, but perhaps about an order of magnitude lower, and comparable to the levels of activity observed on December 26, 1994.

And from another source:

After several months during which only fumarolic gases were being emitted at Popocatepetl it is now certain that emissions of ash resumed this morning. I just returned from a helicopter reconnaissance flight around Popo. The glacier and snow are entirely covered by ash, confirming statements made by direct witnesses who saw ash emissions this morning. From vents located at the base of the eastern inner crater walls a vigorous column of steam could be seen at 12.00pm from the helicopter. Seismograms indicate that the renewed emission of ash might have started this morning at 3.50am.

*Date: Mon, 1 Apr 1996 13:39:54 MST
From: Hugo Delgado
Subject: Popo update*

.....On Friday (March 29), during a COSPEC flight, Lucio Cardenas, Juan Jose Ramirez and Hugo Delgado observed the appearance of a lava dome on the eastern side of the crater floor with an area of

400 sq. m. emplaced on the rim of the inner crater (a destroyed lava dome that formed during the 1920-1927 eruption). This lava dome was observed coming out from a source outside that inner crater but flowing into it. Today (April 1st) the dome was checked again and was observed filling up most of the inner crater (nearly 60 m deep) and increasing its area to nearly 600 sq. m. Close observation of the phenomena is planned through helicopter flights and COSPEC measurements besides the telemetered seismic and geodetic network.....

Date: Fri, 3 May 1996 14:19:32 MST
From: Claus Siebe
Subject: Popo update

On March 29 juvenile lava that started forming a viscous, presumably dacitic dome was first observed by Hugo Delgado during a COSPEC flight. Since then the dome did grow at a rapid rate. Emissions of ash along a NE-SW running fracture located at the SE inner wall of the main crater have also continued intermittently. Apparently, the emission center of the new domes is located between this fracture and the center of the small inner crater formed during the eruption in the 1920s. I did attend helicopter overflights on April 10, 12, 24 and 29. On all these occasions the gases emanating from the dome did not allow a clear view. The height of the dome was difficult to estimate but was at least 50 m. The dome was in addition growing horizontally.... By comparing pictures of the dome formed in the 1920s with the present dome it is absolutely clear that the present dome is by now already much larger... On April 30 at 13.19pm local time a major explosion occurred at the new dome. A shower of ejecta was dispersed towards the NE. Maximum clast diameter was 0.5cm in the village of Xalitizintla, ca 12km NE of the crater, sand-sized ash fell in the city of Tlaxcala at a distance of 60km. Because of bad weather conditions, the explosion and accompanying phenomena were not recorded by the video camera aimed at Popo. Yesterday, May 2nd, five mountain climbers were found dead a few hundred meters below the NE crater rim on Popos slopes. Their corpses were recovered by Civil Protection authorities and the first information regarding the possible cause of their death was due to lightning, because of severe burns. Latest information indicates that the climbers ascended the mountain in the early morning of April 30 and were reported missing the following day. In addition to the severe 3rd degree burnings, the corpses do also show severe injuries by contusions. It appears that the climbers could also have been killed by the explosion on April 30. Autopsies of the corpses should soon reveal the cause of death. During a helicopter flight this morning (May 3) I could clearly observe a depression at the surface of the

new dome, near the SE inner wall of the main crater. In addition streaks of gravel and boulders were running down the NE outer slopes of the cone. These streaks of coarse material were 10 to 20m wide and a few hundred meters long and very close to the route of ascent to the mountain that is usually taken by most climbers. It is absolutely possible that similar explosions will occur again in the near future for which reason mountain climbers should take the signs posted at Paso de Cortes seriously and not attempt (by no means) to get around the official prohibition to climb Popo....

Nature, Volume 388, 17 July, 1997:

On 30 June 30, Popocatépetl showered ash over Mexico City, about 72km away, in its largest eruption since 1927.....

It would be easy to overdramatize the possibility. Nevertheless it seems clear that we came close to the fate that befell those five climbers on April 30, 1996. And so, within the span left to me, it seems unlikely that I will ever get the chance to climb Popocatépetl. Some things are not meant to be. But it would please me greatly to believe that, someday, one of my young friends might remember to place my name in the cairn on the summit of the "Smoking Mountain".

Chapter 36

CASCADES OF THE KERN

*“One moment, on the rapid’s top, our boat
Hung poised - and then the darting river of Life
(Such now, methought, it was), the river of Life
Loud thundering, bore us by; swift, swift it foamed”*

From “A Dream” by Matthew Arnold.

They called it the “Gusto Run” and described it as 13 miles of exhilarating Class III-IV whitewater on the infamous Lower Kern in the southern Sierra Nevada. I would come to remember it as a special experience.

The Kern is, perhaps, the most famous and the most notorious river in California. Born high in the Sierra Nevada where a group of icy lakes above the tree line feed their melt water into a rugged canyon, it gathers depth as it flows south past the western shadow of Mount Whitney. Most of the runoff from the Sierra Nevada flows east or west, the directions of obvious descent. In contrast the stubborn Kern cuts north-south down the spine of the Sierra Nevada before it slides out of the southwestern end of that great mountain range. In the process it falls from over 11000ft through a series of gorges down to the 500ft elevation of the San Joaquin Valley. Near the end of this epic 170 mile journey, man has interrupted the flow by building the dam that forms Lake Isabella. The river downstream of the dam is known as the Lower Kern and passes through a steep and dramatic gorge on its way to the Valley bottom. This part of the river, though very rugged, is quite accessible because of the highway that runs the whole length of the gorge from Lake Isabella to Bakersfield. Here is where the river gains its notoriety. Due to its ease of accessibility, many people are drowned each year when they unwisely venture into the Lower Kern. As a measure of how rugged the whitewater is, there is one section of Class VII

rapids; Class VII is certain death, unrunnable in any boat. Because of all the great whitewater both above and below the reservoir, Lake Isabella is a mecca for whitewater adventures of all kinds. Many commercial companies based in the towns on the shores of Lake Isabella, offer whitewater adventures of all levels in kayaks and rafts. Because its flow is regulated by the dam and because of its violent rapids, the Lower Kern is particularly suited for the more radical commercial trips. Thus most of the companies offer a two day adventure on the Lower Kern, the second day being the more violent and challenging. A company called Kern River Tours called this its "Gusto Run".

For many years I had harbored an unfocused desire to try whitewater rafting and in the summer of 1995, when a store in Kernville by the name of Sierra South mailed me one of its brochures, I decided to fulfill this ambition. Somehow I persuaded myself to bypass all the easier trips and aim for one of the more vigorous adventures offered by Kern River Tours, an outing called the "Gusto Run". On impulse one day that summer I called and reserved a place on the Gusto Run and, in return, was given directions to the headquarters of Kern River Tours.

So it was that on the appointed morning, having spent the preceding night in a campground ominously named Hospital Flat, I arrived at the hanger-like shed near Lake Isabella Dam that served as headquarters for Kern River Tours. As always I was early and the mood seemed remarkably casual as the employees readied for another humdrum day of adventure. I guess one becomes immune to adrenalin. However, it was not long before the action heated up and equipment began to be sorted and loaded onto trailers.

Finally, all the clients seemed to have shown up and we were each issued with life jackets and paddles. Once equipped we loaded ourselves and our gear into the Kern River Tours bus and set off down highway 178, headed for the gorge of the Lower Kern. Soon we were descending a steep dirt road to the sandy beach that served as the put-in point for Kern River Tours. There we were divided up into teams of six, each of which would occupy one of the six rafts. Then we were given basic instructions. These focussed first on the mechanics of paddling and then on what to do in the event of a variety of mishaps. Finally each team of six was assigned to a guide. Virtually all of the guides were wizened "river rats" whose nonchalance conveyed an aura of confidence. One, however, was a young blonde high-school girl. My team was assigned to her guidance.

We set sail from the put-in beach in eager anticipation of a dramatic and exciting day. After Remington Hot Springs, the first of a series of riverside hot springs that we were to pass, we came to the first couple of whitewater rapids, White Maidens Walkway and Sundown Falls. They were vigorous but readily negotiated. The Silver Staircase followed and, after running the rapid, each raft in turn maneuvered itself so as to surf in one of the large waves below the cataract. It looked like a straightforward maneuver to me and so I was not particularly alert to the possible mishaps that might occur. Consequently, I think that my feet were not wedged firmly enough into the rubber pockets sewn into the floor of the raft; it should be noted that these footholds constituted the primary means of securing one's position in the raft. As we slid sideways toward

the surfing wave, I very suddenly found myself airborne and then underwater. I surfaced beside the raft and was quickly pulled aboard by the others. It was a salutary lesson in how quickly things can go wrong. However, I had spent only a brief time in the water and emerged from the incident with some composure remaining.

Next came Buffalo Run, negotiated without incident. Despite my dunking, our team in the last of the rafts, was beginning to feel some degree of confidence that we might actually make it through the day without further incident. But we also knew that we were approaching one of the most insidious of the cataracts on the Lower Kern, a long stretch of whitewater known as Dead Man's Curve. What we did not know was that there was a notorious whitewater hole right at the top of Dead Man's Curve. With years of experience, Kern River Tours knew well where to station a photographer for the day's most dramatic shots. So the next sequence of events were graphically recorded on film. Ahead of us, the rafts guided by the wizened and experienced river rats seemed to negotiate Dead Man's Curve with little difficulty. So the first of the three photographs shows the last raft with a composed crew (especially the gent at the left rear of the boat in the blue baseball cap) being vigorously instructed by the young, blonde guide in the rear of the boat. Moments later, and just a few yards downstream, the second photograph clearly demonstrates that the situation is rapidly deteriorating as the raft encounters the "hole" at the top of Dead Man's Curve. The guide seems to have completely disappeared and paddles are flying. Note that the gent in the left rear has maintained his composure and his paddling stance. In the next instant the raft loops the loop and everyone ends up in the whitewater. The photographer continues to record the disaster and his third photograph captures an empty airborne raft. It also happens to capture, at the lower right, the gent from the left rear, now capless and composureless.

To me the surprise was that it all happened so suddenly. One moment I was focussed on my paddling duty; the next I was swirling madly through churning whitewater trying to find some air to breathe. At the orientation session we had been instructed to try to float down the rapids feet first. I had no control whatsoever over either my trajectory or my orientation. I was simply tumbled down the remaining hundred yards of Dead Man's Curve while struggling desperately to find a moment in which to gulp in air. Within just a few moments I was unceremoniously delivered to a quiet pool below the cascade where I limply swam ashore. Most of the rest of the team found themselves at the same beach. This included our guide who was desperately trying to locate the remaining members of the team. Within moments she had done so and we began to try to retrieve whatever belongings were still floating by. My cap and glasses were long gone.

The adrenalin was still coursing through my bloodstream as we reassembled the crew and boarded the boat for further challenges. The next cataract, False Flush, was successfully negotiated and we then disembarked in order to portage around the unrunnable Class VII rapid, Royal Flush. Needless to say we took time to inspect this maelstrom from the safety of the overlooking cliffs. One could readily see how any boat or person would get lethally trapped in its



Note gent at left rear of the raft



Problems!



Disaster!!

whitewater vortex.

Just downstream of Royal Flush we stopped for lunch at a comfortable and shady beach. An overturned raft served as a fine table upon which was spread a royal feast. In the quiet cool of the shade, with a fine meal in my belly, I began to recover some sense of equilibrium. Several of the young people enjoyed jumping into the river from a high rock nearby; I opted to maximize my equilibrium in preparation for the afternoon's adventures. But we had already experienced the toughest part of the Gusto Run. With the discipline derived from the morning's mistakes we adroitly negotiated the afternoon's cascades. Fish Trap Rapid, Bottoms Up, Surprise, Hari Kari, Horseshoe Falls, Patch Corner, and Pinball all passed without incident, indeed with some display of coordination and competence. This brought a substantial sense of pleasure and accomplishment, strengthened by an intimate knowledge of what can go wrong.

We had been on the river for nearly five hours and exhaustion brought about not only by physical exertion but also by the drain of nervous energy, began to take its toll. Fortunately the river had come to a gentle stretch of meanders where we could relax, swim alongside and unwind from the day's earlier exertions. So we drifted down to Democrat beach, the takeout point. The bus was waiting for us and it did not take long to load all of the equipment and people for the drive back to Lake Isabella and the headquarters of Kern River Tours.

It had been a truly awesome experience and one whose thrill I would always remember. But for one dreadful moment I thought I had breathed my last and that moment inevitably colored my recollections for ever after. For the raw beauty of the river I would do it again. But not without a fear of that powerless moment when my fate was entirely beyond my control.

Chapter 37

THE STREETEAGLE

*“My rider of the bright eyes,
What happened you yesterday
I thought you in my heart
When I bought you your fine clothes
A man the world could not slay.”*

From “The Lament for Art O’Leary” by Dark Eileen O’Connell.

As I sit here staring resolutely at the screen, I know that there is one last chapter I must write, one more relationship I must detail, one more set of events that I must describe however painful it might be. Even now, fifteen years later it is excruciatingly difficult to face the memory, almost impossible to know how to proceed. I have completed all the other chapters that have meaning to me, boasted of successes and confessed to many of my misdeeds. I have reformed the rest of my life, forged new relationships and found new ambitions and adventures. But the events of this chapter still defy my ability to understand and accept them. Perhaps the only way is to lay down the words and hope that they elicit some sort of compassion, some empathy and understanding.

* * *

Patrick Edward Theodore Brennen was born on May 9, 1973, in the Huntington Memorial Hospital in Pasadena, California. He was our only son, the only native-born American in our immigrant family. He grew up a healthy, vigorous boy, truly the apple of his mother’s eye. He was one of those young people for whom the conventional educational system was not well suited for he would become intensely interested in one particular activity and would focus on that to the exclusion of everything else. Until he was gone, his mother and I never really appreciated what he had achieved, much to our great regret. This singular focus meant that he went his own way, had to make his own judgments

in worlds of which we had little knowledge and for which we had little advice or guidance.

Most of the activities into which he dived with energy and abandon were physical and involved individual participation rather than team games. Early on he showed unusual skills on the baseball diamond and on the soccer pitch, but his interest in these team games waned after a couple of seasons. He became intensely interested in bicycles and in BMX racing and I often accompanied him to competitions at the BMX tracks in Azusa and elsewhere. Accidents were frequent and I remember one example that was illustrative of his determination and drive. Arriving at the last, banked turn in second place during one race he spied a narrow opening to the inside of the race leader and drove into it with vigor. Unfortunately it was not quite wide enough with the result that both of them tumbled down an embankment in a heap of dirt and dust. Though he was disqualified, it was clear he intended no foul; I was proud of his spirit and grit. As the trophies for all these activities mounted his grades declined causing him to lose further interest and to devote his energies to those areas in which he excelled.

Then, sometime around 1982, he became interested in skateboarding and this grew into an even more singular passion than those previous activities. He endlessly practiced skateboarding tricks in the concrete driveway of our temporary home on Holliston Avenue in Pasadena. He and some friends tried building a wooden half-pipe in the backyard, a structure that became so ramshackle that I had to step in and build something that would be safe. The friends also constructed portable ramps that could be temporarily moved to the driveway to provide a long and smooth enough run-up in order to launch themselves high into the air. Not that these accessories were enough for they often found their way to various malls and school playgrounds (after hours) where they would practice tricks on the benches and other fixtures. Soon Doreen and I would find ourselves escorting him to local skateboarding competitions. Instead of the half-pipe events that had attracted much public attention a few years earlier, Patrick would compete in the street-style competitions. The relatively new "street-style" involved launching the rider and his/her board into the air (sometimes from a flat surface) after which they would perform airborne maneuvers before landing again on the traveling skateboard. With all this practice his skill became quite extraordinary. The height he could achieve from a ramp became amazing. Even from a flat surface he could launch himself and his board to such a height that he could clear a fire hydrant or continue atop a picnic bench. These skills required intense attention to detail and singular physical ability and conditioning. They also called for considerable daring, especially those tricks that involved mounting a railing and sliding down its length to a controlled dismount. Competitions at least required the skaters to wear helmets but I rarely saw them worn during practice sessions and there were many horrendous falls before the tricks were perfected - and even then the tumbles were inevitable.

It was not long before his skills became evident to those who made skateboards and the various equipment that went with the sport. He first became sponsored by some smaller manufacturers like Motobilt Airtool and was then



At a BMX competition (photos by John Earls).



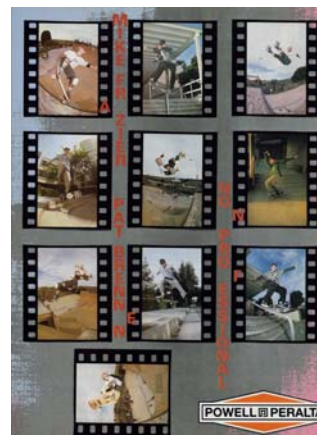
Flying high.



Powell Peralta Memorabilia.



Pat Brennen Skateboards.



Transworld Skateboarding Magazine Extracts.

recruited by Alva who sponsored a team of skateboarders who gave demonstrations at which they sold their products and videos. With them he went off on tours of the western states, performing at gatherings and at skateboard shops. However, he really joined the big-time in 1991 when he was asked to join the Bones Brigade, the team sponsored by the premier skateboard manufacturer, Powell Peralta. He was now a major professional skateboarder. Stacy Peralta made a number of skateboard movies that incorporated segments demonstrating Patrick's skills; several of these videos became classics including "Celebrity Tropical Fish" and "Hot Batch", the first being the most remarkable not only for the amazing tricks but also because it was set to Beethoven's "Moonlight Sonata". Powell Peralta also made a number of skateboards decorated with graphics featuring Patrick, as well as other paraphernalia. Patrick received some royalties for his role in these sales but I never discovered how much money was involved. Initially he used to take the train to Santa Barbara where Powell Peralta was headquartered. But once he earned his driver's license, for a very modest sum he purchased a used VW van from Jim Fitzpatrick, one of the managers of the Powell Peralta team.

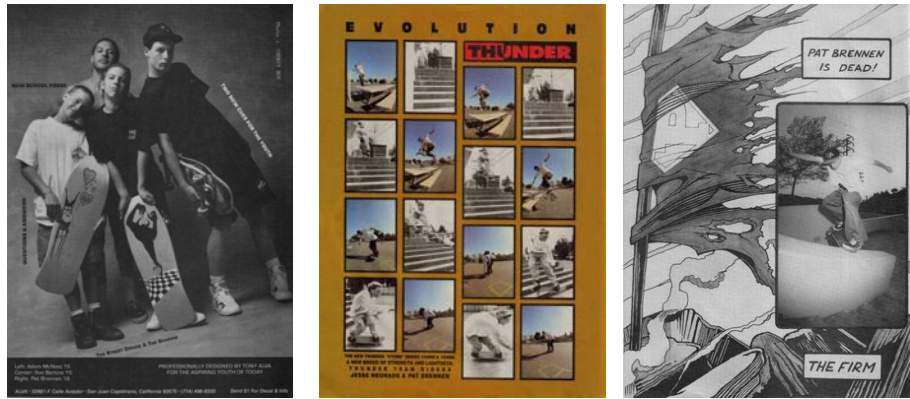
Videos:

Celebrity Tropical Fish: <http://www.youtube.com/watch?vvpUchxkciL0>
Powell Hot Batch: <http://www.youtube.com/watch?v4B4r4Kms pU>
Powell 8: <http://www.youtube.com/watch?vey3ACAGRUoM>
Firm Promo Clip: <http://www.youtube.com/watch?vXZerpRG2xvk>

Another feature of this professional activity was that he was increasingly asked to pose for various magazine ads, particular for the premier publication of the genre, Transworld Skateboarding Magazine. His good looks and style were a powerful asset in this regard. As he pursued his body-building pastime, he became even more popular as a model. But he was not enough of an extrovert to promote this aspect of his career and so this interest also faded.

One thing that provides some small comfort is that during his short life Patrick did enjoy two special relationships. From a very young age Michele Landi and he were close friends; Michele's family represented a second (and perhaps more forgiving) home for him and he spent a great deal of time in that loving environment. Michele's father, Mike Landi, was like a second father and I shall always be deeply grateful to Mike for all he did for Patrick. Later in his life when he and Michele drifted apart, Patrick formed a close relationship with another lovely young woman, Marcela Medina. After his death, Doreen and I helped Marcela graduate from the Fashion Institute of Design and Merchandising (FIDM) in Los Angeles and she went on to a successful career in the fashion industry.

About 1994 his interest and involvement in skateboarding began to wane. Though he was briefly energized by an association with friends in a new company called The Firm for whom he appeared in a promotional video and on several



Transworld Skateboarding Magazine Advertisements.



Left: Michele Landi. Middle: Mike Landi & Patrick. Right: Patrick with Marcela Medina.



Some post-skating activity.

skateboards, his earlier single-minded focus had abated. His interests began to shift to body-building, to golf and to his new car, a Honda he acquired after the engine in his VW van burnt out. He still lived at home, in the large room above the garage in the rear of our property in Sierra Madre. He still occasionally participated in family activities. I remember taking him on a special father/son trip to England and Ireland where he visited family (and the grave of St. Patrick). He and I hiked to the top of 10,000ft Mount Baldy in the San Gabriel mountains. We frequently played golf at which he was much better than me. He began to take classes at Pasadena City College (PCC) in order to catch up on his lost

schooling; he even tried out and briefly played on the PCC football team though only until he reformed his dislike for team sports. His life seemed ready to assume a more adult existence though he continued to acquire speeding tickets and was involved in an accident at a street-racing event that ended in a hospital stay (in 1996).

* * *

In the early morning hours of Feb.1, 1997, we were awakened by an insistent knock on the door. A policeman asked us to be seated and I remember the trepidation with which Doreen and I sat side-by-side on the couch in the front room. Without further delay the policeman and his female partner told us that Patrick had been killed in a single vehicle automobile accident on New York Drive, just about a mile away. I simply could not believe it and insisted that it must be someone else. As the appalling news sank in, I stood up in a trance unable to absorb it. Doreen seemed beyond words. I cannot be sure how the next hour or two passed. I had to have called Dana and Kathy. We wondered where Marcela was, only to realize that she must be asleep in their bedroom above the garage. I knocked on the door until she woke and then brought her into the house before telling her the news. Other details are lost in the haze of shock and grief. Eventually Kathy and her then husband, Samer, came to the house. I then did something I deeply regret. I asked that they drive down to the scene in New York Drive to evaluate the situation. This was very cruel to Kathy and I can only make the excuse that I was not in my right mind. They came back with a gruesome description of the scene. Apparently Patrick had lost control of the car while driving at a very high speed on an empty stretch of road in the middle of the night. The car had struck a concrete light pole with such violence that the car was literally sliced in two, one half ending up in a parking lot beside the road. In the process Patrick had been thrown from the car and died instantly from a head injury probably incurred at the moment of impact.

The hours and days that followed remain a nightmarish memory. My brothers and Doreen's sisters flew all the way from Ireland to help us with our grief. We chose a burial plot high on a hill in the Rose Hills graveyard in Whittier. I made a trip alone down to the Los Angeles Coroner's office where I had to identify the body, an awful duty that will remain in my mind forever. The body was then transferred to the Rose Hills mortuary where we arranged an evening viewing prior to the day of his funeral. His friends all came and deposited little mementoes in his open coffin. After they departed Doreen and I had a minute alone with him before leaving. I will never forget the morticians starting to close the coffin as I shut the door to the viewing room. At his birth I had been the first to see him as his head came into the world and I was the last to see him as they closed his coffin. The next day we had a memorial service in a local church at which a number of his friends spoke, including Marcela. Their thoughts and willingness to voice them were a great comfort to us. There followed the burial at Rose Hills at which a Highland Piper played Amazing Grace. Huge bunches

BRENNEN — Patrick E.T. Brennen, age 23, was killed in a car accident on February 1, 1997, at 4:00 A.M. The accident occurred on New York Drive between Sierra Madre Blvd. and Altadena Drive. 'Waters on a starry night, Are beautiful and fair; The sunshine is a glorious birth: And yet I know where'er I go, That there has passed away a glory from the earth.' Henry Wadsworth Longfellow; 'Patrick I am not sure you ever realized just how much I loved you. But, every time you hugged me all my other troubles seemed so slight. And that joy will be with me for the rest of my life.' Dad; 'I have lost a friend who always has a place in my heart. It was a pleasure to have known him. I respect him far too much to ever forget him.' David Z.; 'Pat and I talk about the future and about building a new ramp. I smile as Pat and Damon leave in Pat's car, today it makes me cry.' Paul M.; 'Pat was a true friend. You had a passion for life and an unmatched devotion to friendship. You will be greatly missed but never forgotten.' Lyon K.; 'Pat-I have known you for half of my life. We have always been there for each other, for the good, the bad, and all those steps in between. I shall always remember you, and you will never leave my heart.' Ekim C.; 'A security blanket to some, a 'super hero' to others, a celebrity to many, an irreplaceable friend to me. A heart of gold and a passion for life, with all of its glories. I will always love you.' Damon M.; 'Dear Pat, It's hard for me to accept that you're gone, as it is for everyone else. You were like a big brother to me. I am going to miss you. I'll have you in my thoughts forever. Watching over your family...peace and love.' Jason K.; 'Pat.

accepting the fact that you have gone to a better place satisfies my soul. I hope you are happy. You played a big role in my life and you will never be

forgotten.' Jaime D.; 'I don't think any words can express what my feelings are for you. You are truly the love of my life. You will forever have the key to my heart. I will always yearn to see you again. I love you...always.' Marcela M.; 'I want more than anything to emulate Pat's dedication to the things he loved. I admire him so much and I know that I will never know anyone as great.' Dylan H.; 'When some people become lost or troubled they look to God. If I became lost or troubled I looked to you. You were my guardian angel in life and now in death. I love you.' Eric 'E-Dub' H.; 'Pat you are one of the best friends a man could have and you will be missed. I'll keep it all together for you. I'll see you one day.' Jason B.; 'My love for you grows stronger every day, your every laugh, your every smile. It's hard to believe that a very special part of my life is gone. I miss you already. I cry because I remember every moment that we shared together. This pain I feel is a constant reminder that I will never be able to hold you again. I love you' Michelle L.; 'Patrick was dear friend to all of us. We Miss you....love you.' Brian and Lori; 'Patrick you touched everyone so deeply, that your spirit and memories live in us forever. Though now you are in the arms of God, life here will never be the same, without you.' The Landi's; A few words by close friends and family. Patrick, we will all love you....Forever. Closed services will be held February 6, 1997 at Rose Hills Memorial Park.

Obituary in Pasadena Star-News, Feb., 1997.



of flowers had been left by the casket that Doreen, Dana, Kathy and I kissed as we left. The next morning was probably the worst for me. Doreen and I drove back to the Rose Hills where we found a pyramid of flowers above the grave site. With no-one else present, Doreen finally lost her composure and collapsed into the mass of flowers, weeping uncontrollably. It must have been an hour before I could get her to her feet and take her home.

Only a few scattered memories remain of the weeks that followed. I had to go to the Pasadena Police Station to recover the belongings they had collected from the scene of the accident. Though I was not required to do so I went to the wreckers yard to inspect the two halves of his car and to collect a couple more mementoes. We sifted through all his belongings as a way of maintaining some small connection of comfort. Brothers and sisters returned home to Ireland and Dana and Kathy went back to their children and their work. In this time there were a few pleasant surprises among the grief. My friends and colleagues at Caltech were incredibly generous in setting up a memorial fund for Patrick at the Caltech Credit Union; these monies were ultimately used to put Marcela through her degree course at FIDM. I visited Rose Hills almost every day and cried every time. Often red-tailed hawks would soar overhead and I would think of them watching over me to ensure that I took care of those he loved. His friends also started an impromptu memorial at a lamp post in the parking lot where his body had come to rest after the accident. I also visited that site on a regular basis and even attached a little brass plaque to the lamp post that, quoting the words of the poet William Wordsworth, read "Patrick Brennen, May 9, 73 - Feb 1, 97,there hath passed away a glory from the earth". This lamp post memorial came to have greater meaning for me than the grave site at Rose Hills, at least until Doreen's death and burial.

Eventually, Doreen and I settled into a kind of twilight existence though her health continued to decline until her untimely death. Patrick's memory was kept alive by his remarkable skateboarding accomplishments during his life. To this day, there are You-Tube videos and magazine articles extolling his feats. Wherever we would go in the world, kids on skateboards and people in board shops, some as far away as Perth, Australia, would remember his name and his deeds. It is an extraordinary legacy; his legend will live long after the rest of us are forgotten.

* * *

Now, fifteen years later, I finally try to put this, the most difficult, most heart-rending chapter down on paper. The hope was that it would bring some solace, some easing of the pain. Yet rather than facing my own feelings, I seem to have evaded the most brutal introspection by busying myself with the collection of articles, photographs and videos, recounting the facts rather than embarking on a thorough description of my own thoughts and feelings. Maybe this is because such an honest self-evaluation is simply not possible without serious emotional and psychological repercussions. It would be like tearing great scabs off my heart and leaving me to bleed to death. This is what happened to Doreen who never came to terms with the tragic events and died of a broken heart. I think that, quite unconsciously, a very basic self-preservation reaction turned me to other thoughts. One such that I voiced in vain to Doreen was that Patrick would most have wanted us not to indulge in self-pity but to do all that we could to help those whom he loved, Michele and Marcela, his sisters, and his friends. But I will always believe that there were many things I might have done to save his life and that of Doreen. I could have insisted that he raise the chassis of his car (he had lowered it close to the ground in the fashion of the time) so that it would not contact the ground. I could have done more to improve our relationship and done more to appreciate the great skill he had developed. I could have made Doreen visit the doctor earlier despite her reluctance to do so. Ultimately, for my own well-being I had to come to terms with this self-recrimination. And so, eventually and painfully, I moved on, knowing that there would always be a hole in my heart, but also knowing that there had to be more life to live, more to do for my daughters and their children, more relationships to value, more emotions and adventures to experience. But the streeteagle will always have a very special place in my heart.

* * *

Postscript: Article in Transworld Skateboarding Magazine, May 2, 2007:

Moonlight Sonata

by Mackenzie Eisenhour

“For reasons that are difficult to pin down, skateboarding has lost an abnormally large number of its finest practitioners in the most untimely of fashions. People as diverse as Jeff Phillips, Keenan Milton, Phil Shao, Tim Brauch, Kit Erickson, Harold Hunter, Mike Cardona, Pepe Martinez, Justin Pierce, Joe Lopes, Sean Miller, Mike De Geuss, Ruben Orkin, Curtis Hsiang, and so forth - all greats of skateboarding who were lost all too soon. This article will focus on one such loss-that of Pat Brennen - but more so will celebrate what he did bring us during his life on a board in the form of two

landmark video parts, most notably his incredible series of lines in Powells ninth video, *Celebrity Tropical Fish* (91).

After riding for Motobilt Airtool and then a revamped Alva team alongside Ronnie Bertino and Adam McNatt, the Pasadena, California born and raised Pat Brennen wound up on Powell Peralta by early 1991. According to Lance Mountain, "After he skated my mini ramp, I might have talked to someone at Powell. He might have got on through Adam McNatt and the Quartermaster contests, or a little of all of that."

Almost immediately after earning his spot on the Bones Brigade, Pat made a huge impact with his standout part in *Eight* (91), which included a whole Rose Bowl Parade worth of raw street combos, including an impossible over a fire hydrant in a line and a casual manny to 360 flip out. His part showcased his local homegrown spots and stapled him in as one of Powells fastest-rising stars and their best hope of fending off the impending war with street-skating-based competitors H-Street and World Industries.

Later that year, with his *Eight* part still fresh in peoples minds, Brennen put together his masterpiece part to the tunes of Beethovens "Moonlight Sonata" and simply drew circles around what was considered cutting-edge street skating at the time. Nollieing up to and noseblunt sliding ledges when most were still on curbs and mixing laser flips, Rick flips, and front-foot impossibles into ten-trick lines involving multiple benches and sets of stairs fittingly to the song - skating for the most part in the dark Pasadena nights - Brennens CTF part is a must-see to this very day. Closing out with a banger of a late backside 360 shove, Brennen seemed poised to become the reigning street-tech and ledge champion along with the likes of Jason Lee, Mike Carroll, and later Eric Koston.

Friend and later Firm teammate Keith Gruber sums up Pats approach to skating: "Pat was generally very focused in his day-to-day skating. He liked to be pushed and benefited from the camaraderie." However, by Powells next video, *Hot Batch* (92), Brennens part contained only a dozen or so single tricks, and his dominance on a skateboard seemed to have hit the brakes slightly. Lance elaborates: "After his VW vans engine burned out, he bought a new black Honda Prelude. Slowly, he started to modify it as his interest in street racing began to develop and as his budget permitted. In the early portions of his transition, he just had a modified exhaust. In the later days, he removed the passenger seat to eliminate weight."

Bitten by the bug and adrenaline rush of street-car racing, Pat gradually spent less and less time on his skateboard. He returned briefly to the public eye in a segment of a Firm 411 Industry Profile section in the mid-90s after joining Lances company, but that footage

would be the last glimpse the collective skateboard world would get of Brennens still-impressive talent.

After suffering a car crash in his Prelude in 96 that resulted in a hospital stay, Pat crashed again in a new car nearly a year later-this time fatally. At 4:00 a.m. on February 1, 1997, Pat Brennen died of head injuries sustained, and one of Pasadenas all-time greatest gifts to skateboarding was forever lost. According to Lance, with Pat a home town hero to nearly every skater and friend in the area, after his passing many now proudly wear an Irish clover "Brennen" tattoo in his honor. Rest in peace, Pat.

Chapter 38

ZION NARROWS

“The Indians call the canyon through which it runs, Mukun’tuweap, or Straight, Canyon. Entering this, we have to wade up the stream; often the water fills the entire channel, and although we travel many miles, we find no flood plain, talus, or broken piles of rock at the foot of the cliff. The walls have smooth, plain faces, and are everywhere very regular and very vertical for a thousand feet or more ...”

From “Canyons of the Colorado” by John Wesley Powell.

The North Fork of the Virgin River begins high on the 7000-8000ft Markagunt Plateau in southwestern Utah, about a hundred miles north of the Grand Canyon. In these early reaches there is little that distinguishes it from hundreds of other streams that gather water from the summer thunderstorms and the winter snow melt and help irrigate the rolling hills, meadows and forests of the sparsely populated, open sky country of that high plateau. The spectacular nature of the North Fork only becomes apparent if you follow it to the edge of the plateau, where it has carved a chasm 2000ft deep into the Markagunt and created the truly spectacular canyons of Zion National Park. For about 16 meandering miles that chasm is an incredibly narrow “slot” canyon, in places only 20 to 30ft wide with vertical walls rising out of sight on both sides. Later it broadens to form the wider, yet still awesomely vertical canyon visited by those who drive up from the south entrance to see Zion National Park by automobile. But to really experience the magnificence of the North Fork of the Virgin, you must venture into the narrow, storm-sculpted sandstone gorge they call the Zion Narrows. With its raging rapids, its soaring, fluted walls and hanging grottoes it is a rare and awesome place.

The best way to make this pilgrimage is to begin high up on the Markagunt Plateau, north and east of the Park, and to follow the river all the way down through the Narrows to the point where it emerges into the broader canyon of Zion National Park. Though it is marginally possible to accomplish this in

one very long day hike, it is clearly preferable to overnight in the canyon. This requires a permit from the Park Service and the allocation of one of the ten small campsites that are located along a central stretch of the canyon where there are occasional spots of accessible high ground.

There is, of course, danger involved in that adventure for the storms that sculpted the Zion Narrows still occur and the slot canyons still focus the runoff and create raging flash floods that crash through the canyon sweeping all before them. The bare rock of much of the surrounding land does not absorb much water and the steepness of the terrain accelerates the runoff. Worse still, there are miles of canyon in which there is little or no accessible high ground where hikers can seek refuge from these floods. The Park service posts stern warnings about this danger and issues flash flood alerts but these efforts cannot eliminate the risk. During a flash flood the water level rises almost instantaneously - within minutes or even seconds. The hiker must not only find high ground in any local rainstorm but must also be aware of the flood potential of quite distance storms. Thus he or she must be alert to the other signs of a possible flash flood such as rapid increase in the muddiness of the water or the roar from the upstream flow. Because of the danger in the Zion Narrows, the Park Service does not issue permits to hikers until the day before the intended hike and suspends the process when thunderstorms are imminent.

A second, less obvious danger in this adventure is the possibility of hypothermia. For more than half of the length of the hike, there is no alternative but to hike in the river itself. While this is usually no more than about a foot deep, there are places where it is necessary to wade through chest deep pools and once or twice you must swim. This means that the hiker is wet for a substantial fraction of the time ("wicking" clothing of polyester or similar material is essential) and, since the sun does not penetrate the depths of the Narrows very often, prolonged coldness can lead to serious hypothermia even in mid-summer. At other times of the year, a wetsuit is essential.

One July day in 1998, I set off to hike the Zion Narrows with Troy Sette, Clancy Rowley and John Lim. Troy and Clancy were veterans of adventure hikes in southern California and the Sierra Nevada; John was a relative novice. I left home the week before to do some hiking elsewhere in Nevada and Utah. On Monday, July 27, I was high up on the summit of 11,918ft Charleston Peak in southwestern Nevada when I witnessed a very violent thunderstorm on the eastern horizon. The lightning of this storm flashed across the distant sky with an intensity that frightened me off the summit. But I thought little more about this common summer occurrence in the southwest until I arrived in Zion National Park some three days later, on the afternoon of Thursday, July 30. As the advance party, I had volunteered to reach Zion early in order to secure the permit from the Visitor Center in Zion National Park and to set up camp. I planned to obtain the permit for our Saturday departure, first thing on Friday morning. However, when I arrived at the Visitor Center on Thursday evening, it was disconcerting to find the following cutting from the Salt Lake Tribune prominently displayed on the notice board:

The Salt Lake Tribune, Wednesday, July 29, 1998:

Hikers Find Body Floating In Virgin River

Hikers in Zion National Park discovered the body of an apparent drowning victim floating along the north fork of the Virgin River on Monday night. Officials believe the man had been hiking in the southwest Utah park along the Narrows, a canyon through which the north fork of the river runs, when he was swept away by swift currents caused by a flash flood Monday afternoon. About 14 hikers, stranded by the flood, saw the body floating down the river and recovered it Monday evening. Early Tuesday morning, the group was able to hike out of the area and told a park ranger about the body, said Denny Davies, a park spokesman. The National Park Service Search and Rescue squad carried the body out Tuesday, but investigators were unable to immediately identify the man. "There was no identification on the man, and we haven't heard any reports about a missing person," Davies said. Washington County Sheriff Glenwood Humphries said the body had been badly beaten by rocks in the river. The man is described as a male in his 40s between 230 and 250 pounds.

Davies said the north fork of the Virgin River rose about three feet due to the torrential rains that hit the area Monday afternoon. He estimated the river flows increased from 110 cubic feet per second to 740 cubic feet per second by 7:30p.m. The Narrows was named because the canyon narrows to between 20 and 25 feet in some areas. Park rangers have warned it is dangerous to hike in the area when flood potential is high in July and August. "Because the canyon is so narrow, there are not a whole lot of escape routes when there is a flash flood," Davies said. National Weather Service meteorologist Bill Alder said Zion National Park headquarters received .47 inches of rain late Monday afternoon, while Lava Point area, just west of the Narrows, received about .37 inches.

The Salt Lake Tribune, Thursday, July 30, 1998:

Second Body Pulled From Virgin River

Searchers pulled the body of a second California man from the north fork of the Virgin River in Zion National Park Wednesday where a flash flood apparently swept both men to their deaths. The body of Ramsey E. Algan, 27, Long Beach, Calif., was located Monday evening by several stranded hikers. The group was able to hike out the next day and alert park rangers. Wednesday morning, about 1 1/2 miles upstream, the body of Algan's hiking partner, Paul Garcia, 31,

Paramount, Calif., was found by search and rescue workers. Both men had apparently been hiking along the Narrows, a slot canyon in which the north fork of the river runs, when they were swept away by swift currents caused by a flash flood Monday afternoon. Officials had no idea that Algan had a hiking companion until late Tuesday night when officials found the victim's car, said Denny Davies, park spokesman. "Rangers found an unlocked car with two wallets inside, which contained both men's identification," he said. Later, other hikers who had been in the Narrows and survived identified Algan from his license photo. The same hikers also said another man who fit the description of Garcia was with Algan before the rainstorm hit. A search was initiated Wednesday at 11:20 a.m. The body was caught in the river's debris, Davies said. He said the north fork of the Virgin River rose about 3 feet due to torrential rains Monday afternoon. He estimated the river flows increased from 110 cubic feet per second (CPS) to 740 CPS later that night. National Weather Service meteorologist Bill Alder said Zion National Park headquarters received .47 inches of rain late Monday afternoon, while Lava Point area, just west of the Narrows, received about .37 inches.

The Zion Narrows route is a rugged 16-mile hike in a narrow canyon 800 to 1,000ft deep. About half the hike is through the river itself. Park Managers have cautioned people that they should avoid hiking when the flood potential is high, especially during July and August. Hikers are also strongly urged to get updated weather information in any narrow or slot canyon, particularly when afternoon thunderstorms threaten. "We cannot stress too strongly that visitors need to heed these flash flood warnings and plan alternate trips that don't include slot canyons," said acting superintendent Eddie Lopez. These are the first fatalities in Zion National Park this year. Alder said since 1950, there have been 22 flash flood fatalities in Utah.

I suspect that these press clippings and the whispered conversations they produced resulted in the very short queue for permits when the Visitor Center opened at 8.00am the following morning. I was second in line behind two men and a woman who had hiked the Narrows the previous year and were returning to do so again. That was reassuring. Behind me came several men bound for the other popular wilderness hike known as "the Subway", followed by an easterner called Neal Litman who intended to hike the Narrows with his wife and two children. That sounded a dubious proposition to me and subsequent events were to confirm this instinct. But at the time I was too intent on our own plans to dwell on the intentions of others. When my turn came, I was duly warned of all the dangers, told where I could park and where I could not and was issued a permit for the Zion Narrows hike. In the process, I was allocated one of the twelve numbered campsites in the Narrows and chose Number 7, Boulder Camp. Late that evening, Troy, Clancy and John arrived and we were ready for our Zion adventure.

We arose at dawn the next morning and sorted out our equipment, trying in the process to minimize our backpacks while ensuring that we were equipped for all eventualities. Since the weather forecast indicated little chance of rain (and therefore the posted flash flood warning was low) we decided not to carry a tent but to rely on a large ground sheet for emergency cover. Preparations complete we set off up the road into Zion Canyon. That road ends at a spectacular amphitheater known as the Temple of Sinawava, a busy and popular place for visitors to the National Park. Many of these tourists park and then walk along the asphalt trail called the Riverside Walk that penetrates another mile into the Virgin River Narrows. The trail ends where the river fills the canyon, but many of the more adventurous wade further upstream, some for several miles to the truly awesome section of the Narrows.

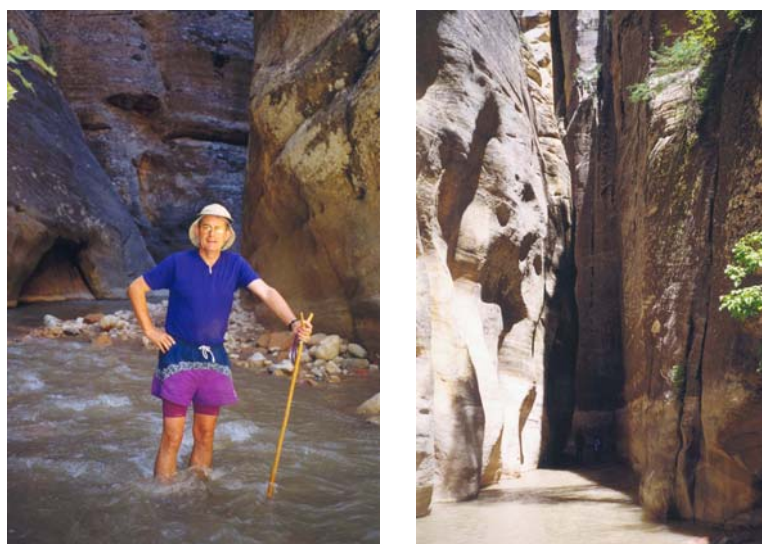
But we had a more ambitious objective and therefore, after parking and securing my Mitsubishi Montero near the Temple of Sinawava, we loaded all our packs into Troy's Nissan Pathfinder and headed back down the Zion Canyon Road. At a road junction in the Park we turned left and headed eastwards bound for the trailhead in Chamberlain's Ranch on the Markagunt Plateau to the north and east of Zion National Park. This 1.5 hour drive begins as the spectacular Zion-Mt.Carmel Highway climbs the east wall of the Zion Canyon before exiting the Park. About 2.5 miles beyond the East Entrance to the Park, we turned north on a paved road that changes to dirt after several miles. The road winds its way across the plateau and then descends to cross the Orderville River, climbing again and cresting a ridge before descending to a bridge that crosses the North Fork of the Virgin River. The distance from the main highway to this bridge is about 18 miles. The dirt road turns right after the bridge, but we turned left and, after 0.25 miles arrived at the gate to Chamberlain's Ranch. The owners are kind enough to let hikers pass through as long as they are careful to close the gate behind them. After this, it is another 0.5 miles to a rough parking area at the trailhead situated just before the road fords the river.

It was a beautiful, crystal clear day on the high plateau and our spirits soared with the expectations of a new adventure. The remote ranch land on which we found ourselves was delightfully bucolic, a gentle river valley with a stream and rolling pastures surrounded by low, tree-covered ridges. Soon we were ready and strolled easily along the rough dirt road as it paralleled the North Fork on the route westwards. About 50min from the start we passed an old wooden structure, Bullock's Cabin that may have once served as home to some proud pioneer but had long since been converted to a shelter for the ranch cattle. Soon the pasture land and the road ended and the valley sides began to close in as the Virgin River cut more deeply into the Markagunt Plateau. This stretch provided a beautiful and serene hike on a lovely summer day. A well-worn use trail made progress easy though the river crossings increased in frequency and difficulty.

Two and a half hours from the trailhead we heard voices ahead of us and soon came upon Neal and Kathy Litman and their children, Jackie (aged 11) and Ben (aged 8). They were enjoying a rest beside the stream. Having taken the 6.30am shuttle bus from Zion Lodge to the trailhead, they had started hiking



Left: Bullock's Cabin. Right: Upper Canyon.



Left: Entering First Narrows. Right: First Narrows.

about an hour before us. They seemed to be enjoying the surroundings as much as we were though Neal's apparent difficulty with his water filter was a worrying omen. Experience had taught us the critical importance of water filters in the deserts of the southwest and so we carried at least two. We learned that the Litmans were from the east coast and that they had been planning this trip west for a long time. I wasn't at all sure that they realized the magnitude and lack of forgiveness of the western wildernesses. I suspected that it would not be the last we saw of them; I learned that they were bound for Camp 9 and made a mental note to make sure they passed our Camp 7 later that day.

Soon the walls became vertical and the valley was transformed into a classical "slot" canyon with fantastic sculptured walls and cool grottoes. Three hours

from the trailhead, we found a very pleasant, sunny bench for our lunch stop and, in no hurry, took some additional lazy time to enjoy the marvelous surroundings. As we did Neal and Kathy and the kids repassed us moving at a good pace. Clearly they were practiced hikers even though they were now in a new and different land. So, when we resumed our hike at a leisurely speed they kept pace with us. Shortly thereafter (3.5hrs from the trailhead) the width between the walls closed in so that, in places, they were as close as 20ft. We had arrived at the first narrows. Experience in other canyoneering adventures had taught us that such narrowing was almost always accompanied by waterfalls and places where progress downstream required climbing. But, with a few modest exceptions, this was not the case in this Zion canyon. For much of the way, the river occupied most of the width of the canyon bottom and the sediment carried by its frequent flash floods is apparently sufficient to even out the longitudinal grade to one that only produced small cascades. Even these seemed temporary having been formed by logjams.

About 5hr from the start we came across just such a logjam that was easily climbed. It was somewhat disconcerting that Neal and Kathy were initially somewhat intimidated by this obstacle that seemed a minor one to us. Perhaps it was the pool downstream of the jam that alarmed them since, given the murkiness of the water, it was not possible to tell how deep the pool was ahead of time. They seemed reassured when we helped escort the kids through this obstacle.

Just a short distance downstream we came upon the only substantial waterfall on this hike, a vertical drop of about 15ft in a very narrow section. Fortunately, a crack in the rock off to the left provided an easy passage around this otherwise difficult hurdle. By now it was becoming apparent that the experience Troy and I had acquired navigating routes down wilderness canyons was going to be valuable to the whole group and that without such experience, the hike would be much more difficult and time-consuming. So we naturally fell into a mode in which Troy and I would take turns leading the group and exploring ahead for the best route through the boulder-strewn cascades and the deep pools.

It was about this time in mid-afternoon, that I began to notice John falling behind us despite the slow pace set by the Litman family. Soon it was evident that John's lack of hiking experience was going to be a problem. Despite his youth and his soccer-playing fitness, his legs, unused to travel over such rough terrain, were giving him considerable difficulty. Indeed, his pace slowed so dramatically that the Litman family began to pull ahead of us and we had to relieve John of his backpack. Troy and Clancy carried most of the added burden. We fashioned two walking sticks for John and treated his pain with Motrin. In this adjusted mode we soon caught up with the Litman family again. I had no doubt that Troy, Clancy and I would make it through the Zion Narrows; however, I was beginning to wonder if we could carry all the others with us.

Shortly after the waterfall, we came upon the woman and two men who had been in front of me in the Visitor Center queue and who had traveled on the 6.30am shuttle with the Litmans. Having come this way before, they

seemed relaxed and comfortable. Together we arrived at the readily recognized junction where Deep Creek joins the North Fork from the right. We paused at the relatively broad beach in the middle of this cathedral-like junction, towering vertical walls on all sides. Just upstream of this point we had swum through a deep pool and so we needed a moment to warm up especially since the light and the warmth in this deep recess had already begun to wane at the end of the day. It was now 6.5hr since we had set out from the trailhead.

Deep Creek has a significantly larger volume flow rate than the North Fork and so the river downstream of the junction is notably deeper and harder to hike through. By now both John and the Litman kids were beginning to show signs of serious distress. However, the goal for the day was within striking distance. The numbered campsites begin at the Deep Creek junction. Number 1 lay in a slight rise just to the south and we could count our way down as we approached our assigned spot. About 40min later we passed the junction where Kolob Creek enters from the right and just a few minutes later arrived at our campsite, Number 7 or "Boulder Camp." Unlike some of the earlier camps that did not seem high enough above the river for comfort, Boulder Camp was up a wooded slope, a reassuring 20ft or more above the river. A very comfortable site, it also included a large overhanging rock that would provide ample shelter in case of rain. A deer was sitting only yards from our site and seemed quite undisturbed by our presence. In addition to the small flat area intended as Number 7, there was another cleared area just a few yards away. When the Litmans struggled by a few minutes later, I suggested that they should stop at this ancillary campsite instead of continuing on to Number 9. They jumped at the chance to spent the night close to us.

Thus we all prepared for the night at Boulder Camp. We spread our lightweight tarp out under the overhang and were therefore well prepared for any change in the weather though none seemed likely. Our sleeping bags would keep us plenty warm. On the other hand the Litmans had chosen to bring a tent but no sleeping bags, fearing rain more than cold. I think they spent a miserable night huddled together in their tent. We were able to help them with our water filter and gave the kids some snacks. Indeed the kids seemed to gravitate toward our camp, drawn perhaps by the sense of security generated by our confident demeanor. Except, of course, for John though he was recovering a little with rest and food. We ate much spaghetti followed by fruit, other snacks and, needless to say, hot chocolate. Thus warmed, we slept well in that deep recess in the earth.

Shortly after sunrise the next morning, we had eaten breakfast and packed up ready to resume our adventure. The family had little left to eat and so I gave each of the kids a poptart and cheered them along. We left camp as a group about 7.00am. Downstream of Boulder Camp the canyon becomes quite rugged. Regular stretches of white water required a practiced eye for navigation so Troy and I took turns leading the pack. We passed each of the other numbered camps, encountering in Number 10 ("Alcove") yet another struggling hiker, a young man with a badly sprained ankle. But we had more than enough on our hands and he had a number of companions to help him. So we did not

volunteer any help. Finally we passed Number 12 ("High Camp") and, 300yds later arrived at Big Springs, a notable feature in which a very substantial stream issues from springs in the right canyon wall. Ferns and other greenery adorn these springs and make it a pleasant place to stop. We reached Big Springs about 1hr 30min after our morning start.

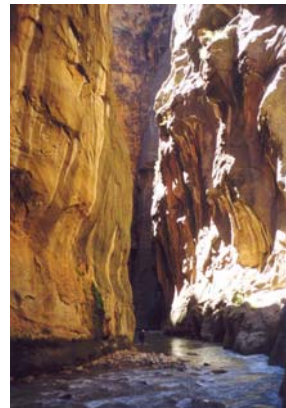
Up to this point, though the towering walls soared over 2000ft above us on all sides, there were still occasional places where the canyon widened and small, sloping benches of trees and ferns were scattered along the sides of the river. Often these provided the easiest route of passage downstream. More importantly, they would serve as refuge in the event of thunderstorms or flash floods. Indeed, like all the other overnight sites, Boulder Camp had been situated on such a sloping, wooded bench. However, downstream of Big Springs, the canyon walls close in even further and the river and its gravel beds fill the entire width of the slot. For more than three miles there are no benches on either side. No greenery, no refuge, and no sunlight except for a few minutes around noon. Just awesome vertical walls, running water and the gravel it carries with it. Even in mid-summer when the desert high above boils in the midday sun, down here in the depths of the Zion Narrows it is cold and wet and you must keep moving to prevent hypothermia.

We left Big Springs as a group a little before 9.00am and began our passage through this most dramatic section of the Zion Narrows. Because the risk of unexpected thunderstorms and flash floods is least during the morning hours we felt comfortable with our timing, especially since we could make out a strip of clear blue sky high above us. Both John and the children were already beginning to show signs of weakness and cold and so we kept moving at a brisk pace. Inevitably though, Troy or I would find ourselves far ahead of the pack and have to pause to allow them to catch us. Clancy, Troy and, to a lesser degree, myself were still carrying all of John's pack as well as helping the children with the deep wades and few swims. But, above all, it was a truly awesome place and the memory of that majesty will always be with me.

It took a little over 2hrs to travel through the heart of the Zion Narrows. In all that time, we had no direct sunlight. But, just upstream of the junction with Orderville Canyon, the Narrows widen a fraction and, on the inside of a left-hand turn, we came to a marvelous sunlight beach where we stopped to warm ourselves, to rest and to snack. John was really struggling on his two walking sticks and limped onto this beach about 10min behind the rest. The children already seemed rejuvenated by the sun. A few minutes later, we encountered the first hikers coming upstream from the Temple of Sinawava; they had set out early that morning to explore the Narrows from below. That was heartening for it meant that we had only a little over 2hrs of hiking ahead of us. More disconcertingly, a young man and woman came downstream and voiced concern about people they had encountered the previous day. Those people had started late because they rode from Zion Lodge to Chamberlain's Ranch on the 9.30am bus. Two of these people, it was reported, had balked at the log jam like the Litmans. Moreover, they had not shown up at their campsite in the evening. The young couple wanted us to report this to the rangers.



Left: Waterfall. Right: Near Deep Creek junction.



Left: Big Springs. Right: Zion Narrows.

Consulting privately later, Troy and I decided that there was insufficient cause for alarm. Surely, changes of plans like this must happen every day; most of the hikers we encountered had seemed unprepared for the ruggedness of this western wilderness. It was perfectly possible to hike back to Chamberlain's Ranch from the location of the logjam.

About 11.20am we left our sunny beach and plunged again into the shade of the Narrows. Almost immediately we encountered the junction with Orderville Canyon, a narrow slot entering on the right. The previous day we had crossed the upper reaches of Orderville on our drive to Chamberlain's Ranch and the descent of Orderville Canyon is another adventure to which would return. So I was not inclined to explore upstream into Orderville but pressed on downstream. Shortly thereafter, Troy, Clancy and I conferred. Since, more and more people were appearing from downstream and help would be available if needed, we decided that Troy and I would press on ahead leaving Clancy to accompany

John and the Litmans at their pace. This would allow Troy and I to drive back to Chamberlain's Ranch to collect Troy's vehicle.

A short distance downstream of Orderville junction, the canyon broadens a little and the wooded benches appear again. Sunlight penetrates and it is a beautiful hike downstream to the point where the concrete Riverside Walk ends. Now there were crowds of people enjoying the canyon and the adventure of a short hike up into this wilderness. The sun and the beauty stirred my soul and my bones and the pack seemed to lighten on my back as I walked that last mile behind Troy. When we reached the Riverside Walk at 12.20pm we shook hands, communicating our shared pleasure in another marvelous adventure.

We drove uneventfully to Chamberlain's Ranch and there parted company. I was bound for the east to hike in Bryce Canyon. Troy drove back into Zion to collect Clancy and John at the Temple of Sinawava. I was only later to confirm that all ended well for both John and the Litmans. But I often wonder if either realized how narrow their margin of safety had been during those days in the Zion Narrows.....

Chapter 39

SALOME INHERITANCE

*“What seas what shores what grey rocks and what islands
What water lapping the bow
And scent of pine and the woodthrush singing through the fog
What images return
Oh my daughter.”*

From “Marina” by T.S. Eliot.

Out in the Arizona wildlands, beyond the end of the Apache Trail, on the far northeastern side of Roosevelt Lake, is the remote Salome Wilderness. It is rugged mountainous country, a land of rock and cactus where the summer temperatures soar into triple digits and all man’s ingenuity is needed just to survive. Water is king here and the winter storms create ribbons of life that manage to survive through the baking heat of the summer sun. Over one large area in the Sierra Ancha mountains, the rain funnels down into a stream known as Salome Creek. On its way southwest toward Roosevelt Lake, the creek has had to cut its way round the base of the great rock monolith called Dutchwomen Butte. In doing so, it has carved deeply into the pink and white sandstone to create a fantastic, mile-long ravine known as the Salome Jug. This narrow, vertical-walled jewel of a canyon makes for one of the most marvelous canyoneering experiences anywhere in the world. The descent requires almost continuous wading and swimming through ravine-filling pools, interrupted by numerous waterfalls and cascades. It is not a place for the faint-of-heart.

I had read about the Salome Jug in a number of hiking guides and had been intrigued by the lyrical descriptions of this special place. In at least one instance, the author of the guide was reluctant to describe the location of the Jug because of fears it would be over-used. To me this simply added to the fascination. Then, one winter, I was visiting my younger daughter, Kathy, and her family in Scottsdale, Arizona. I had been reading Tyler Williams excellent guidebook entitled “Canyoneering Arizona” and left it on the living room table

when I opted for an early night. Later that evening, unbeknownst to me, Kathy picked up the book and started to flip through it. Coincidentally her attention was drawn to the description of the canyoneering descent of the Salome Jug and, the following day she asked me rather tentatively whether it might be possible for her to explore that place.

That moment was, for me, one of great exhilaration. In the preceding decade I had many times idly hoped that I might be able to enjoy one of my more spectacular adventures in the company of one of my three beloved children. Though both athletic and adventurous, the two older children, my daughters Dana and Kathy, had their own families, their own successful careers and scarcely a moment to spare. My son Patrick might well have grown to love the wilderness and did, indeed, accompany me on a tearfully-remembered climb of Mount San Antonio. But he had been tragically killed in an automobile accident at the age of 23 leaving me to forever think of what might have been.

These emotions coursed through me as Kathy and I made plans to explore the Salome Jug during the coming May when river conditions would be optimal. In the winter, the descent of the canyon is impossible because of the high water flow rate. On the other hand the river tends to dry up as the summer progresses and the pools accumulate a surface scum of green slime. Thus the best time is May or June when the flow is moderate, the water is clear and not too cold, and the air is warm enough to allow one to dry out and warm up in the sun. A few weeks before the weekend we had settled on, I bought Kathy a proper pair of trail running shoes as well as wicking clothing. Though she had never done anything like this, I knew that she was nimble and a strong swimmer. Though she had never rappelled, she seemed confident that she could learn it on the spot.

From the intersection of State Highways 87 and 188 about 60 miles northeast of Phoenix, Arizona, we drove southeast on SR 188 for 19.4 miles through the hamlet of Punkin Center to mile post 255. We turned left onto the dirt-surfaced A+ Cross Road and followed it as it dropped down into a wide river valley. After a mile, the road crossed the stream at a broad ford where the water was only about six inches deep and, after a short stretch of asphalt, we turned left to follow a dirt road again signposted A+ Cross Road. This wound in and out of various drainages as it climbed episodically along the southern slopes of Victoria Peak. Soon the imposing mass of Dutchwoman Butte came into view ahead of us to the east. Coming to the last ridge between us and the Butte, we easily located the A+ Cross trailhead and parking area on the left side of the road some 10.1 miles from SR188.

From the trailhead (elevation 3200ft), the trail headed east, winding in and out of three large gullies and bringing us closer to the shadow of Dutchwomen Butte. Though sparsely vegetated, the land is populated with cacti including giant saguaro, prickly pear, ocotillo and many smaller varieties. Now, in May, many of them were in bloom and added to the delight of our morning start. After the fourth headland about 1.8 miles from the trailhead, the trail started a switchbacking descent down a shallow draw at the bottom of which we could discern the sharp edges of the ravine known as the Salome Jug. As we reached the flatter ground above the rim of the ravine, the old jeep trail turned north

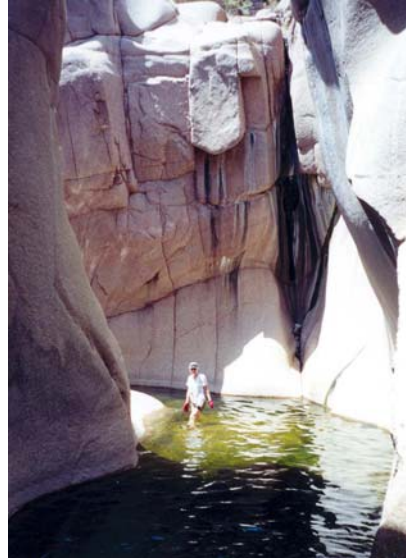
and began traveling upstream, paralleling the gorge. Soon it passed through a barbed wire fence and gate and, just beyond, we came to a flat rock shelf with marvelous views of the creek. Looking upstream we could see a series of waterfalls and pools as the stream began its drop into the slot canyon. But, we could also look straight down into a ravine-filling pool directly beneath us, the start of the Jug. We reached this point (elevation 2840ft) about 2.4 miles and just under 1hr after starting out.

The next task was to descend to the river at this upper end of the Jug. This we managed by going a short distance upstream and then climbing down through the broken cliff to a large rock overlooking one of a series of deep pools separated by waterfalls. It was clear that we had to descend into this pool and immediately begin swimming. This was the first moment of truth, the first test of her agility and resolve for entering white water like this is not for the faint hearted. But she nimbly climbed down the steep crack, descended into the water and began swimming confidently. And the first part of my trepidation evaporated. The initial set of cascades were awkward and slippery but we soon became accustomed to swimming, wading and downclimbing.

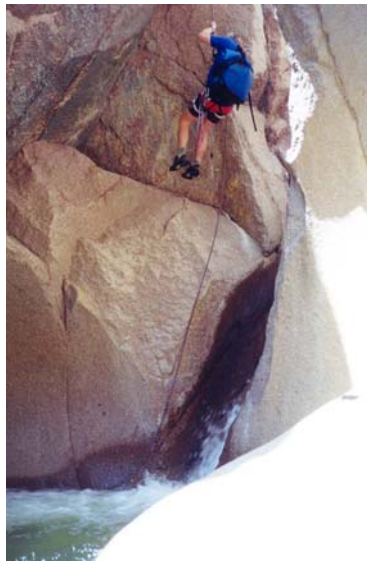
As we progressed downstream, the ravine walls grew in height and the gorge narrowed to about 20ft. The polished granite walls that rose vertically on all sides had been sculpted into spectacular shapes by eons of rushing water. It truly was a wondrous place. Some distance into the gorge, we encountered an awkward 10ft drop where the stream splits on two sides of a huge, canyon-blocking boulder. I rigged a small rappel here rather than attempting the slippery downclimb. Kathy managed to descend the 10ft without too much difficulty. There followed a succession of pools and swims before we stopped for lunch on a warm boulder beside the only tree we encountered in the gorge. Here the sun penetrated and we were able to rest and warm ourselves.

Nearing the end of the Jug, where the walls of the gorge reach their maximum height, we came to the major obstacle that I was anticipating with considerable trepidation. Here the stream drops alarmingly through a narrow slot to a large pool that stretches away down the gorge. Because there are few features of recognizable dimension, it is hard to judge the magnitude of this drop. Though only about 30ft, it looked much larger and quite intimidating when viewed from above. I could tell that Kathy saw this as an obstacle of significantly greater magnitude than what we had conquered earlier. But her face showed no fear. I wondered how on earth I was going to help her to descend such a difficult obstacle when she had never rappelled before. Here she would also have to make an awkward swimming disconnect. There would be no-one at the bottom to help her since I would have to remain above her so that I could reach her should she have trouble during the rappel descent. I knew I had over-reached myself. But there was no going back now.

So I took a deep breath and studied the situation. A ledge about 6ft up the rock face on the right clearly allowed one to traverse over beyond the falls to a point where there were anchor bolts in the rock high above the pool in the cavern below. But the traverse of the ledge looked awkward and nervy since the rock face was somewhat sloped and even seemed a little slippery. Fortunately,



Left: Salome Creek above the Jug. Right: Kathy in the upper Jug.



Left: Bottom of the rappel. Right: Big pool beyond the rappel.

another bolt had been installed in the rock at the start of the ledge and a length of webbing had been stretched across between this bolt and the rappel anchor to provide the security of a handrail for the traverse over to the rappel anchor. Using this I made my way over to the anchor point to size up the options. Once there I recognized that the drop was only about 30ft and that the deep pool directly underneath would provide a safe landing if anything went wrong during the rappel. The alternative would have been to jump into the pool. But being uncertain of the depth I felt this would not be a sensible option. Therefore I set up a double-strand rappel and braced myself to help Kathy tackle the descent.

First she attached a carabiner to the handrail and slowly and carefully made her way along the ledge to the rappel anchor. I was relieved to see that she did this carefully and without any panic. So far so good. Now we were both standing awkwardly on this tiny platform at the top of the rappel. With very little room to maneuver, I hooked her in to the rope and gave her repeated instructions about how to rappel down and about how to disconnect once she was in the water. I tried at the same time to work out what I would have to do in the event of several possible misadventures. Already what she had done was remarkable; now came the crux.

So she started down. Fortunately the rappel anchor was just above us and therefore the entry was straightforward. She soon got the feel for descent. I hung out over the edge watching her intently for any sign of trouble as she lowered herself 10ft and then 20ft. At that point the rock face was undercut and she found herself hanging in a free rappel, her feet no longer in contact with the rock. That would have been enough to freak out any beginner. But she kept going, down into the churn at the base of the falls some 30ft below me. Now came the biggest challenge, to disconnect herself in this turbulent white water and swim free from the rope. I was ready to jump at the first sign of trouble. At first, she did have trouble swinging crazily on the rope, buffeted by the turbulent water. But then suddenly she was free and swimming briskly over to a broad rock shelf in a recess on the other side of the ravine. She clambered out of the water, smiled up at me and I grinned and clapped and whooped. It was a truly magnificent performance, far beyond anything I could ever have done as a rookie. In that moment, my pride in my brave daughter overwhelmed me and the relief brought tears to my eyes.

But now it was my turn. Even I struggled with the swimming disconnect in the churning water before joining Kathy on the sunlit shelf below the falls. As people often do in such circumstances, we chatted excitedly about the obstacle we had overcome in this special place while the sun warmed us.

After resting on the shelf in the recess, we surveyed the next hurdle. Ahead of us lay a deep pool that wound back and forth between vertical walls with no end in sight. Another act of courage would be needed to set off swimming through this pool with no visible destination and no staging points on either side; just smooth, vertical sandstone walls. But Kathy was ready and set off with those long, powerful swimming strokes that I remembered from her days as a competitive swimmer. I followed her as best I could and, about 50yds downstream and just around the corner, we came to a gravel beach and recovered

solid ground. But that was not the end. Just a short distance down the canyon, there was another long pool to swim, and then another. And another, but here the cliffs on both sides opened up, the pool ended and we suddenly realized that we had emerged from the Jug into a broad gentle valley. It was nearly four hours since our morning start and our magnificent adventure was coming to a close.

Emerging abruptly from the Jug, we left the stream and followed a use-trail up the steep slope in a shallow recess on the right. This trail transitioned onto a bluff and brought us back to the old jeep trail we had used on the way down. Thus we began our trudge back up the hill in the hot afternoon sun. All Kathy's reserves of energy and adrenalin had been exhausted by now and so she had a hard time covering the 2.2 miles back to the trailhead. I felt for her, remembering some of the struggles I had experienced long ago when I started hiking. Now, I simply zoned out and free-wheeled, allowing the miles to slip effortlessly by.

Most of all I remained incredibly impressed by my beautiful daughter's bravery and strength. How could I ever ask for more in any individual than she showed me that day in the Salome Jug? Yet I hope I did not demand any of it. I hope that she did it for herself for the same reasons that I so often seek to find the limits of my own frailty. I am immensely proud to be Kathy's father.

Chapter 40

THE GRAND TETON

“Every mountain adventure is emotionally complete. The spirit goes on a journey just as does the body, and this journey has a beginning and an end, and is concerned with all that happens between these extremities.”

From “The Mountaineer as Artist” (1914) by George Leigh Mallory.

In the 1920’s George Leigh Mallory was part of the British team that first tried to climb Everest and his death during the third attempt in 1924 created one of the most enduring legends of mountaineering. In 1999, a group of searchers found Mallory’s body and revived the debate over whether or not Mallory and/or his young companion, Sandy Irvine, had made it to the summit. Let me hasten to say that this story is not a parallel to those dramatic events. Rather, I have always been intrigued by Mallory’s insightful comment on the journey of the spirit that every mountain adventure creates. I am not sure that I understand why this observation is so true, but it is. One could argue that a mountain ascent is just another form of recreational exercise - like a game of tennis. But I cannot imagine that even the most imaginative tennis player comes anywhere close to the quasi-religious experience that Mallory identified. Perhaps it derives from a combination of a single lofty goal, spectacular scenery and hallucinations brought on by exhaustion. It is easier to describe by example.

The Teton mountains are spectacular jewels of rock and ice that soar into the heavens above the flat plain of Jackson Hole, Wyoming, in northwestern United States. I remember driving westwards through Wyoming in 1970 and, upon cresting the Togwotee Pass, seeing the magnificent Teton range for the first time. Piercing the western horizon, they were the most magnificent mountains I had ever seen, rugged pinnacles rising precipitously into the sky. Native Indians called them the “Hoary Headed Fathers”, but when the French trappers of the Hudson Bay Company came this way they called them “Les Trois Teton” or the “Three Tits”, a name that stuck and by which the South, Middle and Grand

Teton are now known. In 1970, preoccupied with my family vacation, I little thought that someday I would return and attempt to climb the highest of those pinnacles, the 13770ft Grand Teton. This story is about a time in the year 2001 when I did return knowing full well that I would experience my own spiritual saga on the awesome Grand Teton.

The beauty of the Teton mountain range and the area surrounding it was recognized early in the modern era when the Grand Teton National Park was established in 1929. The mountains, glaciers, lakes and abundant wildlife made it a national treasure and, today, a particularly popular destination for hikers and climbers. But the mountain was climbed long before it was claimed by government bureaucrats. The Grand was first conquered by William Owen, Frank Spalding, Frank Peterson and John Shive who reached the summit on Aug. 11, 1898, using a route that is known today as the Owen-Spalding route. Though most of this route is a matter of finding your way up steep talus slopes, the last 600ft ascent of the summit block requires technical rock climbing know-how and technique, as well as the ability to handle exposure that can be several thousands of feet in places. The climbing skills required depend very much on the weather and the time of year. When the cracks, chimneys and crevices of the summit block are lined with ice or filled with snow they present a formidable climbing challenge. But in the late summer when the route is usually (but not always) free of ice most of the climbing challenges (only a few moves above 5.4) would be modest if they were at the level of the valley below. On the other hand the weather, route finding and massive exposure add considerably to the challenge. But the awards are spectacular views of these magnificent mountains from a truly remarkable vantage point.

Somehow I knew from the outset that the days we had planned in the Tetons, though spectacular and exhilarating, would also be tinged with sadness for they marked beginnings and endings. Some of these I foresaw, others I did not. The canvas was the mountain itself, magnificent and awesome, the greatest challenge I had ever faced. Throughout those days Mallory's words kept me wondering about the beginnings and endings.

Perhaps the first beginning had been many years before in 1992 when Doug Hart and I had set out on a great mountain adventure, the first of our several efforts to climb El Picacho del Diablo (see Mountain of the Devil). Doug's strength (as well as his sore feet!) were with me then, as they were now. It was very good to be adventuring with him again after such a long time. Doug and another former student, Sheldon Green, had been mountain climbing in British Columbia and had driven from Vancouver to meet us in the shadows of the Tetons. Two other veterans of past adventures, Garrett Reisman and Simone Francis, had come to our rendezvous from the opposite direction, from Houston, Texas. After teaching me the rudiments of climbing, Garrett had gone on to other missions as a NASA astronaut. It was marvelous to see Garrett and Simone again.

But, most of all these were watershed days for one of the central figures in our canyoneering adventures, Clancy Rowley. At the end of his years as a graduate student in California, Clancy had decided to drive to New Jersey where he was

to take up a faculty position at Princeton - and he decided to detour via the Tetons. Clancy had been my trusted companion and fellow adventurer for an era of spectacular adventures. Together we had pioneered more than a dozen technical canyoneering routes in the San Gabriels; we had conquered Cathedral Peak in Yosemite, Weaver's Needle in the Superstitions and Picacho Peak in the California desert. We had traversed the wildness of the Wonderland of Rocks in Joshua Tree National Park and had explored the haunted Tenaya Canyon in Yosemite. In Utah we ventured into the deepest slot canyons of Zion National Park including the Zion Narrows, the Subway, Mystery Canyon, and Pine Creek. He had saved me by a fingertip in the wilds of the Sespe Wilderness and willed me the strength to climb out of the Grand Canyon. With my 60th birthday looming ahead, it was hard for me to envisage embarking on future adventures without Clancy. I would miss not only his strength, agility and climbing skills (for he had always led) but also his compassion, his understanding and his kindness. Though separated in age by more than 30 years, Clancy had become a boon companion. So it seemed that the Grand Teton would also be a watershed moment for me.

Clancy had driven from Pasadena to the Grand Tetons and met me when I stepped off the plane at the small Jackson, Wyoming, airport. We headed into Jackson to get some lunch and there I experienced a series of incidents that reminded me of my own beginnings and shook me to my core. We were seated in a booth in a hamburger joint perusing some of the maps and guides to the Grand Tetons that I had brought with me. After a few minutes I became aware of the family of three seated in the adjacent booth. I think my subconscious registered first but it was several minutes before I became aware of a feeling that was simultaneously strange and yet also very familiar. It was not that I had ever seen these people before. Nor were they in any way remarkable. Rather I became aware that their accents could only mean one thing, namely that they came from within 10 miles of the rural backwater of Northern Ireland where I grew up. To most Americans it seems incredible that accents could change so rapidly with distance that people's homelands can be located with such accuracy. But there was no doubt in my mind. So, at an appropriate pause in their conversation, I intruded and enquired about where they lived. Yes indeed, they hailed from the village of Draperstown, only about five miles from my home village of Magherafelt and six thousand miles from where we were seated. We chatted about common acquaintances and it transpired that they had known my father when he was the surgeon in the local district hospital. Though they did not recognize my much altered accent, they were as astonished as I was by such a remarkable coincidence. Clancy was speechless with amazement. For me the coincidence was also disequilibrating; it seemed a portent of other beginnings or endings yet to come.

Then something happened that truly disquieted me. Clancy had not taken part in the conversation but the woman looked at him and asked "And is this your son?". I was stunned as if by a gunshot. Ever since the terrible death of my 23-year-old son Patrick in a 1997 automobile accident, I have dreaded small-talk questions like "How many children do you have?". Somehow, I have

learned to struggle through them. But this one truly stunned me since it was so unexpected. I mumbled something about Clancy being a student and then struggled with parting pleasantries so that I could breathe the air outside. I would have been delighted to answer her question in the affirmative and would have done just that but for the shock of the moment and the embarrassment it would have caused Clancy. My mind raced with emotions and I was glad of the moments in the parking lot in which to recover some equilibrium.

In the subdued aftermath, we drove north past the airport and a few miles further into Grand Teton National Park. At the end of a dirt turnoff about 4 miles north of the park entrance on Teton Park Road, we located the Climber's Ranch where we found bunkhouse accommodations for the night at the remarkably cheap rate of \$6 a head. The ranch was built specially for climbers and consists of a group of cabins with a central dining shelter as well as washing and bathroom facilities. The place has great atmosphere and camaraderie; others more knowledgeable about the Tetons are happy to give help and advice. In the early evening Garrett and Simone arrived with abundant pizza and beer and it was late before we began sorting out the technical equipment we would need to carry with us the next morning. Doug and Sheldon were already high on the mountain. Having obtained the necessary camping permit the preceding day, they could not resist taking off into these beautiful mountains. We had arranged to meet them at the Moraine campground the next evening.

Early the next morning the four of us drove a short way to the Lupine Meadows trailhead (elevation 6732ft) with its large parking area and started off along the gentle trail that gave no hint of the enormous challenges ahead. The route proceeded south along the wooded edge of the meadow and then began a 1700ft switch backing ascent of a steep pine-forested slope. As we climbed our view of the Jackson Hole flatland broadened and soon the lovely, deep blue Bradley and Taggart lakes lay below us. As the trail turned west and began contouring into Garnet Canyon an even more spectacular scene opened up. Garnet is a delightful high country canyon with crystal cascades and small mossy meadows amongst massive boulders. Higher up we were treated to the first close-up view of the Middle Teton, looming over the head of the canyon and sliced through by a striking linear dike. Continuing to climb, the trail eventually met with Garnet Creek at a place where there is a camping area known as The Platforms (elevation 8960ft). This marked the end of the developed trail, and we stopped here to have lunch beside the sparkling stream.

Beyond the trails-end we clambered over and around a group of large boulders before reaching more level ground. The use-trail then followed Garnet Creek for about 0.5 miles to a high alpine meadow with a popular campground known as The Meadows (elevation 9400ft). Here, at the head of Garnet Canyon, we were close to the tree line with mostly glacier and rock all around. Two steep valleys, the North and South Forks of Garnet Canyon, descend into The Meadows. Our route through the North Fork switchbacked up a steep and partially wooded slope above the Meadows and climbed around to the right of a lovely waterfall known as Spalding Falls. These are fed by water from the Middle Teton Glacier still out of sight and high above us in the North Fork. Beyond

Spalding Falls the trail crossed the stream at a camping area known as the Petzoldt Caves, a name that refers to campsites dug out under huge boulders. Here we passed the last trees at an elevation of about 10000ft and began to ascend a steep, barren talus slope that eventually crested at the top of a great moraine. Created by the Middle Teton Glacier that deposited a massive rough platform of rocks, this moraine formed a mile-long horizontal perch in this otherwise vertical terrain high on the side of the Teton peaks. As the glacier retreated it left this perch bounded on the right and at the head by rock walls and on the left by the remnants of the ice. A series of small tent-sized clearings sprinkled over the wide boulder field constituted the Moraine camping area. Each site was protected by camper-built rock walls that provide some shelter from the frequent winds.

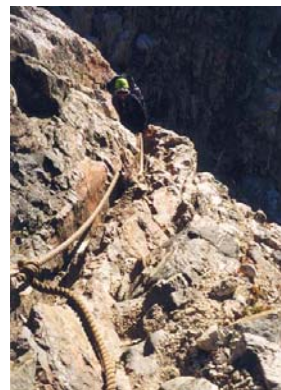
We reached the bottom end of the Moraine camping area (elevation 10750ft) about 6hr and 6.2 miles from the morning start. Here we expected to find Doug and Sheldon but they were nowhere to be seen. We made our way up the braided trails that led through this much-dispersed camping area, looking for them at every site. Reaching the bottom of the steep talus slope at the head of the canyon where the last sites were located we had to conclude that Doug and Sheldon had not yet arrived. We set up camp at this highest group of sites (elevation 11000ft) and, fortunately, Doug and Sheldon arrived shortly thereafter. They had detoured en route in order to summit the Middle Teton successfully. Over dinner, we talked of plans for the next day and finally settled down for the night.

We slept longer than we had planned and, after breakfast, began hiking about 7.30am. At the top of the steep talus slope in the head of the canyon, was the first technical obstacle of the day, a 40ft climb up an easy cliff using a very thick, fixed rope and many good footholds. From the top of the rope climb, the trail switch backed up about 200ft to the broad Lower Saddle (11650ft) that lies between the Grand and Middle Tetons and is readily seen from the valley far below. Here we took advantage of the last available water on the ascent to pump several bottles from a trickle of glacial melt. Two Exum Guide huts and a number of windswept campsites (protected by stone walls) also occupy the Lower Saddle.

From the Lower Saddle we were treated to the first views west into Idaho. Below lay the broad South Fork of Cascade Canyon, another popular hiking route with a developed trail. The view to the south was dominated by the bulk of the Middle Teton, clearly a very difficult technical climb from this starting point. Looking north the trail proceeds north-eastwards up the crest of a broad ridge toward the mass of the Grand Teton. Straight ahead we could clearly discern the broad horizontal band of black rock known as the Black Dyke running across the bottom of the mountain. When the trail steepened, we followed the use-trail straight up through the Black Dyke, directly toward a large cliff that blocks the route straight ahead. At the cliff, we turned left and followed a well-worn trail around the foot of the cliff and into a talus-filled gully. Just about 50ft up this gully, after just one switchback, we encountered the trickiest navigational challenge on the ascent to the Upper Saddle. Called the "Eye of the Needle"



Grand Teton from Jackson Hole.



Left: Lower Saddle from the Moraine. Right: Ascending the fixed rope.



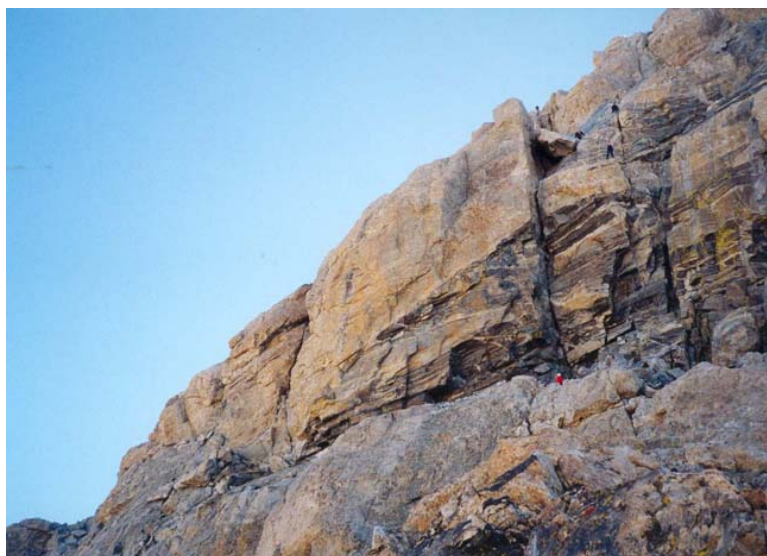
Left: Looking up from Lower Saddle. Right: View south from Upper Saddle.

in the guidebooks, we found the available diagrams and descriptions of dubious value. Only after several errors did we recognize the correct (and quite simple) route. After the trail arrives in the talus-filled gully and makes one switchback across it, you should look to the right and find a steep rock ledge that begins broad but narrows as it rounds a promontory. Like many folks we proceed up this ledge (it had a cairn on it) and then found serious technical challenges around the corner. Though we finally found our way past those challenges, we later recognized that we should not have ascended the broad ledge with the cairn. Rather, we should have proceeded about another 20ft up the talus-filled gully to a much less obvious ledge trail that proceeds right under an overhang to a bench. Known as the “Eye of the Needle” that bench is directly above the start of the broad ledge. On the way back down the mountain we chose to rappel down about 90ft from the “Eye of the Needle” bench to the talus-filled gully.

From the “Eye of the Needle” bench, the route up to the Upper Saddle (elevation 13100ft) proceeded straight up a broad gully. Staying to the right at first and then crossing over toward the left, we relocated a well-worn trail in the talus slope that switchbacked up to the Upper Saddle. There we were treated to awesome views both to the south and, newly revealed, in the northern direction. To the south we could now see all the Teton peaks at the southern end of the range and, in the distance, the city of Jackson. To the north 12928ft Mount Owen was half hidden behind the mass of the Grand and, below, an almost vertical 5000ft drop into Cascade Canyon. Its waters fill Jenny Lake that, in turn, flows into Jackson Lake, visible to the northeast. In between the awesome drop-offs to the north and south, was the massive cliff to the east, the vertical side of the summit block of the Grand Teton. Standing at the Upper Saddle, it was hard to see how there could be any way to surmount that huge summit block towering above us. Cliffs of over 100ft rise vertically overhead as far as one could see on both sides. The drop-offs to both the left and the right are huge.

However, from the Upper Saddle a use-trail climbs a short talus-covered ridge running up to the base of the cliff around the summit block and thence to a rocky platform at the bottom of rappel descent of the cliff. We reached this waypoint (elevation about 13200ft) about 3.5hr after the morning start. Here we encountered other groups descending from the summit block by way of the two, side-by-side rappel routes about which more later. From here our chosen route was obvious for off to the left there was a narrow and narrowing ledge, the beginning of the Owen-Spalding route. About 30ft from the bottom of the 120ft rappel and just past a chimney called the Wittich Crack, we encountered the first technical and constitutionally challenging part of the route, a series of very exposed obstacles on a narrow, horizontal ledge. The first of these obstacles, known as the Bellyroll, is formed by a large slab that has detached from the rock face. Here we donned our harnesses and prepared for the technical part of the ascent.

Roped up and belayed we made our way around this slab by hanging onto its top edge and using the modest footholds on its steep outer face. The length



Summit block from Upper Saddle.



Left: On the summit of the Grand Teton. Right: The 120ft rappel descent.

of this maneuver is only about 10ft and it would have been easy were it not for the vertical drop of several thousand feet directly underneath! Beyond the Bellyroll, we accessed a small but comfortable shelf that quickly narrowed to a horizontal tube-like ledge known as The Crawl. I wiggled through The Crawl though others, on a belay, transitioned around in the same way that they did the Bellyroll. Again the exposure was enormous. As the tube of The Crawl widened again, there was another, detached slab similar to the Bellyroll. Just beyond that was the deep and easy Double Chimney (5.5 at most). Entering the recess of that chimney meant some relief from the enormous exposure and allowed a little relaxation. About 20ft of easy climbing led to the top of the Double Chimney. There we emerged onto a recessed platform and paused to

recover our equilibrium.

Sitting there in the sun, enjoying the panoramic view, we reviewed our next challenge. Other passing climbers reminded us that there are two ways to get from this platform to a long, broad and comfortable ledge that runs horizontally across the summit block about 50ft above where we were perched. The first is the obvious Owen Chimney that runs up from the back of the platform. The second and quicker route is a series of angled ledges known as The Catwalk that proceeds around to the south. However, the Catwalk is very exposed, especially the first 20ft around a promontory. We opted for the Catwalk. So I casually asked Clancy whether he wanted to proceed around the promontory with a belay line and was somewhat startled by the firmness of the negative response. Same response from Garrett. And so I suddenly realized that we had reached a crux in our adventure. If we were going to reach the top I would have to lead us there. So we set up a belay line, I made my way to the apex of the promontory, climbed about 6ft up the arete to another ledge and anchored myself to a convenient hole in the rock. Having converted the belay line to a handline, the others then made their way up to the anchor point and proceeded onwards along the Catwalk to its end at the broad ledge. Back at the anchor point Clancy and Garrett were the last to surmount the promontory hurdle. Their murmurs of admiration exhilarated me. Somehow, I felt a new beginning. I had for so long relied on these two to undertake the more dangerous tasks. Now, suddenly and unexpectedly, despite my age, I had joined them as an equal in leading our group. Quiet satisfaction suffused me. I would lead this group to the top of the Grand Teton.

The three of us continued for about 150ft up the angled Catwalk to the broad ledge at the point where the top of the 120ft rappel is located. Some of the others had dispersed along the ledge looking for the next chimney, but we soon regrouped and set off on the final leg of our ascent. A short distance north along the broad ledge I located the obviously climbable crack known as Sargent's Chimney. To be certain that I had identified the right chimney I went a little further north along the ledge to where it ended in the much larger Great West Chimney and then I backtracked. In the absence of ice, Sargent's Chimney was a lovely (and fairly easy) free climb of about 120ft. The exhilaration was still with me as I flew up it, leaving an extended line of my companions behind me. This was not just bravado; we had very limited time left and I had to ascertain the correct route to avoid any further delays. At a bolted rappel point I exited chimney left onto another broad ledge, above which it was clear that the slopes would allow an easy scramble to the summit. Proceeding northeast I found a use-trail that bypassed a 25ft slab and then a short final 20ft chimney. Suddenly, I was on the 13770ft summit of the Grand Teton. It was a moment of supreme accomplishment. Not only had I made it to the summit of this majestic mountain, but I had found in myself a strength and resolve that I did not know I had. I had deployed both the strength and my leadership to bring all of our party to the top. It was indeed a special beginning for me.

But there was one serious problem. We had hoped to reach the summit by 1.00pm in order to leave time for a comfortable, daylight descent. It was

now 5.00pm! I would seriously fail my friends if they were to be trapped on the mountain for the night. Therefore speed was of the essence. I could only enjoy the summit for a few minutes before starting down. Indeed, only Doug arrived while I was there. I regret that I did not share that special moment with Garrett, Simone, Clancy and Sheldon. All made it to the summit but only after I passed them on my way down.

Fortunately, we were skilled at setting up rappels and so the 100ft rappel descent of Sargent's Chimney and then the spectacular 120ft Owen-Spalding free rappel from the horizontal ledge down to the Upper Saddle area were carried out very efficiently. As we sat awaiting our turn at the top of the Owen-Spalding an elegant white glider circled us like a great mute gull acknowledging our accomplishment. We then hastened down the use-trail past the Upper Saddle and down the talus slope to the "Eye of the Needle" bench. Another efficient rappel took us into a talus-filled gully, from which a well-worn trail proceeded left around the cliff-base to the top of the Black Dyke. Though the light was fading as we climbed down through the Black Dyke and hiked down the ridge toward the Lower Saddle, our anxiety had eased for we were now quite certain that we could get back to camp from here in the dark. It was 8.00pm and we had but a few minutes of twilight left as we passed tomorrow's hikers huddled around the Exum huts and made our way down to the fixed rope descent below the Lower Saddle. Here, with the end of the days exertions now palpably in sight, I began to feel very weary. But it was only a matter of minutes before we finally arrived back at our campground. I could only managed a cup of broth before I had to climb into my sleeping bag.

The third day dawned bright and beautiful and the exhilaration of the preceding day returned as we breakfasted and packed for the descent to the valley below. This was the easy part and we were all buoyed by the achievements of the day before. As any party is likely to do on a carefree descent we tended to spread out so it happened that I spent some time alone on the trail with each of my good friends. Doug seemed elated despite his sore feet and talked of times ahead. Simone and Garrett were already planning yet another extemporaneous detour on their way back to Houston. And Clancy and I talked of the very different challenges he would face as a young faculty member at Princeton. We also talked of future adventures, they with the confidence of youth, me with an unspoken uncertainty born of my age and declining abilities.

It was Clancy who drove me to the airport that evening for my flight back to California. We said a quick goodbye for my emotions would not allow me otherwise. Everything that needed to be said had already been said and experienced high on the Grand Teton and on a kaleidoscope of other adventures over the past five years. A magnificent journey was spiritually complete. The beginnings and endings were now sharply in focus. George had it right.

Chapter 41

SLEMISH

“.. the greatness of Patrick (St. Patrick) is beyond dispute: the first human being in the history of the world to speak out unequivocally against slavery.”

From “How the Irish saved civilization” by Thomas Cahill (1995).

A large fraction of my ancestors lived out their lives on the narrow strip of coastal land around the northeast corner of Ireland, along the coast of County Antrim. The Dicks and Dales, the McCloys and the Earls, peoples mostly of Scottish heritage, eked out a livelihood from the land and the sea, farming in one season and fishing in the next. Undoubtedly there was also a little smuggling and some illicit distilling. The only viable means for traveling any distance was by sea and so their lines of communication and commerce were along the coast and across the Irish sea to Scotland rather than overland to the interior of Ireland. This was especially the case along the Antrim coast for just inland from the coastal strip rose a substantial escarpment edged by basalt cliffs and topped with bleak and forbidding moor land. Of course, as the rich coastal land became crowded, the poorer families would be forced up onto these moors or at least to the parts where the drainage was sufficient to allow some meager farming. Huddled in their stone cottages, constantly buffeted by the wind and the rain, these hardy people would have lived quite isolated lives, answerable to no-one beyond their own tightly knit community.

Rising dramatically out of this moor land plateau are the eroded remains of a prehistoric volcano, a plug of basalt with steep sides and a flat, rounded top. Known by its ancient Celtic name, Slemish, the 1437ft high mountain can be seen from thirty miles away on a clear day, though one must admit there are few such days in this misty land. Instantly recognizable by its prominence and unusual shape, it was the focus of local myths and legends far back into prehistoric time. But it acquired a very special place in Irish folklore and history during the days of St. Patrick.



Left: Slemish from afar. Right: Slemish and the road to the trailhead.

Born in Britain about 385AD, Patricius or Patrick was one of the last generations of Britons with Roman heritage. His father, Calpornius, is believed to have been a churchman. At the age of sixteen Patrick was kidnapped by Irish raiders, carried back to Ireland and sold as a slave to a chieftain called Miliucc. He was put to work as a shepherd tending sheep on Slemish mountain. During his six years as a slave he underwent profound spiritual development, in which prayers on the mountain top became a major part of his life. After six years, he escaped and traveled by boat to France before returning to his family in Britain. There he had a dream in which he believed he heard the Irish calling for him to return, a call that he interpreted as coming from God. To prepare for this calling, Patrick traveled to Auxerre in France where he studied with Germanus and was ordained as a deacon. Finally, in 432 he was consecrated a bishop and began his world-changing mission. During his years in Ireland as a traveling apostle he effected a remarkable religious conversion among the Irish people, an achievement that continues to be recognized and celebrated down to the present day. The germination of that great movement was Patrick's epiphany and, in the Irish tradition, that transformation is closely connected with Slemish mountain. So it is that today, on every St. Patrick's Day, every March 17th, a religious service is held on the summit of Slemish to commemorate his life and work.

Patrick's writings, his "Confessions" and "Letters to Coroticus", continue to be the focus of detailed study and interpretation. Once seen as the works of a barely literate rustic, more recent scholarly evaluations consider them a powerful manifestation of his commitment and spiritual depth. Moreover, in some respects Patrick was more than a millennium ahead of his time, especially in his condemnation of slavery. Thomas Cahill writes that "... the greatness of Patrick (St. Patrick) is beyond dispute: the first human being in the history of the world to speak out unequivocally against slavery." A powerful legacy indeed.

In my youthful travels through County Antrim, I would often, on a clear day, glance across the rolling hills at the profile of Slemish and think idly of climbing to the summit. My inspiration was in part its prominence and in part its legend; but this was never quite enough to produce any action. However,

after the death of my own son Patrick in a terrible automobile accident, the life and legends of St. Patrick took on a new relevance and meaning for me. Thus it was that I resolved to climb to the summit of Slemish at some point during a visit to my homeland.

One day in August 2002, when Doreen and I were exploring the coast of County Antrim, we had both the time and the opportunity to satisfy this whim. From the coastal village of Glenarm we drove up through one of the most beautiful of the renowned Glens of Antrim, past South Munie where my McCloy ancestors farmed, and onto the bleak moor land on top of the escarpment. Heading west the narrow mountain roads gradually took us down to drumlin-rolling hills dotted with tiny farms and a patchwork of small fields. We soon discerned the unmistakable shape of Slemish. But it took some rather intuitive navigation to negotiate the maze of small roads around the north side of Slemish and some trial and error before we located the route to the trailhead on the west side of the mountain. We later recognized that the approach from the west, starting in the town of Broughshane, would have been much easier; it is even signposted.

As well as a large stone shelter and restrooms, the trailhead (elevation 810ft) includes information on St. Patrick, on the geology and on the trails to the top. The summit trail heads directly up a modest slope to the base of a steep incline with many braided trails. On a rainy day such as I encountered, this steep incline needs care for the rock and the mud provide for uncertain steps. But it is still a very short climb and soon one is clambering over less steep but grassy banks toward the flat 1437ft summit. The climb takes about 35 minutes. On a clear day it is said that the panoramic view from the top of Slemish is inspiring. Some say that they have been able to see the tops of the Glens of Antrim, even the mountains of Scotland about 30 miles away. And to the west, the distant Sperrin Mountains in County Derry may reportedly be visible. More realistically one can look down from the summit and see the circular fields that date from the time of St. Patrick or before. Then the woods would have been cleared by hand. The fields may even have belonged to the chief Miliucc, Patrick's owner. A modern cottage stands on the site of Miliucc's stronghold; ironically this cottage is available for rent by visitors.

But I could see none of this for the mist allowed only a few yards of sight. Around me lay the flat earth and summit rock where St. Patrick spent years in prayer and thought. In the ancient tradition of the Irish the rock was covered by coins jammed in every crevice, balanced on every flat surface. I took a Lincoln penny from my pocket and placed it with all the others for my Patrick had been the essence of an American boy. The rain dripped down the hood of my weatherproof jacket, masking the tears that fell for my beloved son. Time does not heal all wounds; there are some that one lives with for all time.

But Doreen was waiting for me back at the trailhead and I reflected, as I often do on such occasions, that the part of our son that was most alive was our precious family memory of him. So it was that I sighed and turned to leave, intent on departing the darkness of the summit and resolved to hasten to that person and that place where I could find comfort and the echo of my Patrick. I

hurried down the grassy slope and the steep incline, even jogged across the field just above the trailhead. Doreen had been watching for me to emerge from the mist, concerned about both my physical and emotional well-being. We hugged and hastened into the warmth of the car. Soon we were speeding across the moor land toward a family welcome.

I could not tell you what I accomplished that afternoon; but there seemed some rightness to the moment. Perhaps it was that I had brought the memory of my son back to the home of his ancestors and to the place of his namesake. Perhaps, on the other hand, I was just being self-indulgent. I am not sure that it matters whether or not I can distinguish between the two for I shall for ever be slave to both.

Chapter 42

ERRIGAL

“...But still I would recall the stations of the west, white sand, hard rock, light ascending like its definition over Rannafest and Errigal....”

From “The Stations of the West” by Seamus Heaney (1975).

Falcarragh. The name of this desolate little village in the extreme northwest corner of Ireland conjures up a host of haunting memories for me, memories of a bleak rain-streaked landscape, of ancient Celtic tragedies and of a strange and impoverished people. When I was young my father and mother, always adventurous people, would arrange to rent a cottage on the edge of one of the deep inlets along this convoluted coast. We would load up one of our two cars with every possible kitchen and bedroom need and set off west from our home in Derry for the wilds of County Donegal. In those days there were many formalities to follow at the international border just west of the city of Derry. Thereafter, as the landscape bleakened and the roads became rough and narrow, we would travel beyond the reach of English hegemony into sparsely populated Donegal, “Dun na nGall” or the “Fort of the Foreigners” (the name derives from the fact that the Vikings founded the town of Donegal).

But, of course, there was a substantial intermediate zone in which English rule held some sway and the market towns relied for their prosperity on the economic giant to the east. Because of those commercial pressures, English had long ago supplanted Gaelic as the mother tongue. Only the extreme northwest corner of Donegal, the area around Falcarragh, Gweedore, Gortahork and including Tory Island, was isolated enough to avoid those pressures. There to this day, Gaelic is still the native language of about 30,000 inhabitants. The region is known as the “Gaeltacht” and its boundary represents a distinct border within Ireland. If you drive from Dunfanaghy to Falcarragh, you will pass a road sign, “An Gaeltacht”, marking the boundary of this area.

None of the holiday cottages were in the Gaeltacht for that would have been too strange, too foreign. The closest we came was a very rustic cottage near Dunfanaghy, a town remembered for its work house, one of those terrible places that were the only refuge for the starving and destitute created by the Great Famine in the 1840s. Indeed the famine hit the Gaeltacht particularly hard because the poverty of that region left little margin between subsistence and destitution. So at the height of the famine 600 starving and dying people were packed into the small work house buildings. Today the work house is a tourist attraction that tells the wrenching story of “Wee” Hannah Herrity. Born in Falcarragh about 1835, Hannah had to deal with an abusive stepmother after her mother died in childbirth during the famine. Escaping from that torment, Hannah wandered from place to place in northwest Donegal. Without any home she found temporary employment and shelter on several farms before illness gave her no alternative but the confines of the work house. Somehow she survived and spent many years roaming the roads as a beggar. Finally, late in life, her plight came to the attention of a Mrs. Law, wife of the local MP, who had a small cottage built for Hannah. The entire community rallied round to equip the one-room cottage with the essentials and provide Hannah with a moment of real joy. Hannah died in her cottage at the age of 90. The story presented in the tourist tableau is in Hannah’s own words, and it reaffirms one’s conviction that though the policy of the English Government toward the famine may have been understandable, it was unforgivable.

When we holidayed there it was a sparsely populated region and one of great natural beauty. Most of the population lived in a narrow coastal strip. The hinterland consisted of windswept heaths, lakes and dramatic rocky uplands. Towering over the Gaeltacht is the highest mountain in Donegal, a steep-sided quartzite cone called Errigal whose scree slopes rise dramatically above the heather-coated uplands just inland from Falcarragh. My father loved to explore this rugged landscape though I can recall the apprehension with which he crossed into the Gaeltacht. Once in Falcarragh he would find the little dirt road that led inland to skirt the slopes of Errigal. He would follow that a few miles to the tiny hamlet of Dunlewy on the shores of a lovely tree-lined lake. The valley beyond Dunlewy Lake presented a delightful panorama known as the Poisoned Glen, always a place of mystery, in part because of the name and in part because no road penetrated it. Many years later when I tried to find the origin of the name, I was not surprised to uncover a multitude of explanations. Perhaps the least attractive was the claim that the Glen was once home to a toxic plant, Irish Spurge Moss or “Euphorbia”, that exuded a poisonous sap and polluted the water of the glen. As evidence these reports point to the absence of birds and the resulting profusion of insect life during the summer months. A much more likely explanation is that the Irish word for poison, “neimhe”, is only one letter different from the word for heaven, “neamh”. It is said that the glen used to be called the “Heavenly Glen” by the local people and that the map maker (English of course!) screwed up. But the explanation favored by most people, tells the story of Balor, a king on Tory Island, and his beautiful daughter. So beautiful in fact that Balor felt compelled to imprison her in a tower so that she would



Left: Clouds shroud the peak of Errigal. Right: Ruined church overlooking Dunlewy Lake.

not come within sight of men. But the fame of her looks spread and men came from far and wide to attempt to see and woo the beautiful princess. Eventually, one gallant succeeded in capturing and spiriting her back to the mainland, up into the mountain fastness around Errigal. Balor followed the pair across the sea and up the valley into the Poisoned Glen. There he killed the captor with a giant stone that now stands at the entrance to the Glen. That stone is said to be the evil, or “poisoned” eye of Balor. Hence the Poisoned Glen.

At the end of the road at the entrance to the Poisoned Glen and just past Dunlewy village stand the mute ruins of a church. The walls of this haunting edifice are still complete. Indeed the white marble of which it was built was quarried just a few hundred yards away; the marble glows in the soft Irish light. Adding to the mystery, the adjacent graveyard contains a single gravestone. Unlike the Glen one can find few willing to offer explanations for the demise of this church. At one time it served as the local parish church and was thus part of the English establishment. Some may suggest that it was abandoned for the want of a congregation. Others will point to the new church built further down the valley after the old church became a ruin. Few will venture near the old church for it is said to be haunted. If it was burnt down in a fit of anger by a crazed survivor of the work house, many would know but none would tell. But its mute and haunting testimony is inescapable.

Perhaps it is not surprising that these hosts of memories keep drawing me back to this enchanted place. In previous years I had splashed my way up into the Poisoned Glen, hiking to its glacier-sculpted head. In the year 2002, I returned, this time for a symbolic pilgrimage to the summit of Errigal. I drove through Falcarragh early one Sunday morning when not a soul was stirring and found the now-paved road that leads up to Dunlewy. Errigal loomed on the left and Dunlewy Lake slipped by on the right as I approached the Poisoned Glen. The road now continues to climb past Dunlewy (the village is down a narrow side road) and past the entrance to the Glen, headed for a saddle that lies to the south of Errigal. I stopped short of the saddle at a small trailhead parking area (elevation 776ft) on the left side of the road about 4 miles from the N58/R251 intersection.

The route up the southeast ridge of Errigal is clearly evident from the trail-head and begins with a hike up through the boggy heather on the left side of a small stream. The going here is very wet and mushy. After about half a mile, you veer left and follow braided trails through the heather heading for the obvious rocky trail on the slope ahead. Once there, you transition to a steep rocky trail that follows the southeast ridge of the mountain. Views open up of Croloughan Lake across the other side of the valley saddle and of the Poisoned Glen off to the south among the Derryveagh mountains. Beyond the Derryveagh range is Glenveagh National Park, previously the domain of the English landlord John Adair who, in 1861, evicted 244 tenants and cleared the land so as not to mar the views on his estate.

As you move onto the apex of the southeast ridge, the landscape to the east and north also comes into view with Altan Lake far below between Errigal and the summit of Aghla More (1916ft). Muckish Mountain (2197ft), the site of an annual barefoot pilgrimage on St. Patrick's Day, is a little further away beyond Aghla More. As you near the summit of Errigal, you surmount a shoulder where there is a large rock shelter and a cairn. From there it is a short way up a narrowing ridge to the 2466ft summit of Errigal. In fact there are two sharp peaks on a narrow ridge 25yds apart, the trail between them being known as "One Man's Path". Provided you do not find yourself in the clouds (often the case), the panorama from the top is spectacular in all directions. Off to the north and northwest you can see the Atlantic Coast and fabled Tory Island. It takes only about 1hr 15min to reach the summit of Errigal and less than 1hr to descend again.

If only it were that easy to right those centuries of wrong, or even to put them behind us. Like that 1690ft hike to the top of Errigal, it seems like a simple thing to do, to start afresh and build a vibrant economic future. To any experienced hiker 1690ft is almost trivial. Yet when I climbed Errigal a fierce cold wind was howling out of the east. I was barely able to put one foot in front of the other without losing my balance. The rain hammered into my clothes and face so fiercely, I could only with difficulty look up to see where I was going. I asked myself why in the name of God was I continuing in the face of this maelstrom. Yet when I came to that summit ridge, the wind was miraculously gone and the beauty of the world around me vindicated all my efforts. I could not help wondering whether Hannah felt that way about her cottage. As she said: "Deed aye, it's the heart that matters".

Chapter 43

LAKE POWELL

“For a transitory enchanted moment man must have held his breath in the presence of this continent, face to face for the last time in history to something commensurate to his own capacity for wonder”.

From “The Great Gatsby” by F. Scott Fitzgerald.

The great orange and ocher cliffs rise majestically out of the steel-grey waters and soar toward a cloudless sky. It is an awesome place, this man-made lake, Lake Powell, truly a land for the brave. Set in one of the wildest and most remote landscapes in the world, it has both magnificent scale and special grandeur.

In earlier times, before the construction of Glen Canyon Dam, the ruggedness of this wilderness presented an almost impenetrable barrier to western-bound adventurers. South of Moab in east-central Utah, the mighty Colorado River, over many millions of years, carved an immense and virtually impassable rent in the face of the earth. This gash runs about 400 miles southwest and then west through Cataract Canyon, Glen Canyon and then the Grand Canyon. South of the Grand Canyon lie the inhospitable deserts of Arizona, California and Mexico, extending all the way to the Gulf of Cortez. So to travel west, the early explorers and settlers (except for a few foolhardy souls) were forced a long way north, through Moab and Green River.

Native Americans, known today as the Anasazi (Navajo for the ancient ones), adapted to the merciless heat and the paucity of water and, in small numbers, had managed to survive in this arid land. Indeed their stone granaries and kivas can be found in many of the canyon cliffs. But even the Anasazi were overwhelmed by drought (and other factors) and moved south in the 1300s to create the modern Pueblo settlements of Arizona. In later centuries, the Navajo, though located primarily to the southeast, filled the vacuum in a minor way (along with a few Utes and Paiutes from the north and west). They used this wilderness on an occasional basis and only in very small numbers. Consequently, it was largely unoccupied when the white man was confronted by it.

There are several epic stories of expeditions that tried to cross rather than circumvent this wild place. Indeed it is a land that only the daring would venture into. Some understood the risks necessary to reap the rewards of this wilderness, others did not. In the 1770s, during the Spanish colonial period, a party of priests headed by Fathers Dominguez and Escalante, having made their way west by the northern route, tried to return east through southern Utah. Theirs is an epic saga of struggle with the wilderness and the place where they crossed the Colorado became known as the "*Crossing of the Fathers*". It now lies submerged under Lake Powell, more specifically under Padre Bay. More than 50 years passed before a second crossing was made by a party of Mexican traders. Another half century passed with very few venturing into the wilderness. Then, in 1869, there occurred one of the greatest expeditions of exploration ever undertaken. A one-armed ex-soldier by the name of John Wesley Powell with a party of nine other men disembarked from the train in Green River, Wyoming, outfitted four small wooden boats and set off to float the entire length of the Colorado canyons. Powell's dispassionate account of their hair-raising adventures descending the entirely unknown cataracts of the Colorado through Glen Canyon and the Grand Canyon is a must-read for any serious student of adventure. Miraculously, all but three of the men survived. The three who did not had abandoned the expedition and climbed up out of the Grand Canyon onto the Kaibab plateau where they were killed by Shivwits Indians.

The next 70 years saw some small scale cattle ranching and the beginnings of tourism in a few accessible locations such as the South Rim of the Grand Canyon. A Mormon refugee from justice by the name of John D. Lee fled south and descended the Paria river to its junction with the Colorado. There he established the first regular river crossing at a place that now bears his name. Today Lee's Ferry is still an important crossing and the starting point for most rafting expeditions down through the Grand Canyon.

In 1956, the US Congress, after much debate, approved a Bureau of Reclamation plan to tame the wild Colorado. Work began almost immediately on the Glen Canyon Dam located where the Colorado crosses from Utah into Arizona. The dam, about 600ft high, was completed in 1963, but the lake behind it, named Lake Powell after the one-armed adventurer, took another seventeen years to reach its high water mark. Unlike almost any other reservoir, Lake Powell, is not one large body of water but a whole branching network of narrow channels where the water backed up into a maze of canyons. The lake is almost 180 miles long and its shore line stretches for an amazing 1900 miles. Today it is a wonderland that is most readily explored by boat. We planned to explore a little piece of it.

Friday, June 7, 2002, was a joyous and exciting day for Doreen and I when the whole family came together in the Marriott Courtyard Hotel in Page, Arizona, the town built to serve the Glen Canyon Dam. Doreen and I had driven there from California, spending a night en route in the lodge at Zion National Park. Our elder daughter Dana with her two children, Quinn and Gavin, and our younger daughter Kathy with her two children, Troy and Payton, flew into

Phoenix from Philadelphia and Chicago respectively and then drove north to Page in a rented minivan. The reunion was joyous indeed. We were all deeply excited and, perhaps, a little uncertain about the trip we had planned in a rental houseboat on Lake Powell. But that was not until June 9. We spent the next day, Saturday, exploring the Upper Antelope slot canyon (Navajos took us there in a truck), swimming in the hotel pool and shopping in the supermarket for all that we would need over the next four days.

On Sunday, June 9, we rose early and eagerly. The wind was blowing quite strongly and I could not help be concerned about how difficult it would be to maneuver the boat under these conditions. But there was no time to dwell on it. We packed all our stuff into the two vehicles and drove down to the Wahweap Marina where we completed the formalities to rent a 36ft houseboat for four days. I also rented a small boat with an outboard motor, what they called a "Livingstone". Then we walked down to the rental dock, located our houseboat (number 91) and waited for the instructor to show up and give us instructions on the operation of the houseboat. She was quite brief, too brief - especially about the controls for the two large outboard motors that powered the houseboat. Then she drove the houseboat over to the next dock (called the T dock) where we tied up and began the process of bringing all our gear down from the vehicles and loading it onto the boat. Fortunately there were porters with carts and small tractors that did much of the work for us. At this time I also walked back to the rental dock to fetch the Livingstone. Inside the break water it was easy to drive despite the wind and waves. However, one of the staff present decided that the Livingstone was too small for the wind and waves that day and offered me a larger powerboat for no extra cost, an offer I gladly accepted. Thus we ended up with a larger powerboat - but without any instructions as to how to run it! The staff drove both the houseboat and the powerboat out beyond the breakwater, tied the powerboat into a towing position behind the houseboat, turned over the controls to us and left in another powerboat. We were on our own.

Despite the wind and waves, it proved easy to drive the houseboat and, from Wahweap, I headed directly over toward the main channel in Lake Powell. That channel follows the original course of the Colorado River. We readily found the buoys that mark it and turned to head up Lake Powell. Navigation turned out to be easier than I thought. Red buoys mark the right side of the channel going upstream and green buoys the left side. Both are adorned by a large number, the distance in miles from the Glen Canyon Dam. Since our National Geographic Trails map of Lake Powell showed these buoys and their numbers, we could easily locate ourselves. Gavin, especially, liked looking out for the numbers. Occasionally there was no buoy to be seen, but by heading straight a buoy would eventually come into view. There were also signposts at the larger intersections.

Despite the waves kicked up by the unpleasant wind (35-50mph gusts), the houseboat was steady and moved along at 8 or 9 knots. We rounded Castle Rock, turned right and then left into a section called the narrows. Dana drove the boat from the time we rounded Castle Rock until the end of the trip while



Left: In Gunsight Bay. Right: Lake Powell.



In Cathedral Canyon.

I helped with the navigation and other deck duties. Kathy made lunch. Doreen made sure the kids wore their life-jackets when they came out of the cabin. Because of the wind and waves, water often ran up onto the fore-deck. The kids enjoyed the excitement of the water splashes and were soon soaking wet. We began to feel some modicum of confidence that we could handle this adventure.

After passing through the Narrows, we turned left into the large bay at the mouth of Gunsight Canyon. At the head of that bay, quite a few other houseboats had stopped at widely spaced spots on the many beaches. We picked out a spot at a beach in a beautiful cove with a high cliff behind it. It was on the west side of Gunsight Bay and, following instructions, we ran the boat onto the beach at full power. As we did so I rushed to set the anchors though, if I had stopped for a moment to examine matters, I would have seen that they were hardly necessary. As I did so I became aware of distress at the back of the houseboat and Doreen ran forward to tell me that Kathy was badly injured. Moreover, the powerboat seemed to be drifting free; fortunately the wind blew it towards me and I soon secured it. Then I jumped on board to find out what had happened to Kathy. Apparently as we had accelerated the houseboat forward to ram it onto the beach, the tow line to the powerboat had suddenly snapped. More specifically the metal link joining the tow line to the powerboat had snapped and the rope and half the link had rocketed forward, striking Kathy on the chest. She was badly bruised and very shaken but otherwise

seemed alright. Doreen applied ice to the bruises and we waited to see how she would be.

The wind was still blowing but seemed to be easing. The staff at Wahweap has assured us that this was the last day of the wind and that the weather would be excellent the next day. For the rest of the afternoon the kids played on the beach and we enjoyed the scenery. I took the powerboat and briefly explored Gunsight Canyon though I did not go far. There were many boats moored and beached at the place where the canyon narrowed. The kids explored the virgin beach while Dana, Kathy and Doreen relaxed. Though badly bruised Kathy did not need further medical attention.

Dana and Kathy prepared dinner and we sat and talked with gin and tonics. As night fell we organized our sleeping arrangements in preparation for an early night. Troy and Quinn were to sleep in the bed in the aft cabin, Dana with Gavin and Kathy with Payton in the two beds in the fore cabin and Doreen and I on the fore deck (Doreen had a foldup bed). As we said our goodnights, Kathy asked: "*Dad, have you tied Mum down?*" Doreen was marvelous, never having slept in the open before. She loved the star-studded night sky.

Monday, June 10, dawned beautifully and we were keen to be on our way. After breakfast we released the anchors and, with only minor difficulty, managed to start both engines. We then put the engines in full reverse and, following the instructions, tried to get the houseboat off the beach. It did not budge. We then tried turning the thrust full to one side and then full to the other. Not a glimmer of movement. It seemed firmly stuck. As Dana and I were frantically trying to figure out how to solve this problem, another strange incident occurred, one to which, in the heat of the moment, I did not pay enough attention. While still on board I happened to look down one side of the houseboat, and noticed a snake in the water. It was hopelessly trying to climb up the side of the pontoon. When I drew the attention of the others to the snake and then quickly moved back to the task of getting the boat off the beach, I failed to absorb how upset Kathy was by the snake and its efforts to climb on board. She and Doreen did try to tell me it was a rattlesnake and they vainly attempted to hit it with a spade while hanging over the side. I was so intent on the effort to float the boat that I paid little attention. And when I climbed down to the beach to begin pushing, it seemed to have disappeared - at least for the present.

After trying repeatedly for about 30 minutes to float the boat, we recognized that we needed help. A group who had been water skiing happened by in their powerboat and were kind enough to come on shore to help. We tried pushing and then digging away the sand alongside the stuck pontoon, all to no avail. Our helpers then had to leave but gamely said they would return shortly with other members of their party. After they left I called Wahweap Boat Rentals on the ship-to-shore radio ("*Calling Wahweap Boat Rentals this is houseboat 91...* ") and requested assistance. But soon our helpers were back though with only one or two additional people ("*the teenagers had gone to the marina*"). Nevertheless we were going to try again. Then someone had the bright idea of removing the steel gang plank and using it as a lever at the bow of the stuck pontoon. With a great deal of effort this began to move the boat and soon we

finally had it afloat. Once it was well afloat, Dana edged it back toward the shore some distance down the beach where the slope was greater. Our family climbed (or was hoisted) aboard, Dana handed out beer and sodas to our good samaritans and we were finally on our way. I started the powerboat and followed the houseboat out to deep water where we set up the tow.

So it was that, after a two hour delay, we were under way. It was a beautiful sunny day without a cloud in the sky and, mercifully, no wind. We motored serenely back to the main channel and turned upstream. The next couple of hours brought into view one marvelous vista after another. We passed Padre Butte and Gregory Butte and turned right through the narrow passage by Wild Horse Bar. Here the lake is contained in narrower and more dramatic canyons. Each side canyon we passed seemed more inviting than the last and we reeled off the names as we went, Wetherill Canyon, Mountain Sheep Canyon, Dangling Rope Canyon (with a marina entirely supplied from the lake). We were bound for Cathedral Canyon but its opening was so inconspicuous that we missed it the first time and only turned around when we passed buoy number 48. When we got back to what had to be the entrance, it looked so limited that I got in the powerboat and went in to take a look before attempting to enter with the houseboat. Though narrow in places the channel was plenty deep. I must have gone a couple of miles up into Cathedral - a truly spectacular gorge with towering red walls. There were only a handful of small spots where one could land (let alone moor) but I was reassured to find at least two houseboats in tiny inlets deep inside the canyon. I had my eye on one possible mooring place only a short way into the canyon and returned to tell the family about it, though with some doubt as to whether they would like this isolated place. Dana guided the houseboat into Cathedral while I went ashore to guide her in. Unlike the previous day, we came into shore very slowly and moored by placing the anchors behind large rocks. It was an ideal spot and everyone loved it. Next to the boat was a sloping rock "beach", a great place to swim. We all enjoyed a relaxing afternoon swimming and chatting. Only the occasional speedboat would zoom by disturbing us with the waves of its wake. Soon it was time for gin and tonics followed by dinner. We all slept well through a gentle windless night.

Dawn sidled gently into this beautiful cathedral whose red and ochre walls were reflected again in the mirror-flat waters. It was hard to imagine a more glorious place and I gave thanks that I could share such a special place with all those I loved. We stirred lazily, enjoying the place, the moment and ourselves. Quinn, always the first to rise, joined us on the fore deck and chatted amiably. Gradually the houseboat filled with the buzz of whole family and we were ready for breakfast and for a day of exploration.

We decided to leave the houseboat where it was and explore the surrounding canyons using the powerboat. So, after our leisurely morning start, everyone was outfitted with a life-jacket and installed in the powerboat. First we drove back into Cathedral Canyon, a fantastic narrow channel between towering, angular cliffs. Then we turned around and went back out of Cathedral Canyon into the main channel where we turned upstream, heading for Forbidding Canyon and the Rainbow Bridge National Monument just a short distance upstream. This

was easy to find and we entered another spectacular canyon. On the way in the boat traffic was modest. We followed the signs where the canyon forked and arrived at the courtesy dock installed in the canyon by the Park Service. Only a few other boats were there so it was easy to locate a place to tie up. Then we walked several hundred yards along the floating walkway to the beach and the start of the short trail to Rainbow Bridge. I was surprised by the size of this natural wonder - much more impressive than I expected. We hiked to the end of the trail that stops short of the bridge itself out of respect for the native Americans who regard the site as sacred. The bridge is indeed impressive and a ranger gave a brief talk with all the details. By the time we walked back to the boat, the place was crowded with people from several tour boats and lots of small powerboats, even one houseboat like ours. So as we headed back down the canyon there were boats going both ways, usually too fast. The waves kicked up by all this traffic between the vertical walls of the canyon made for a rough ride. I was glad that we did not happen to meet a large tour boat going the other way in one of the narrow sections. Out in the main channel, the water was smoother and we quickly made our way back to the serenity of our houseboat in Cathedral Canyon. It was time for lunch and a swim. For the first time the kids ventured onto the slide from the roof of the houseboat. It was Troy who plucked up the courage to go first.

We had underestimated the family consumption of Gatorade and since the Dangling Rope Marina was only about 25 minutes away, I decided on a Gatorade supply trip in the powerboat. The trip was uneventful. I had no trouble locating Dangling Rope Canyon and the marina hidden a short distance into it where I tied up without difficulty. Dangling Rope Marina has no land connection - it is supplied entirely from the water. As well as a gas station it has a small store, a snack bar and a ranger station. I brought back gallons of Gatorade.

Later in the afternoon we decided to explore more canyons in the powerboat and to stay a second night in the lovely spot in Cathedral Canyon. So Dana, Kathy, the kids and I set off for some nearby canyons. First, we found the entrance to Cascade Canyon just a mile or so upstream from the mouth of Cathedral, though on the other side. Some distance inside this narrowed to a deep channel between vertical walls about 15ft apart - no room to even turn the boat - another boat ahead of us was allowing the wind to carry them further up this long channel and we did the same, until, eventually the other boat said it could go no further. Unfortunately we could not see the end they perceived. We devised our own method of retreat. With the outboard in reverse and Dana and Kathy each at a rear corner fending off the cliff with their feet we slowly backed up and out to broader waters. Next we explored Driftwood Canyon just downstream from Cascade. We were able to penetrate further into Driftwood, taking the left fork at a major junction. This, too, narrowed but we decided to turn around before it got too narrow. At this point the kids were tired and we headed back to the houseboat for dinner.

The adults were sitting around the foredeck while Dana and Kathy prepared dinner. The kids were playing all over the boat including the aft deck where, throughout the trip, we had piled all the suitcases and backpacks. Suddenly

Gavin came rushing through the cabin to announce there was a rattlesnake on the aft deck. Each of us almost simultaneously recognized that the impossible had happened. That snake in the lake back in Gunsight Bay had somehow managed to slither aboard and had been an unseen passenger for a day and a half. Someone put the spade in my hand as I rushed forward to confront the situation. Dana came behind me with the broom. Fortunately all the other children had made a quick retreat from the aft deck where Gavin had heard the snake rattle. With remarkable perception and alacrity he had described exactly where the snake was hidden between a suitcase and the sliding glass cabin door (he was but inches from entering the cabin!). I spotted him instantly and lifted the suitcase away. He then retreated behind a second suitcase and I also removed that. He was now in an open corner with no further possible retreat. He coiled ready to strike though I was well out of his range. It was no contest. I sliced his head in half with one strike of the spade. He died instantly. Later there would be some thoughts of regret but at that moment the need for decisive action was overwhelming. Dana brushed the inert remains onto the spade blade and I flung them onto the rocks along the shore. We all retreated to the front patio to collect ourselves and to seek reassurance. Gavin had acted with decisiveness and uncommon good sense. We praised him deservedly and I promised to get him the rattle in the morning. Only slowly did the adrenalin subside. We helped ourselves to an extra gin and tonic and ate dinner wondering how barbecued rattlesnake would taste. After that it was a gentle and quiet night.

We awoke with the dawn for we had to make an early start to get back to Wahweap before the 2pm deadline. But before getting underway, I found my camping knife and made my way along the shore to where the snake remains had been thrown. Unfortunately a raven must have been there before me. Parts of the snake were already gone, including the tail. I was sad that Gavin would not get his rattle. But I promised him one that I had at home; it was the best I could do.

This time we had no trouble getting started. Dana had learned how to start the houseboat engines without difficulty and we backed out of our mooring without trouble. We tied the powerboat alongside until we got out of Cathedral Canyon and then set it on the tow rope well behind the houseboat. There was little other traffic in the main channel this early in the morning so we made excellent and easy time averaging about 10mph on the way back to Wahweap.

We were nervous about maneuvering the house boat around in the busy waters around the Wahweap Marina. I called Wahweap Boat Rentals over the ship to shore radio, asking for the check in procedure. We were informed that we should get both boats filled with gas before bringing them into T-dock to unload. Outside the breakwater we detached the powerboat and I drove it in separately. Dana did an excellent job of docking the houseboat at the gas station. The gas station attendant did the rest. As he went about his business we told him of our adventures. He had never before heard of a snake getting on board a houseboat. After gassing up, Dana maneuvered the houseboat back to the loading (or unloading) dock while I took the powerboat back to the main dock. We had returned without incident and in shorter time than we expected;

we unloaded, checked out and were on the road shortly after noon.

It was the end of a great adventure. We had so little experience with boats that it had been a risk to plan such an adventurous holiday with four young grandchildren. There had been risks: some were perhaps foreseeable such as the difficulty unbeaching the houseboat. But the greatest danger had been entirely unseen and unthinkable. That snake carried lethal venom. Other risks were richly outweighed by the rewards, the spectacular scenery and the opportunity to enjoy it with those we loved. But the snake was different. Yet such outlandish chances can occur anywhere at anytime. One cannot allow such unknowables to rule one's life.

Chapter 44

ICEBOX

“Great perils have this beauty, that they bring to light the fraternity of strangers.”

From “Saint Denis”, Les Misérables by Victor Hugo (1862).

One of the pleasures that remains long after an epic physical ordeal has passed is the sense of comradeship of a challenge jointly met and safely conquered. There is something in the rawness of the experience that strips away pretensions leaving a compassion that is revealed, shared and deeply valued. It is as though the trust necessary for joint survival generates lasting momentum that, once created, endures into lifelong friendship. So it was in Icebox, in the dark, in the cold, in the deep wet pools that sucked out the last ounces of our strength and our body heat, one dark night in December 2002.

That December morning had dawned crisp and beautiful, not a cloud in the sky. The red and ocher cliffs and canyons of the Red Rock National Conservation Area glinted in the rising sun, their deep rifts holding promise of awesome vertical adventures yet to come. Just 20 miles west of Las Vegas, Nevada, and within sight of that neon fantasia, the Red Rocks are a spectacular and convoluted maze of interlocking canyons and sandstone bluffs, a wonderland that is surprisingly little known outside of a group of local hikers and climbers.

We were three strangers. Myself an aging warrior of many outdoor adventures, trying hard to experience all I could in the few active years remaining to me. Dick Shear, a former Los Angeles County Deputy Sheriff and company executive striving to find a larger place in his life for adventure and the outdoors. And Randi Poer, mother of three, finding a few moments of solitude away from all that responsibility, moments to enjoy the wilderness and rekindle the spirit. Somehow, circumstances had brought these three strangers together on this December morning.

We were part of a much larger group that had gathered for a weekend of exploring in the Red Rocks area. Several hikes had been planned for both days.

After two moderate adventures on the Saturday, the evening discussion around the campfire focused on whether or not anyone wanted to face the much greater challenges of Icebox Canyon and the huge wet rappel descent near the bottom that involved at least one swim. Icebox had been listed in the agenda but the stories of a previous descent in which Dick Shear participated had frightened off almost all the other hikers present. Ominously, a professional guide from Utah who had originally considered going, backed out with the comment that swimming in December was not his idea of fun. Only Randi and I spoke up when a head count was taken. As always, I was spurred on by the stories, driven by the thought that I might never have the chance again, that every opportunity had to be grasped and relished whether or not the circumstances were ideal. Randi seemed driven by the same ghost though she would have many more years than I to return to the Red Rocks. As one of the organizers, I think Dick felt some obligation to accommodate our wishes, though I sensed a little reluctance on his part. Perhaps, in the back of his mind, he suspected that he was setting in motion the wheels of an epic adventure.

We were very fortunate that my friend Troy Sette had volunteered to drive us to the trailhead early the next morning, a considerable undertaking for the rough 4WD road from the Scenic Loop in the Red Rocks National Conservation Area to Red Rock Summit involved five miles of rock-rutted driving and more than 2000ft of elevation gain. Once there, we paused at Red Rock Summit (elevation 6450ft) for a last equipment check and the statutory photograph. It shows three strangers each standing a respectful distance from one another, each hunched up against the morning chill. Then we were off, puffing up the trail toward the high ridge above us, loaded down with huge lengths of rope. So loaded that it took us almost an hour to climb the 670ft through sparse juniper forest to the ridge-top. The crest (elevation 7120ft) arrived abruptly and we found ourselves standing on the edge of a great escarpment. Below us the sandstone was sliced through by a spectacular maze of dramatic red and white canyons, a vertical world of stark and sheer slickrock with huge drop-offs in every direction. Rising above these, its white rock striking in the morning sun, was the great block of Bridge Mountain, another marvelous hike in this wonderland of rock.

Veering north along the ridge for about a quarter of a mile, we came to a promontory with a spectacular overlook of the great slickrock bowl at the head of Icebox Canyon. Beginning about 400ft below us, the Icebox bowl funneled down into a deep canyon leading, eventually, to the desert about a mile and a half away. Our spirits lifted by this awesome prospect and warmed by the sun reflecting off the slickrock, we descended an easy earth slope through small juniper trees heading directly for the bare slickrock on the right side of the bowl. In a few minutes we were standing on the edge looking down into the great bowl, plotting the course of our descent down to where it funneled into the canyon far below us. We would have to choose our course carefully to ensure there were tree anchors where we needed them and, as far as possible, avoid the sheets of ice that coated the bowl in places. Then we edged over the rim, downclimbing the steep cliff over broken rock and ledges, heading for patches of trees and then

descending by two rappels of 100ft and 130ft to a broad ledge with an awesome view down into the upper part of Icebox Canyon. Contouring left we reached the stream course and the base of the bowl, some 500ft below the rim, after 3hr 45min of hiking.

This short traverse brought us to the start of a section of downclimbing in which several detours into the brush on the left of the gully were necessary. Then we climbed down into a bedrock channel where, at an elevation of 6300ft, there were two rappels in the streambed, a 60ft drop from a boulder anchor on the right side and then a short 20ft descent from a webbing anchor under a large chockstone in the center of the channel. More downclimbing in a steep canyon stream course followed, before we came to the first of two class 4 downclimbs, a tricky 30ft descent on the left side of the canyon followed shortly thereafter by a similar 35ft downclimb also on the left. This is where Randi showed her climbing ability; together she and I manhandled the heavy rope-filled backpacks down these steep downclimbs. And just a little later at an elevation of 5590ft we arrived at a 50ft drop into a large round pool about knee-deep. Anchored by a large tree on a shelf to the right, we rappeled down onto a ledge about 2ft above the water. From there Randi found a way to avoid wading in the water by climbing along small ledges on the right side of the pool.

This is a beautiful section of the canyon where the stream wanders down lovely sculpted and scoured sandstone bedrock. Though still huge and vertical, scattered pine trees prospering in cracks in the slickrock soften the landscape and provide shade and shelter. But the canyon continues to narrow, and, after more downclimbing, we arrived at 5400ft and 7hr 40min from the start at a 20ft rappel around a large canyon blocking chockstone with much overhang.

We were now approaching the major physical challenge in Icebox Canyon, a huge vertical rappel preceded by a pool that had to be swum. Before that, at 4990ft and 8.5hrs into the hike, we came to a 40ft two stage waterfall, a small but deep hanging pool about 10ft below the lip followed by a 30ft drop into a waist-deep pool. The short winter daylight was now fading quickly and we decided to pause and take time to prepare ourselves as best as possible for the challenges ahead. Dick had a drysuit; Randi and I had wetsuits though mine was only a "shortie" and I supplemented it with rain gear that I duct-taped to my ankles, wrists and waist. Dick had also loaned me a pair of neoprene gloves. Thus attired and helmeted with headlamps attached we descended the two-stage waterfall using a tree high on the left as the rappel anchor. I was the first to get wet in the waist-deep pool at the bottom and my feet were already beginning to get very cold before we resumed our hike down the canyon. It was just a short step to the first place where swimming was necessary; a 10ft slot that we chimneyed before a 10yd swim.

Just below this we finally arrived (at 4920ft, 9hrs and 2.3 miles from the morning start) at the top of the grand challenge, first recognized by the large dead tree propped up against the right-hand wall of the canyon about 30ft from the top of the descent. This tree provided a solid anchor for the rappel; to an existing webbing wrap that stretched to a quicklink at the edge of the drop, we added a backup length of webbing. From Dick's previous descent we knew



Left: View down into Icebox Bowl. Right: Upper Icebox Canyon.



Left: The big rappel. Right: Below the big rappel.

that at least 200ft of rope would be needed to reach the bottom. We had two ropes, a huge 340ft length and a 240ft piece; we set up a single strand rappel with the longer rope and deployed the shorter one as a recovery line. I had volunteered to go first; Dick would go down last, his duty being to manage any emergencies that might arise. Without further delay (for I was getting colder by the minute), I rappelled down a steep 15ft slot into the deep pool and, still on rappel, vigorously swam 10yds across the pool to the smooth lip at the far end. The lip was broad enough to allow me to stand safely and I quickly fed the main and recovery ropes over the edge and down into the abyss. Below I could see nothing but pitch-black emptiness. I slipped over the edge (using my famous slide entry to a rappel) and began the vertical descent. There is always a

moment of apprehension at the top of a rappel before you get into a comfortable rhythm of descent. Fortunately this came quickly, and after about 30ft I began the long free rappel down across the face of a huge cave (the "Icebox") where the sandstone is massively undercut. It was an out-of-body experience, floating in the air surrounded by pitch-black darkness, my headlamp only dimly capable of detecting the great sandstone walls far beyond my reach while the trickling water of the stream drenched me from above. It seemed ages before I came to land on some steep and wet rock steps just above a large deep pool. Here I had assumed I would come to the end of the rappel. But in the darkness and cold, I could see no way to bypass the pool, no alternative but to swim yet again. With some consternation I thrashed my way across the 10yd pool only to peer down another 10ft drop into yet another pool. At this point the cold had begun to seriously affect my strength and agility but there was only one way to go. I half-waded, half-swam the second pool only to find myself at the top of yet another 50ft drop that ended in a third pool. On rappel again and at the end of my strength, I slid my way down the 50ft drop and waded across the pool to a beach. Only 5 extra feet of rappel rope trailed in the last pool; there was no sign of the recovery rope.

I knew that I had to get the wet clothing off as soon as possible. I had to find some way to warm up before hypothermia set in; my feet were particularly painful and I regretted not making an effort to borrow a pair of neoprene booties. Even though the gloves had kept my hands quite functional, it was particularly difficult to find and grasp the ends of the duct-tape, so as to remove the rain gear. Eventually and with much trembling I managed to undress, to don a dry tee shirt, a pair of long johns and a fleece jacket and to begin to warm my core. Now, I turned my attention to communications; a long whistle blast signaled the top for Randi to begin her descent. Then I forced myself to put my shoes back on for I knew that was the only way my feet would warm. Stomping around also helped.

I confess, I was so intent on my own predicament, that I was only dimly aware of the spot of light high overhead as it slowly descended. I think I yelled directions and encouragement at Randi, but I am not sure. Soon she was down and we both communicated with Dick over the radio. Randi also hastened to change into warm clothes but both of us were in no fit state to mount any rescue should Dick need help. We decided to light a small fire. Randi found some kindling and small logs and I soon had a very welcome fire burning. Overhead Dick's light seemed very dim as he rappeled through space. When he reached the bottom of the free-rappel, he tried heroically to adjust the ropes so as to allow rope recovery when he got to the bottom. But the total rope length was inadequate and it took some time before we realized that there was no alternative but for Dick to descend without any hope of rope recovery. We would have to leave them behind and hope to recover them at a later date. Then, as Dick began his transit through the lower pools his light died completely. Struggling mightily in the wet and cold, it took an age for him to remove the batteries from his radio and, using only feel, to install them in his light. I still do not know how he managed it. Finally, we all breathed a great sigh of relief as he

made it down safely and we could begin preparations for the hike out. By this time, warmed by the fire, Randi and I had recovered substantially and we were able to help Dick get changed and packed.

As we started on our way down the canyon, it was a great relief to finally be moving again. Almost immediately, however, we were unexpectedly faced with a small steep slot and a deep pool; fortunately, Randi found a way around this by way of a high shelf on the right. Though some further route finding was needed to negotiate other pools and boulders in the canyon, the trail gradually became easier to follow and the trek to the trailhead became uneventful. It was now approaching 10.00pm, our travails at the big rappel having consumed several hours. Our minds naturally turned to the next challenge, the reception we would receive from all those who would be waiting anxiously, perhaps fearfully, for some news of our circumstances. We finally reached the Icebox Trailhead (elevation 4300ft) after 14hrs on the trail; in that time we had covered but 3.6 miles of this wild land.

It was the next weekend before Dick and I hiked back up Icebox Canyon from the trailhead, carrying additional rope with which to complete the rope recovery. In daylight it was clear that there was a downclimbing route that bypassed the pools below the free-rappel but it would have been almost impossible to find it in the dark unless one were familiar with the territory. We had little difficulty with the rope recovery and were able, while we were there, to clear up the remains of the fire that had been so important to us the previous weekend.

Despite the pain of the cold, it had been a wondrous adventure in a spectacular place. I shall always remember descending into that pitch-dark abyss with my headlamp bouncing patches of dim light off distant slickrock. But, most of all, I will remember the quiet competence of my two companions and the teamwork that allowed us to overcome very adverse physical conditions without risk or trauma. In the cold, in the wet and in the darkness, a special bond was formed between three strangers, a bond created by the shared ordeal and cemented by the trust that we now felt in each other's strengths. At the end we hugged and parted, each for the moment intent on pleading forgiveness from those who had waited anxiously for our appearance. But we knew we would come together again as treasured friends and, each time we did, we would talk of that fantastic adventure in the "Icebox".

Chapter 45

ON THE VOMIT COMET

*“Oh! I have slipped the surly bonds of earth
and danced the skies on laughter-silvered wings ... ”*

*From “High Flight” by John Gillespie Magee Jr. USAF pilot, killed
Dec. 1941, the month in which I was born.*

Maybe it all started when I was a small boy watching rivulets of sand sliding down the lee side of the dunes in Portstewart. I remember watching and wondering how one might ever understand such elegant yet simple movements. Many years later I studied the mechanics of fluids in college, even going on to earn a PhD in the subject. My thesis involved calculations of the shape and other features of fully developed cavity flows, that is to say the flow of a liquid around an object where the pressure in the wake falls below the vapor pressure and becomes a large vapor bubble attached to the object. But nowhere in all of these studies did I learn anything about the flow of sand!

Many years later when I was a young faculty member at the California Institute of Technology, a senior colleague approached me with an enlarged photograph. It showed the vertically-downward flow of sand around a cylinder. Below that cylinder where one would normally see a wake, was a void or cavity empty of sand. It looked for all the world just like the vapor-filled wakes I had studied for my PhD - and that was, of course, why my colleague had approached me. I became intrigued by that photograph and that fascination led to many interesting years of research into the flows of granular materials.

The pioneer of granular flow research had been a colonel in the British Army by the name of R.A. Bagnold. Colonel Bagnold spent a large part of the Second World War in the deserts of North Africa. Recognizing the need to improve the ability of vehicles to negotiate this wild and shifting terrain, Bagnold studied the dunes and their reaction to all kinds of vehicle traction. After the war he continued his research as a part-time faculty member in England. He built a rotating viscometer to measure the “viscosity” of flowing granular material

and the results he obtained were published in the Proceedings of the Royal Society. The paper contained not only his experimental measurements but also a qualitative theory that seemed to explain key features of the measurements. The paper became a classic, the first reference in almost all the papers published in the subject during the decades that followed.

Of course, in the years ahead there were other published measurements of the “rheology” of granular materials. Quite sophisticated theories were developed that supplemented and confirmed Bagnold’s theoretical constructs. Then in the late 1990s, Melany Hunt discovered that though Bagnold’s theories were valid, his experiments were flawed and did not support the conclusions he had drawn. In fact, the “rheology” he observed was caused by end effects in his device and not by the fundamental behavior of the granular suspension. Clearly the experiments would have to be repeated. Of course, in the interim other experiments had been performed. But a major problem with all such experiments is the complication caused by the difference in density between the particles and the fluid. This could only be overcome by eliminating gravity.

Thus it was that Melany and I (along with Jim Cory and Steve Hostler) designed and built an experiment to do these measurements in zero gravity in a research aircraft maintained by NASA specifically for zero-gravity experiments. Fundamentally a structurally-strengthened Boeing 707, this aircraft, called the KC135, climbs and dives so as to produce a period of zero gravity as it is going over the top, transitioning from the climb to the dive. The duration of this zero-gravity “parabola” is only about 25secs; it is preceded and followed by periods of 2g. The obvious potential consequences of such radical motions have earned the aircraft the nickname, the “vomit comet”. Each flight of the KC135 consists of about 40 parabolas one after the other and each research opportunity typically involves flights on four successive days.

Most of the experiments aboard the KC-135 are conducted by the students or other young people involved in the project. It is rare that the older team members volunteer for this service. But, for me it seemed the opportunity of a lifetime and the closest I would ever get to outer space. Indeed, from the beginning I was resolved to fly on the vomit comet. Because of their knowledge of my outdoor adventures, this was no great surprise to Melany Hunt and my other colleagues. But there were several substantial impediments to be overcome before I could realize this ambition. First I would have to pass a medical examination. If successful, I would then have to travel to the NASA Johnson Space Center for a day long, FAA-approved course that involved testing in their high altitude chamber. This went by the euphemistic label of “physiological training”. The medical examination presented a major hurdle for me since the FAA submission form clearly stated that a myocardial infarction was a disqualifying prior medical condition and I had suffered a mild heart attack about a year before these events. But it was worth a good shot and so I went to the medical examination armed with a strong letter from my cooperative cardiologist stating that I was in excellent physical shape and that he deemed there to be no reason that I should be disqualified because of my heart condition. The medical examination was conducted by a local, Pasadena eye doctor who was

most helpful and promised to do what he could to get NASA approval. Several weeks later the answer was positive and I was set for the second hurdle, the “physiological training” at NASA Johnson in Houston, Texas.

So it was that Jim Cory, Steve Hostler and I flew to Houston, Texas, in February, 2003, for our “physiological training”. By a bizarre and terrible coincidence, the Space Shuttle Columbia had tragically disintegrated on re-entry just a few days before our scheduled visit and a memorial service for the Columbia astronauts was planned for February 4, the very day of our scheduled training. Since all activity at the Johnson Space Center would cease during the memorial service (the President, cabinet members and other dignitaries would be in attendance), we expected that our training would be postponed. But that was not the case. Thus, as instructed, we showed up at NASA’s “Neutral Buoyancy Laboratory” at the Johnson Space Center early that morning.

The first phase of our “training” consisted of a full morning of lectures on the effects of altitude, hypoxia (lack of oxygen) and low pressure on the human body. We learned many things that we would not have anticipated. For example, the name of the maneuver one uses to clear one’s ears during pressurization by holding one’s nose, closing one’s mouth and forcing air into the cavity behind these blockages. It is called a “valsalva”. We also learned some of the unexpected disasters that can occur as a result of depressurization such as having a tooth explode because of a small air bubble trapped beneath a filling. During all of this we also completed a health questionnaire in which we had to list our current medications. These were collected and a doctor behind the scenes was going over them as we sat in the lectures. I listed my heart medications and, throughout the morning, was in some trepidation waiting for the doctor to call me out and disqualify me. But that call never came. Instead, several young people attending the course received their dismissals.

At this point you may well be wondering (as we did) why high altitude instruction was deemed necessary since the interior of the KC-135 is pressurized just like a normal commercial airliner. The stated reason was that we would not have ready access to the usual emergency oxygen system with which commercial airliners are equipped. Consequently we would have to learn to use the more complex systems that pilots universally use. But I think a second, unstated reason was a desire on NASA’s part to check us out in physically stressful circumstances in order to ascertain our ability to handle the environment of a KC135 flight.

Whatever the full complex of reasons, part of the morning was devoted to instruction in the use of the standard breathing apparatus used by pilots and, after lunch we were each fitted with a flight helmet and mask for the oxygen supply system. It was now time for the high altitude chamber test. The chamber is a large, steel pressure vessel containing a rectangular room measuring about 15 feet by 8 feet, with rows of seats down both sides and windows all around. At one end is a door that leads to a small antechamber about 4 feet by 8 feet with a door to the outside. Instructors sit at each end of the main chamber ready to give immediate aid to anyone in distress. The chamber operator and several medical personnel sit outside at one end viewing the interior through a large



Left: Being fitted for an oxygen mask. Right: In the high altitude test chamber. Photos by Jim Cory.



Left: Steve in the test chamber. Right: KC135 on the tarmac at Glenn. Photos by Jim Cory.

window. We all took our assigned places and plugged in our oxygen supply and our intercom systems. We then sat breathing pure oxygen for about 30 minutes to clear all the nitrogen from our blood. I was surprised by my initial difficulty in breathing with the mask on at zero altitude; one has to work to pull the gas in. But I soon adjusted.

Then it was time for altitude, the chamber was sealed and the pressure was lowered fairly rapidly as we “climbed” to 25000 feet. Before we got too high the man next to me had some serious ear problems and was removed to the antechamber for release back to ground level pressure. I was pleasantly surprised at my lack of any breathing or ear problems even when we reached 25000ft, that, incidentally, is not far short of the top of Everest. Once at that altitude, each of us in turn was required to take off our oxygen mask and breathe the rarefied air. The purpose was to allow each of us to recognize our individual symptoms of hypoxia. I went first and had few symptoms, only a slight dizziness similar to that I had experienced climbing high mountains. I lasted the full five minutes at which point I was instructed to put on my own oxygen mask which I did without difficulty. However I was so intent in looking for physical symptoms that I forget to start the little mental tests (join the dots, arithmetic) that they had given each of us prior to the “flight” and that we were supposed to complete

at altitude. Thus I did exhibit reduced mental faculties.

My young colleague, Steve Hostler, also had few difficulties but two or three of the other 10 “students” showed signs of distress and had to be helped to put on their masks early. Once we had all completed the hypoxia test, the chamber pressure was increased gradually back to sea-level, a process that was accompanied by much valsalva-ing. After a brief pause outside the chamber we proceeded to the second phase of the testing in which we entered the antechamber in pairs with one instructor. The antechamber was then suddenly depressurized to 15000 feet (by opening a valve to the de-pressurized main chamber). The antechamber filled with condensation mist and we were then to don our masks and begin oxygen breathing as expeditiously as possible. My confidence was increasing rapidly as I could see a successful end in sight and I had no difficulty with this second phase.

Thus we came to the end of the training and it was with considerable relief that I was among those who returned to the classroom for a final briefing and the presentation of certificates signifying our successful completion of our “physiological training”.

This special NASA airplane, the KC135 or “vomit comet”, performs the following maneuver to achieve 25secs of zero gravity. From level flight at about 26000ft and 510 knots (just about its maximum speed) it pulls up into a 45 degree inclination and, under full power, climbs to nearly 35000ft. There the pilot transitions into a parabolic trajectory during which the vehicle experiences the 25 seconds of zero gravity. The velocity at the top of this arc is only 325 knots, close to the stall speed of the aircraft. At the end of this maneuver, its trajectory is a 45 degree descent and its speed increases back to 510 knots when it pulls out again into level flight at 26000ft. The g level during pullout is typically 1.8g. During the course of a flight it completes this maneuver about 40 times thus producing 40 periods of zero gravity each of which are 25 seconds long. This test period lasts about an hour and a half.

Though the airplane is stationed at NASA Glenn just outside of Cleveland, Ohio, flights are conducted out of both NASA Glenn and the NASA Johnson Space Center in Houston, Texas. In order to perform its radical maneuvers and avoid other commercial and private aviation, the KC135 must seek permission to use restricted air space. When operating out of NASA Glenn in Cleveland it normally uses two such restricted air spaces. One is an east/west strip of space located over Lake Ontario and given the code name Misty. The other is over the thumb of Michigan and is known as Steelhead.

Our experiments were scheduled on a May 2003 test flight out of NASA Glenn and so the equipment was shipped there the preceding week. My arrival had been delayed so that Steve and Jim covered the first day alone. But I was there early on the morning of the second day in order to proceed with the pre-flight preliminaries. The first order of business was a visit to the medical office at Glenn for a final check-up. Yet again I was apprehensive that they would disqualify me. But the checkup was routine; I was merely asked whether there had been any change in my health since the previous medical examination and I could emphatically respond in the negative. Then I was issued the standard



Left: Waiting to board. Right: Floating in zero gravity. Photos by Jim Cory.



Left: Floating in zero gravity. Right: Colliding with the ceiling. Photos by Jim Cory.

dose of motion sickness medication, two Sudanyl (30mg each) and either one or two Scopalamine (0.4mg each) for each flight.

The next stop was the regular preflight briefing where we met the pilot and captain, Stephen Feaster, the flight director John Saniec, and the flight doctor Dwight Peake. Thus briefed we headed for the airplane just outside the NASA hanger. Most of the interior of the KC135's passenger cabin is empty of seats, all facilities and partitions. The floor, walls and ceiling, indeed almost all surfaces, are lined with padded mats and, in place of windows, there are fluorescent lights that provide a brightly lit interior. The experiments, seven on our flight, are bolted to the floor. Only at the rear end does the cabin resemble a regular passenger airplane; there some 30 seats are installed and this is where all of us sat for the takeoff and the 30 minute flight from Glenn to Misty. Once we reached the restricted air space we left our seats and positioned ourselves on the floor next to our experiments.

The moment was at hand for the KC135 to begin its unique maneuvers.

We had, of course, been thoroughly briefed on what to expect and were closely watched and supervised by the NASA crew stationed at regular intervals along the length of cabin while the doctor roamed up and down watching for any sign of distress. Nevertheless the experience and sensations associated with the plane's roller-coaster ride were initially hair-raising. We began with a steep climb. Within the cabin, lacking any view of the horizon, it felt as though the plane was level at all times and only the magnitude of gravity was changing. The first sensation was of increased gravity and all such periods were the most unpleasant part of the flight for the inner ear does not like increased gravity. It is wise to remain still, kneeling or sitting on the floor. If you move your head too quickly, nausea comes quickly. Moreover, it feels as though your blood is all draining down to your feet. Then, after just a brief period of increased gravity, the pilot, in a matter of a few seconds, transitions to zero g. Your blood comes rushing back up into your head producing a headrush. At the same time, your stomach is moving upward rapidly. The first few times you encounter this transition it is an alarming experience though after four or five parabolas, knowing what to expect and knowing that you are not headed through the ceiling, one becomes accustomed to it. By comparison, the 25 seconds of zero g, are truly delightful. Initially one is reluctant to let go of the handrail hardly believing the environment. But after a few parabolas you move as soon as zero g is reached. I usually headed first for the safety of the handrail along the side of the ceiling. Floating in zero g is much like being underwater except that the resistance to tumbling or spin is much less. Consequently you must be careful at take-off not to impart too much spin for you can rapidly find yourself tumbling or spinning out of control. But once the zero spin take-off is perfected you find yourself embarking on longer and longer flights across and along the cabin. However, you must be ready for the signal from the NASA staff indicating that the zero g period is coming to an end. Indeed the staff regard the transition out of zero g as the most dangerous moment when people might come crashing down from their weightless flight. Consequently they yell "coming out" and this is the signal to take your place on the floor and prepare for non-zero g. All of this becomes quite routine as one progresses through the 40 parabolas that are interspersed with turns when the aircraft comes to the end of the restricted air space. After the first few parabolas devoted to adjustment, we had to get down to the business of the experiment and worked hard for the next hour or so as we swooped up and down through the skies. After 40 parabolas we were quite exhausted and glad to return to our seats in the rear of the aircraft for the flight back to Glenn.

There was much work to be done after we landed in order to prepare the experiment for the flight on the next day. We were to repeated the whole agenda with different settings - and again the following day. But we had many difficulties with the experiment, troubles that now seem inevitable since it was not possible to predict how it would respond to a weightless environment and there was no way to test that ahead of time. Though we learned alot from those first flights, it only allowed us to redesign the experiment for a more successful flight in the future.

On the other hand, from a personal perspective it had been a truly unique experience. I had come as close to an adventure in space as I ever could or would. I was born just a few years too early and born into a society only just entering the technological age. A few years later and I would have learned of the real possibility of venturing beyond the bonds of gravity and exploring the majesty of space. But I do not dwell on such hypotheticals. I am content for I have lived a life full of love and full of adventure beyond the wildest dreams of my youth. And I have tasted what the frontier of space might be like.

Chapter 46

RATHLIN ISLAND

*“I have traveled through great beauty
You cannot ask for more than that.”*

Anonymous.

Rathlin island off the north coast of Ireland is a storied place of myths, massacres and abundant wildlife. Its isolation of old, maintained by the fierce north Atlantic, has been extended into modern times by an episodic and uncertain ferry service and this isolation has preserved this quiet and lovely place for the enjoyment of today’s occasional visitors.

Perhaps the most widely known legend of Rathlin concerns the Scottish king Robert I, known as Robert the Bruce. During his early struggles to establish dominion over Scotland, Robert suffered a number of serious setbacks. Fleeing from a defeat at the Battle of Strath-Fillan in 1306, Robert took refuge in a cave on the island of Rathlin. There he was bemoaning his fate when he began to watch a spider struggling to build its web within the cave. Many times the spider failed, but each time it began again. In the end, the spider succeeded in creating the web and, inspired by the spider’s example, Bruce emerged from the cave, revived his campaign, and went on to win a famous victory at the Battle of Bannockburn in 1314. Crowned Robert I, he had a long and successful reign as King of Scotland. But he will forever be known to the world (and in countless children’s books) as a classic example of persistence.

Though much doubt surrounds the historical accuracy of the legend and its location, the Rathlin people point to a sea-cave on the rugged northeast headland of the island and identify this as “Bruce’s Cave”. I learned that it was at the bottom of a sheer 200ft cliff and just south of the East Lighthouse that guards this storm-tossed corner of the North Atlantic. Atop the cliff not far away are the remains of a castle that was built in the 12th century and occupied by Robert the Bruce during his travail. Today’s guidebooks claim the cave is

only accessible by boat and only during calm seas, a rarity around Rathlin. This story recounts my expedition to seek out and visit Bruce's Cave.

The ferry was much larger than I expected. A landing craft type vessel, it had lowered its gangway onto the slope of the launching ramp in Ballycastle harbor and was ready to accept as many as half a dozen vehicles. But there were no vehicles this morning. Only about a dozen people had bought tickets in the harbor office and had wandered on board the Caledonian MacBrayne ferry for the 10.30am trip across to Rathlin island. As we waited to depart a seal played among the harbor rocks and a shearwater stood watch on the harbor wall.

The 6 mile trip from Ballycastle to Church Bay on Rathlin Island takes a little over 30min. The currents in this channel can be quite fierce; they create visible patches of turbulence that the ferry seeks to avoid. However, the L-shape of the island means that Church Bay, within the L, is sheltered from both the ocean and the wind. The currents and frequent storms have resulted in many wrecks around the coast of Rathlin and make this a popular diving venue. One prominent wreck within Church Bay is that of the warship HMS Drake that was torpedoed here by a German U-boat in 1916. It is now populated by many large conger eels. Other sea life greets the visitor in Church Bay harbor, home to a large population of seals who bask on the rocks next to the tourists.

The sun was shining as I disembarked and turned left away from the village. I stopped briefly at the lovely Church of St. Thomas, built in 1722, and maintained today with exquisite simplicity and elegance. Just past the church the road turned inland, climbing steeply toward the flat plateau on top of the island. Continuing on through a four-way junction at the Roman Catholic Church, the road turns east and, within 0.5 mile, becomes a gravel-surfaced driveway that leads to the East Lighthouse on Altacarry Head. Here the plateau is exposed to the elements and the grassy slopes that characterized the land further southwest are now replaced by heather-covered heathland. The East Lighthouse itself, built in the 1850s, sits atop 200ft cliffs that plunge vertically down into the sea. It is famous as the site of Marconi's first radio transmission made between here and Ballycastle in 1898. The lighthouse and associated buildings are contained within a walled compound to which access is forbidden but that is not a problem for the hiker exploring the cliffs to either side of the headland.

After a brief visit to the coast north of the lighthouse, I made my way along the southern wall of the compound and began a detailed inspection of the cliffs that drop straight down into the ocean at that point. My purpose was to locate Bruce's Cave from the cliff top and, if possible, to find a way to climb down to it. The slippery grass that grows everywhere made it quite difficult to safely get a view over the edge of the cliff but by venturing onto several promontories and looking backwards I came to the conclusion that there were no caves directly beneath the lighthouse. At least no caves with any access from above. I then continued my precarious survey working my way southwards along the cliff's edge. About 100yds from the lighthouse, I came to a slight break in the cliff where a steep, grass-covered gully descended to a rocky ledge far below. I could see that there were substantial sea inlets to either side of my cliff top vantage



Left: Church Bay harbor. Right: East Lighthouse.



Left: Route to Bruce's Cave. Right: Bruce's Cave.

point. The inlet to the right or south of the gully seemed very promising and the only likely location of Bruce's Cave that I had found so far. Trouble was that the steep grassy route down to the ledge veered right across the top of a vertical drop into the left inlet. But I planned out the footholds and handholds in detail and, leaving my pack at the top, began the downclimb. In the end, I descended to the ledge with little difficulty though the route might be much harder on a wet day. Reaching the broad ledge, I looked right and there it was - a beautiful and deep sea-cave, Bruce's Cave. A deep and navigable channel ran into the cave and culminated in a rocky beach about 20yds inside the cavern. I was able to tightrope along ledges on the right all the way to the cave entrance. I could have readily reached the beach by wading but chose to stay dry for the island had much that I had yet to see. It was clear that the cavern extended some distance inland but I could not discern quite how far that was.

I returned to the sunny ledge and sat down to enjoy this remote place and my success in reaching the cave. It had turned out to be a beautiful day, sunny and calm. I thought about the Bruce, the spider and my own resolve. Sometimes I seem to set my mind on objectives that only I imagine have value; and I do

admit to a single-minded tenaciousness in pursuing those goals. But, at the very least, these whims bring me to places of undeniable beauty and to experiences that are deeply gratifying. Maybe, above all, these whims have opened windows into myself.

But time was awasting and there was much yet to see on this lovely island. I gathered myself for the climb back to the cliff-top, an ascent that was, as always, much easier than the descent. Continuing southward, I soon spotted the little remains of Bruce's castle on a small plot of land almost completely cut off from the cliff top heathland. The remains consisted of two small sections of wall at the edge of the cliff-ringed sea stack. A narrow land bridge allowed access to the castle from the mainland and I made the crossing to pay homage to Bruce. I also thought of the hundreds of native Irish that sought refuge here in 1575 and were massacred by the English army of the Earl of Essex.

From the castle, I hiked across country following a faint path in a western direction. This linked up with the end of a dirt road that took me to the southern asphalt road back to the village. The excursion to Bruce's world had taken just 2 hours. During lunch at the village pub, I learned of a bus tour that would take me to the seabird sanctuary at the other, western end of the island nearly four miles distant. The tour had been scheduled to depart about an hour ago but had been delayed because both batteries aboard the bus were dead. The owner operator was around the corner slowly recharging the batteries. There was a depressing prediction that it would take at least another hour to complete this task. I decided to start walking knowing that I could flag down the bus if and when it caught up with me but also knowing that there was insufficient time to hike to the west end and back. In the event, the bus did catch up with me after about a mile and I enjoyed a delightfully rustic bus tour of the west and southern ends of the island before returning to the village in time for the 3.30pm ferry back to the mainland. Highlights of the bus tour included the precipitous seabird sanctuary at the dramatic western headland and the two ruined buildings at the southern tip. One belonged to the smugglers and the other, just a few yards away, belonged to the coastguard whose primary task was the prevention of smuggling. Only in Ireland.

Chapter 47

SKELLIG MICHAEL

“... they landed me on the most fantastic and impossible rock in the world: Skellig Michael, or the Great Skellig, where in south west gales the spray knocks stones out of the lighthouse keeper’s house, 160 feet above calm sea level.”

From a letter by George Bernard Shaw to his friend Jackson, Sep.10, 1918.

Around the world there are a few special structures that represent the pinnacle of human endeavor and achievement. Some, like the Taj Mahal, are unique for their elegance. Some, like the Great Pyramids, the Great Wall or Stonehenge, are wondrous for their engineering. Others, like Macchu Picchu, were constructed in spectacular natural settings. Then there are a few that cause us to truly marvel at the limits of the human spirit. This story is about one such place.

Out in the raw north Atlantic, an eight mile voyage from the rugged southwest coast of Ireland, there is a precipitous pinnacle of rock that rises some 700ft above the waves. This sea-girthed mountain top, storm-shredded and wave-smashed, surrounded on all sides by dark cliffs rising sheer out of the ocean, is known as Skellig Michael. The apex of this island consists of two peaks: the lower, 607ft peak is rounded and has some grass-covered spaces. The higher 715ft South Peak is an almost vertical crag with a sharp rock summit. In between the peaks is a feature known as Christ’s Saddle (elevation 400ft). Needless to say the area available for human exploitation is very small and very high above the ocean. One would expect that the rock could only be home to a few fearless seabirds. Yet sometime in the sixth century, when the rest of Europe was deep in the Dark Ages, a small group of ascetic monks sailed from the Irish mainland in fragile currachs (boats made of animal skins and tar) and made perilous landfall on Skellig Michael. Some believe they were

fleeing from the rampaging savagery of their fellow men. Others think they were seeking the ultimate austerity, believing that brought them closer to God.

Whatever drove them they were determined to make permanent settlement in this fierce place. They managed to climb the cliffs to the saddle and thence to the flat spaces on the lower summit. There, over the decades, they constructed a tiny monastery from the only material available, namely the rock itself. Due to their stone construction and their isolation, the remains of this monastery are remarkably well preserved and consist of six small beehive cells, round on the outside and rectangular within. Two places of worship were also built; one was later improved and dedicated to St. Michael so that, thereafter, the islet became known as Skellig Michael.

The monastery managed to survive for some four centuries, living on rainwater, seabirds, fish and the little oats and vegetables they could grow on the tiny plots of cleared land. They also needed supplies from the mainland. But, even here in this remote place they were not able to completely escape the marauders; the Vikings sacked the monastery in the ninth century and a number of times thereafter. Perhaps that is why the monks built a tiny retreat atop the highest place on the island, the 715ft South Peak. The climbing route to this precarious perch is daunting and much more easily defended than the monastery on the lower summit. Indeed, there is one spot along the route known as the Needle's Eye where a single man could defend against an army. Of course, it is also possible that this aerie was developed as the ultimate in devotional austerity.

On Aug.22, 2004, Doreen and I disembarked from the lobster boat at a small jetty in Blind Man's Cove, one of the few sheltered places anywhere around Skellig Michael. Over the internet we had booked passage for this date with Ken Roddy but had allowed ourselves several subsequent days in case the weather cancelled the trip as it frequently does. As soon as we landed at Cork Airport on the evening of Aug.21, I called Ken who informed me that the forecast for the next day looked good; it might, indeed, be the best day for the coming week and maybe the only one. This accelerated our schedule and we left Cork at 6.00am the next morning to drive to Portmagee at the far end of the Iveragh Peninsula on the Ring of Kerry. Ken was waiting at the pier and, with about 10 other intrepid tourists, we soon boarded his lobster boat for the ocean crossing.

We left Portmagee about 10.30am and were soon pitching up and down in the Atlantic as we emerged from the Portmagee Channel and the shelter of Bray Head. The Skellig rocks were now clearly visible but still eight miles of ocean away. The sealife immediately signaled that we had left the dominion of man for seabirds flew by in elegant formation and dolphins raced to play alongside our boat, leaping in the air just feet away as if to inspect this latest group of adventurers. Over the next hour the Great Skellig loomed ever larger ahead of us. In the lee shadow of this spectacular rock we could see one of the rock staircases that seemed to climb straight up the cliffs to the soaring summit. Soon we entered the tiny inlet, Blind Man's Cove, where a natural landing place had been supplemented by a small concrete pier. The boat rose and fell so that good timing was needed to safely step from the boat onto the pier. It was all done rapidly and soon the boat moved out and away from the dangerous rocks



Left: Portmagee. Right: Docked in Blind Man's Cove.



Left: Approaching Skellig Michael. Right: On the lighthouse road.



Left: South Peak, Skellig Michael. Right: Approach to South Peak.

to wait in the open ocean while we explored the island.

When the lighthouses were built in the 1820s a narrow road was blasted out of the cliff to allow access from Blind Man's Cove to the lighthouses at the far end of the island. Following this easy path, we contoured around high above Cross Cove and passed the steel helicopter landing pad built in mid-air overhanging the sea. About 400yds from the boat we came to the point where the lighthouse road intersects one of the monk's stairways, the South Trail that zigzags 500ft up from the South Landing to Christ's Saddle. The monks built several other stairways, one directly up from Blind Man's Cove to the monastery

and another from the Blue Cove on the north side up to Christ's Saddle but neither of these are practical or safe for today's tourists.

Just a short distance up the stairway from the lighthouse road is the Wailing Woman, a projecting rock formation of odd and haunting form. In times gone by, she was one of the penitential stations of the cross on the way to the heights above. To the secular visitor today, she seems to stand guard, testifying to this special place of myths and spirits and reminding the visitor that their stay is brief and insubstantial. Beyond this guardian, the stairway steepens and the view down to the ocean becomes increasingly intimidating. Eventually, the stairway edges into Christ's Saddle, 400ft above the waves. Here, Doreen and I paused to rest in the reassuring but tiny area of flat ground between the peaks with great cliffs above and below.

Here, too, Doreen was kind enough to wait, kind enough to indulge me while I fulfilled my ambition to leave the normal tourist trail and climb the daunting, 715ft South Peak. Several centuries ago the South Peak became the destination of pilgrims determined to visit the stations of the cross all the way to the summit of this awe-inspiring peak. There they would edge their way along an overhanging rock known as "The Spit" to kiss a standing stone perched on the end. That stone fell into the ocean some years ago but the magnetic pull of the South Peak has not been reduced as a result. Apart from the spectacular views and the excitement of the climb, there are the remains of the tiny hermitage built on a ledge high up on the South Peak perhaps a thousand years ago. It is even more awesome than the view.

A left fork at Christ's Saddle took me up to a narrow ridge that connects the South Peak with an outcrop of rocks to the southwest. From there one accesses an improved ledge that contours around to the western side of the peak. Here I found that ropes had been strung along the ledge as a safety railing though they were not essential. The ledge trail ends about 15ft below a large perched boulder separated from the mountain by a narrow defile called the Needle's Eye. Scrambling up the rock face below this feature, I had little difficulty in climbing up through the Needle's Eye. Indeed there are convenient footholds that may have been cut into the rock centuries ago. One surmises that the Needle's Eye may have allowed the South Peak to serve as a safe refuge since a few men could guard the Eye against a host of raiders.

Emerging from the top of the Needle's Eye, one is rewarded with an awesome view. Just below on a rock outcropping is an ancient enclosure whose purpose is difficult to imagine; far below that are the ruins of a more modern structure, the remains of the second, upper lighthouse now long abandoned. Turning around to face the peak, one recognizes a steep but easy climb up a slight gully with many good footholds. Forty feet up you emerge onto the end of a flat ledge known as the Garden Terrace. This ledge seems natural but it is in fact of human construction being supported underneath by hidden, man-made retaining walls; it may or may not have served as a hermit's garden. The ascent resumes back at the northwestern end of the Garden Terrace where you continue to climb up the rock face for about 20ft to a comfortable path. In the southeastern direction this path leads down to the most important archaeological site on the South Peak,



Left: South Peak Trail. Right: Lighthouse from trail.



Left: Oratory Terrace. Right: Monastery from South Peak.

namely the Oratory Terrace. Here one finds, among other relics, the remains of a small oratory built by the monks. Clearly this was intended as much more than a station for short visits, because an intricate system of water collection has been chipped out of the rock face and terminates in two interconnecting water basins. It is an awesome place with an incredible view and causes one to marvel at the human spirit.

The summit of the South Peak is only about 45ft above the Oratory Terrace. To reach there you retrace your steps up the ledge leading to the Terrace and past where you ascended from below. The ledge leads into a corner where, with the aid of good foot holds and hand holds, you can climb last 15ft to the summit. The peak itself is adorned with a modern iron weather vane but the eye is soon



Left: Stairs from Christ's Saddle. Right: Monastery.

drawn to the incredible spectacle in every direction. Almost directly below you on the east is Christ's Saddle and to the northeast you see, for the first time, the lower rounded peak and the tops of the beehive cells that constitute the monastery. On the north and west the cliffs drop straight down to the ocean waves, while the upper and lower lighthouses are visible to the southwest and south. It is a special place to have the privilege to visit and one can readily understand how it became a place of pilgrimage.

Reluctantly I dragged myself away from the summit and quickly descended to Christ's Saddle where I rejoined Doreen. From there we climbed the last steep stairway that leads to a ledge trail with an enormous 600ft of exposure down to the ocean waves. Traversing this ledge trail, brought us to the doorway through the first curtain wall just below the monastery. The curtain wall encloses a courtyard that overlooks other clearings and small structures right at the edge of the cliff. We spent a few moments here getting our breath and admiring the marvelous sea vista before us. Little Skellig dominates the seascape and the tens of thousands of seabirds that roost on that island made it appear like a great white bee's nest. The rugged southwest coast of County Kerry completed the backdrop that, on this day, was blessed by a blue sky background.

A massive dry stone wall protects the monastery on this southeastern side and access to the inner courtyard is by way of a tunnel doorway through this great wall. Climbing up the steps at the other side one is greeted by the line of six beehive structures with their corbeled stone roofs. These beehive structures have a square planform inside and a circular one outside. A set of projecting roof rocks allowed the monks to climb to the top of the structure and open or close a rock that covered the top of a chimney. Only one roof is missing and it may well have been dismantled by the monks themselves. Between the line of

beehive huts and the great wall the courtyard is filled by one intact oratory, the ruins of a more modern church, the Church of Saint Michael, a tiny graveyard with gravestones and a large Celtic cross. The older intact oratory is similar in structure to the beehive cells except that it has a rectangular planform both inside and out. A window and a doorway of the Church of St. Michael still stand though much of the rest is gone. One lighthouse keeper buried two of his infant sons in the church and covered their graves with an inscribed gravestone. But this is the only modern incursion that has been allowed to remain. It is indeed a wondrous place, a treasure preserved by isolation. Doreen and I ate our lunch and listened as one of the docents told us what little is known of those remarkable dark age inhabitants.

Too soon, however, it was time to take our leave, to struggle down 600ft of ancient stairway back to sea level. Descending was in some ways more of a challenge than ascending for looking down at the sea so very far below us was seriously intimidating. However, we made it slowly but surely. We had been told to meet the lobster boat back at the jetty at 2.00pm after 2.5hrs on the rock; everyone was there on time and quickly boarded the boat for the return to the mainland. As the boat drew away from the island, we looked back in admiration at the imperfect refuge of those ancient hermits, marveling at the unquenchable spirit they needed to survive in this awesome place.

Chapter 48

HUAYNA PICCHU

*“ looming over you through the driven clouds, and right ahead,
at the end of the ridge, towers an appalling berg of rock, like the
fragment of a fallen moon.”*

From “The Condor and the Cows” by Christopher Isherwood (1949).

We had come to this stupendous and storied place to enjoy a shared adventure, perhaps for the last time. This would be a reenactment of a family tradition forged some thirty years earlier when the girls were just a few years old. Adventure was in their souls, perhaps even in their Scotch-Irish genes. Almost forty years before our small nuclear family had left the comfort of a Northern Irish homeland and ventured half way around the world, seeking new spaces in which to grow and prosper. Husband and wife, we had arrived in California with two small daughters, two large suitcases and two hundred dollars; all we had in the world. Since that brave journey there had been joys and sadnesses, triumphs and tragedies. Some the result of happenstance, some caused by the same venturesome spirit that encouraged us to reach for the sky.

It had been this way as long as any of us could remember. There had been the long car camping trips throughout the western United States, thousands of miles in a slightly faulty but stylish 65 Mustang to explore every reachable geological oddity or anthropological remnant. We had hiked as far as children's legs could take them, into the Virgin River Narrows, through the Hoh rain forest, up to the glaciers of Mount Rainier and out to a myriad of other places. We had often ventured off-trail to find places others had not seen whether in the rugged and precipitous canyons of the San Gabriel mountains, the wondrous maze of rocks in Joshua Tree National Park, or the canyons of the Colorado plateau, anywhere something new or exciting might be found. Mishaps were, of course, inevitable. In those early days, they rarely meant more than an unexpected dunking or a twisted knee. Sometimes they even meant dangling on the end

of a rope for a short time before being rescued. In later life and in different circumstances, there were sometimes more serious consequences.

As the eldest daughter she had left home first, traveling across the continent to make her life in an eastern city. She had married an older man, only to discover after two children that their interests and personalities had diverged to the point of rupture. In the heat and trauma of that dissolution, she had become a little derailed. One awful night, Jan.5, 1999, that lead to a terrible accident. Driving too fast late at night on icy asphalt, her red 951 Turbo Porsche left the road and smashed, driver side first, into the trees. She was trapped upside down for hours, her lower body crushed among mangled metal. It took more than two hours for the firemen to cut her loose and load her into the helicopter for the short flight to the University of Pennsylvania Hospital. There the doctors diagnosed multiple fractures of the pelvis, two broken femurs, a broken right ankle and numerous lacerations. Orthopedic surgeon Christopher T. Born took on the daunting task of trying to reconstruct the lower part of her body. She was very lucky to have found herself in the hands of this skilled surgeon who performed five operations to reconstruct the pelvis (using five permanent pins), to align the femurs (using a rod through the core of one femur) and pin the ankle together with several permanent screws. She spent two months in the University of Pennsylvania hospital and another month in a rehabilitation hospice in Bryn Mawr. Then many agonizing months with daily physiotherapy in order to walk again. This too was interrupted by a final operation in the fall to remove the rod from the femur. It took patience, persistence and much pain as well as valuable help from her ex-husband, Bill O'Brien. But her innate optimism and irrepressible spirit equipped her for the struggle and within the year she could walk again, albeit slowly and with a limp. Her case was so unusual that Dr. Born published a research paper on it. But she was not finished with the repair and by the summer of 2000 was able to send him a photograph of her rock climbing in Kings Canyon National Park, a picture that he proudly included in the verbal presentation of his paper at a scholarly symposium.

But she still limped, was still impaired in her movements so there was still work to be done if she was to live the kind of active life that she had been brought up to and that she wanted for herself and her children. There would be no more horse riding but there could still be great adventure.

Now she stood beside me in the midst of the lost city of the Incas. With her sister we had traveled to Peru and flown to the Incan capital of Cuzco. There we paused for several days in that beautiful sky-high city, partly to acclimatize and partly to enjoy the Incan and Spanish colonial history of the place. One guided tour took us to the huge Spanish colonial cathedral of Cuzco, built on the foundations of Incan palaces and richly decorated with imperious, gilded images. During that visit there occurred a moment that augured for something special in our own lives. Standing in the imposing nave of the cathedral, the daunting plumage all around, the cathedral bells began to toll slowly. Moments later the whispers could be heard everywhere and nowhere, "El Papa murio, el Papa murio, ...". It was April 2, 2005, and Pope John Paul had just died half a world away. I could not help but be reminded of my own mortality, of the need



Left: Machu Picchu. Right: Huayna Picchu. Photos by Danamichele Brennen.



Left: Climbing Huayna Picchu. Right: Tunnel on Inca trail, Huayna Picchu. Photos by Danamichele Brennen.



Left: Inca temple on Huayna Picchu. Right: On the summit of Huayna Picchu.

to relish these special days with my two beloved daughters; “.. never send to know for whom the bell tolls; it tolls for thee (John Donne, 1623)”.

A couple of days later we caught the early morning train that laboriously switchbacked its way up the mountains surrounding Cuzco and crossed the altiplano before descending again into the deep valley of the Urubamba river. Heading downstream through the ever-deepening gorge we left the dirt roads behind us just northwest of Ollantaytambo, only the railway and the raging Urubamba penetrating the deepening jungle beyond that point. Finally, five hours from Cuzco, the train edged into Agua Caliente, a jumble of vendor stalls, hotels and restaurants squeezed into a strip of jungle between the Urubamba and the towering cliffs. We had come to the land of cloud forest and the mist hung in great clumps over the heights above us. A raft of buses were waiting for the train and we were soon switchbacking our way up the dirt road toward the ridge, 1300ft above the Urubamba, a ridge where the Incas built their magic city of Machu Picchu. We spent the day there, first on a guided tour, and then in our own explorations. The day tours left in mid-afternoon and thereafter we enjoyed the lack of crowds and the improving weather as the mists cleared and the sun began to peek through. It was a glorious afternoon in a magnificent place.

Though much of Machu Picchu's history is shrouded in mystery, the most widely held view is that the city was built by the Inca emperor Pachacutec in the mid 1400s and that it served as both a ceremonial and agricultural center. The astronomical alignments of its temples and monuments are very sophisticated and the extensive agricultural terraces may have been used to grow plants adapted to the wet jungle climate rather than the drier Inca heartland. Some think that Machu Picchu's isolation may have led to a decline prior to the Spanish arrival in Peru. What is certain is that it was completely abandoned before it could be discovered by the invaders; Pizarro marched right past it on his exploration down the Urubamba. This was great good fortune for Machu Picchu was rapidly overgrown and for centuries lay hidden in the jungle, one of the very few Incan cities to escape destruction by the Spaniards. Not until 1911 did the American archaeologist Hiram Bingham uncover its hidden splendors.

The city was built on a narrow ridge that lies inside a sharp, 180 degree bend in the Urubamba river. It is a natural fortress site, easily defended since the 1300ft drop down to the Urubamba is nearly vertical on three sides. On the fourth side, overshadowed by the 10,040ft Machu Picchu mountain, the Inca built a wall, a gate and various guard houses to protect the city. At the other end, the far end of the ridge, a precipitous basaltic column rises like an exclamation mark to a sharp summit, another 1000ft above the city. This awesome pinnacle, known as Huayna Picchu, was sacred to the Incas who managed to build some remarkable structures on its precarious summit. In several places their paths and terraces look down over 2300 vertical feet to the Urubamba.

Somehow during the rest of that day and evening, as we relaxed at our hotel in Agua Caliente, a plan to climb Huayna Picchu crystallized in our minds. None of us were quite sure we had the strength after our exhausting travels and

the toll that the altitude had taken on our constitutions. When the morning came Kathy, my younger daughter, did not feel well enough for this extracurricular exploit and resolved to spend the morning resting among the Incan ruins. Dana had done nothing like this climb since her accident and so it became an unexpected but welcome test of her long rehabilitation.

So it was that in the morning mist we crossed through the lost city to its northwestern end where, at 7875ft, the ridge narrows to a knife-edge. There the Incas built a shrine and guardhouse, a hut that still serves the same purpose, for those who set off to climb Huayna Picchu today must sign in and sign out when they descend again. It is not quite clear what the authorities would do if someone failed to sign out; drain the Urubamba? We duly signed in and started along the rough trail that first descends about 100ft in order to cross the narrow spine that connects the main ridge top with Huayna Picchu. The climb up the steep trail toward the summit starts immediately and rapidly steepens; the ancient steps cut into the rock are sorely needed as are the ropes that have been added for modern climbers. We paused often to inhale gulps of thin air. Then on again. Dana climbed easily, exuding a delight in finding final confirmation that she was no longer handicapped; indeed she often had to wait while I caught up. Nearing the summit, the jungle around us merged into Incan walls and soon we were ascending the first steep staircase through those terraces. This led to the first great platform with a fantastic view of Machu Picchu and the land all around us. From this platform the trail proceeded through a short tunnel, emerging beside an "usnu" or holy site with walls built above a 2000ft vertical drop all the way down to the Urubamba. Then more stairs along the edge of that awesome cliff before we arrived at the jumble of giant boulders that adorn the summit. Climbing through and over several of these, overhanging the same huge drop, we finally gained the 8860ft summit of this awesome peak.

As it turned out, Dana had conquered Huayna Picchu with some ease and certainly no limp. Nevertheless the accomplishment symbolized a long and painful struggle, a rehabilitation that had been as much spiritual as physical. It would have been so easy, so comfortable to take refuge in the handicap, to let all those metal pins and rods bear the burden. To make the matter harder, along the way she had to deal with a host of other challenges that would have broken a lesser spirit. So this moment was one of rightful, jubilant celebration. I was and am deeply proud of what my daughter overcame and that pride as well as her joy are etched in the faces of the photographs we took that day. The Incas had carved a soaring condor into the face of the summit boulder. It seemed an appropriate symbol for what she had accomplished.

Chapter 49

EICHORN PINNACLE

“.. the greatest single event in my outdoor life ..”

Jules Eichorn in an interview with John Schagen in 1982.

Perhaps the most beautiful landscape in the world is found in the high country of the Sierra Nevada mountains in California. One of the jewels in this wonderland is Tuolumne Meadows in the heart of Yosemite National Park. John Muir happened upon this high sunlit meadow during his first summer in the Sierras and his lyrical descriptions of it began a chain of events that led to the nation and eventually the world's recognition of this and so many other special natural treasures. Tuolumne Meadows is surrounded by an array of majestic granite peaks; perhaps the most awesome of these peaks lies along the south rim of the Meadows. Muir called it Cathedral Peak and it moved him to some of his most spiritual words:

“... the wonderful mountain called Cathedral Peak is in sight. From every point of view it shows marked individuality. It is a majestic temple of one stone, hewn from living rock, and adorned with spires and pinnacles in regular cathedral style. The dwarf pines on the roof look like mosses. I hope some time to climb it to say my prayers and hear the stone sermons.”

Later in his narrative he writes

“I never weary gazing at the wonderful Cathedral. It has more individual character than any other rock or mountain I ever saw, excepting perhaps the Yosemite South Dome.”

As his first summer in Tuolumne Meadows was growing to a close, the urge to climb Cathedral Peak became irresistible and so on September 7, 1869, John Muir left his Tuolumne Meadows camp at daybreak determined to get to the

top. Approaching the peak by the route we describe below, he got near the summit though whether he actually ascended the technically demanding last 15 feet of the summit block is uncertain. There is no doubt however that the experience affected him deeply for he wrote:

“No feature, however, of all the noble landscape as seen from here seems more wonderful than the Cathedral itself, a temple displaying Nature’s best masonry and sermons in stones. How often have I gazed at it from the tops of hills and ridges, and through openings in the forests on my many short excursions, devoutly wondering, admiring, longing! This I may say is the first time I have been at church in California, led here at last, every door graciously opened for the poor lonely worshiper.”

* * *

One day in August of the year 2000, Clancy Rowley, Don Caldwell and I drove over the Tioga Pass and down to Tuolumne Meadows with the intention of climbing this storied peak. We parked at the Cathedral Lakes trailhead on the south side of the Meadows and set off up the unmarked use-trail that climbs beside Budd Creek. Hiking about 1.7 miles due south we reached a grassy meadow with a spectacular view of Cathedral Peak looming above us to the west. Here we left the stream and began the uphill climb toward a scree slope that allows steep but ready access to a shoulder saddle on the north side of the mountain. Clambering over the huge boulders that line this saddle ridge at an elevation of 10700 feet, an awesome view to the west of the peak opened up before us. In the distance lay range after range of Sierra Nevada peaks reaching to the horizon and beyond. Below us the beautiful Cathedral Lakes and their green, luxurious meadows. And over to our left, protruding starkly from the side of Cathedral was the spire, the vertical column of rock known as the Eichorn Pinnacle.

We had come this day to attempt the achievable objective of ascending the summit of Cathedral Peak, not to climb this awesome spire for we thought it beyond our climbing ability. From where we now stood on this northern saddle, we could see that our evaluation was correct. Yet it was hard to get the Eichorn Pinnacle out of our minds. But on this day, having absorbed the view, we climbed down over massive boulders on the far side of the ridge saddle and traversed across the steep rock slabs to the saddle between the Peak and the Pinnacle where another great view, this one to the south, opened up before us. Upper Cathedral Lake lay below us and, off to the southwest, stood Half Dome and the other monuments of Yosemite National Park. The sheer south face of Cathedral Peak drops down vertically below this second saddle, a drop of about 300ft before the ground flattens out. Some years later we rappelled down this face.

With a brief glance back at the Pinnacle, we then began the ascent to the summit of Cathedral Peak. The obvious route was just to the left of a sharp ridge

line and involved class 3 climbing over large boulders and rockslabs that had good friction and lots of handholds. As we approached the summit we veered left onto a series of broad ledges that lay below the summit. The summit block itself was the left-most of three towering pinnacles that loomed high overhead but was not visible until near the end of the ascent up the ridge. However, when we clambered up onto the left end of the topmost ledge, the summit block was readily identified. An easily-ascended slot just to the right of the summit block led to the last, and most difficult phase of the ascent. We paused here in the safety of the slot to prepare for this last short technical pitch to the top of the summit block. We buckled on our climbing harnesses and planned the 15ft class 4 climb to the top. At the end of the slot there were several large boulders and we wrapped one of these to anchor Clancy who would lead the climb. Thus secured Clancy then stepped out onto a narrow slot-ledge with huge exposure beneath him. Using two horizontal cracks, one for hands and the other for feet, he shuffled his way laterally for about 15ft to the relative security of a recess at the base of two vertical cracks leading directly up to the summit. These two cracks provided good holds for the class 4 climb to the top. Within a few minutes Clancy had wedged his way up these cracks and, out of our sight, was sitting on the flat rock platform, 4ft by 6ft, that is the summit of Cathedral Peak. Two solid bolts installed in this platform could be used as anchors so it was only a few minutes before Clancy had belayed both Don and I up to this airy perch. We filled all the available space on the top of the summit block.

The 10911 foot summit of Cathedral Peak provided a truly breathtaking view in every direction. It took many minutes to absorb and savor the experience of sitting on top on this awesome mountain. Every way we looked the grandeur of the High Sierra landscape was laid out before us. One cannot help but to be humbled by the magnificence of creation. But all too soon we had to descend. Using the summit platform bolts, we set up a simple 30ft rappel down the northwest face to the broad ledge below the summit block. Simple, but it was still an awesome moment when I edged off the summit platform to begin the descent. It felt like stepping off the edge of the world. Once down we traversed the broad ledge below the summit block, and in the process decided on a different route for our descent. Rather than downclimbing the ridge to the saddle between the peak and the pinnacle we descended a short way to a ledge with a stout tree. From there we recognized that there was a series of modest ledges with small, stout trees (they look like bushes) and that several rappels straight down the northwest face or rock slab would take us to a point between the two saddles from which we could readily traverse over to the talus slope on the right. Three rappels totaling about 160ft accomplished this descent and soon we had traversed over to the talus slope. From there we descended northwest and then west, down the steep, rocky slope heading for an intersection with the Cathedral Lakes Trail that was visible below us. From the bottom of the talus slope it was just a short distance through the forest to the Cathedral Lakes trail and the route home. However, before returning to the trailhead we made our way along to the shimmering Lower Cathedral Lake and paused on its shore to look back and admire our accomplishment. The water of the lake reflected the



Left: On climb to saddle (Photo by Clancy Rowley). Right: Eichorn Pinnacle from summit.



Left: Clancy on summit (Photo by Don Caldwell). Right: Cathedral Peak from meadow.



Left: Cathedral Peak and Eichorn Pinnacle. Right: Southern aspect of Cathedral Peak.

shining white rock of Cathedral Peak soaring above the lake, contrasting with dark green of the pine forest and the light green of the meadows surrounding the lake. Glittering here and there were the bright colors of the mountain flowers, sparkling in the California sun. After the rugged grandeur and excitement of the Peak, this was a very special moment indeed. It had been a wondrous day on John Muir's magnificent Peak and we savored our conquest of it for many months thereafter.

* * *

In the years that followed, Eichorn Pinnacle was a frequent topic among our group of rock climbers when the talk turned to possible future adventures. Vague plans for an attempt were often broached. We searched the literature and the internet for descriptions of the climbing route and tried to relate the grainy photographs in classics like R.J.Secor's "High Sierra Peaks, Passes and Trails" to our memories of the Pinnacle. We learned of the need to traverse around the side of the Pinnacle to the ridge on its western side where the route to the summit could be accessed. Trouble was that this traverse or horizontal pitch involved some tricky moves and enormous, increasing exposure of the order of thousands of feet. This was the route that Glen Dawson and Jules Eichorn took on July 24, 1931, when they made the first ascent of the Pinnacle. The route is now rated at just 5.4 but the fright factor is much greater due to the nature of the first horizontal traverse and its huge exposure. R.J.Secor describes the route as follows: "From the saddle between Eichorn Pinnacle and Cathedral Peak, climb down and to the right over cracks and ledges on the north side of the pinnacle. This leads to a chimney on the north side. Climb the chimney to a ledge just below the west side of the summit. A single 165-foot rope suffices for the rappel." He makes it seem easy but this is one scary adventure!

Before we could return to Tuolumne Meadows, my friend and climbing partner, Clancy Rowley, left California to pursue his academic career at Princeton but there were other young adventurers with whom I teamed up and who caught the Eichorn Pinnacle fever. So it was that one day in September, 2004, Mark Duttweiler, Derek Jackson and I set off for Yosemite National Park with copies of all the descriptions of the Eichorn Pinnacle climb that we could find. As we rose with the sun over the Tioga Pass, we caught our first glimpse of Cathedral Peak and our excitement grew at the thought of that first horizontal traverse on the Eichorn Pinnacle. Soon we were hiking up the trail beside Budd Creek, warmed by the rising heat of a beautiful, high Sierra summer day. Climbing the scree slope we watched several teams of climbers on the Southeast Buttress, seemingly just a stone's throw away. Then, reaching the north ridge we caught our first glimpse of the Eichorn Pinnacle and swallowed hard. We tried to compare the written descriptions with what we now saw before us but it was not easy to be sure of the right climbing route. With some trepidation we traversed the rock slabs to the base of the pinnacle and began to investigate the routes around the north side of the pinnacle. I now realize that at first we probed too low, perhaps because the written descriptions we had heavily emphasized

the need to start low. But it seemed clear that this simply led to steeper and less negotiable rock with dramatically increasing exposure. Derek was suffering from altitude sickness, the wind was rising and storm clouds were looming in the distance and so we began to think of abandoning our primary objective. As a final exploration, we tried a slightly higher route. Mark led to a ledge that seemed to me very much like the one of the written descriptions. It was a sloping ledge with a crack at the back next the wall. A piton with a runner had been installed in this crack about halfway along the ledge. But the ledge narrowed to nothing at the far end and there were just a few footholds there. Mark edged his way to that point and just around the corner, looking for the vertical chute that would lead up to the ridge above. But the exposure at this point is huge, the wind was blowing and there seemed to be some difficult moves that would be needed to climb the chute. Mark felt he could not install adequate protection at this point and so retreated. We then decided that we would have to come back another day. What we did not realize was that the route lay just a few feet below where Mark had stood and that it led to large rock horns that provided very reassuring protection for the subsequent vertical section.

Back at the saddle between the Peak and the Pinnacle we felt we still had time to ascend the Peak and so Mark and I set off on that route up the ridge. Our ascent essentially repeated the climb I had completed several years before and we were soon sitting on the summit block admiring the view. In the intervening years someone had removed the bolts on the summit platform that we had previously used for the descent. So this time the anchor was a little more clumsy but it was still a spectacular feeling to rappel off the summit block into that huge landscape.

Once back at the saddle between the Peak and the Pinnacle we resolved to end the day on a positive note by rappeling down the 300 foot south face of Cathedral Peak. From above it was clear that this would require a two-stage rappel. From a webbing wrap around one of the large boulders at the saddle (in the shadow of the Eichorn Pinnacle) we could rappel down about 60ft to a large shelf with two small trees that appeared to provide a solid anchor for further descent. The subsequent rappel looked much higher and might or might not be descended in a 200ft rappel. But we could also see a number of other trees, lower down on small ledges that could serve as intermediate belay stations if needed. I rappeled down first to the upper ledge to check out the second rappel. It transpired that the tree there would provide a solid anchor and that a 180 foot rappel would take us down to the bottom. Thus we all descended safely to the top of a scree slope and, after sliding down this, we hiked around the base of the Southeast Buttress to rejoin the trail back to Tuolumne Meadows. Though we had failed in this, our first attempt at the Eichorn Pinnacle, we had at least had an enjoyable climb to the summit of Cathedral Peak and a great rappel descent of the South Face. But we also resolved not to be defeated by the Pinnacle.

* * *

Another couple of years passed, during which my friend Bob Grubbs and I frequently climbed and hiked together. With similar interests and dispositions Bob and I became close friends and the talk of climbs naturally turned to the High Sierra and most particularly to the challenge of the Pinnacle. Bob's large research group in the chemistry department at Caltech had a tradition of spending a long weekend each summer in the High Sierra and some of his former students joined in the fun. In August 2006, the group met at one of the campgrounds in Yosemite and Bob and I decided that an attempt at the Pinnacle was clearly needed. One of those former students present at the camp was a young and able climber by the name of Bob Waymouth who was now at Stanford University. Bob and I agreed that Waymouth would make an excellent companion for our Eichorn outing and might even be able to lead us to the top. So early one day we drove to Tuolumne Meadows, parked at the Cathedral Lakes trailhead and hiked up beside Budd Creek. We were a little later than we would have liked but it was another spectacular High Sierra day and, with Waymouth along to lead, Bob and I were confident that we could conquer the Pinnacle in fairly short order. The scree slope was hot and we labored on our way up but arrived at the north saddle ready for our first view of the Pinnacle. It now seemed almost routine for me to traverse across to the saddle between the Peak and the Pinnacle and there don my climbing gear for yet another attempt at Eichorn's challenge.

As before we were convinced by the written reports to start low and, setting off in the lead, Waymouth initially made good horizontal progress across what appeared to me to be a sketchy and increasingly difficult horizontal route. Out of sight he found a place to anchor and belay and so called for Grubbs to follow him. Using another rope, I gave Grubbs an additional belay from behind and this seemed clearly needed as he struggled to traverse this difficult rock wall to where Waymouth had anchored. But he made it and the two of them then called on me to follow and clean the route. This I started to do but without the belay from behind that had protected Grubbs from a nasty pendulum in the event of a fall. I had proceeded about 50 feet before I began to feel excessively uncomfortable. The footholds were thin, the exposure was enormous and a pendulum fall began to be a strong possibility. For one of the few times in my climbing experience I realized that I was in real danger. I paused to try to get my equilibrium and to assess the situation. I think both Waymouth and Grubbs who were now within sight, recognized the criticality of the situation and desisted from their normal encouragement. So it was that I turned back, seriously frightened and sure that Eichorn's Pinnacle had defeated me. Thus it was that we all returned to the saddle and paused to try to recover from our efforts.

Now able to reflect on what had happened we began to recognize that we had not taken the correct route. But there was nothing below that route that looked at all possible. So the standard route must be higher; I described Mark's exploration of several years before and Grubbs resolved to have another look at it even though the hours of daylight were now dwindling and we needed to get down before dusk. Deciding on action, he edged his way along the narrowing



Left: Rappeling down the south face. Right: Starting point for the technical climb.



Left: Almost at the top of Eichorn Pinnacle. Right: On top of Eichorn Pinnacle.

ledge but, like Mark, was discouraged by the exposure and the lack of an obvious way forward or upward. Though he then retreated we were now convinced that the route lay in this direction even though we still had to find the way to progress.

But it was time to get off the mountain and we had to conclude that we had, yet again, been thwarted in our effort to climb the Pinnacle. It only remained for me to set up the rappel of the South Face and to descend to the now well-traveled trail to Tuolumne Meadows.

* * *

It was not until several years later that Bob Grubbs and Bob Waymouth and I were able to arrange yet another attempt on the Eichorn Pinnacle. Now that we were fairly certain of the correct starting point for the horizontal traverse we had confidence that we could finally succeed in reaching the summit. So it

was that early on the morning of Saturday, Aug.2, 2008, we again parked at the Cathedral Lakes Trailhead and approached Cathedral Peak along what was now a very familiar trail. It promised to be another spectacular High Sierra day and the sun was already blazing down as we trudged our way up the scree slope below the northern ridge saddle. Grubbs and I took our time, knowing that at our age, we needed to conserve our strength for the efforts ahead. We now knew that the easiest way up the scree slope was toward the south, just north of the steep rock slab known as the Southeast Buttress of Cathedral Peak. Already on this morning several groups of climbers were ascending this popular rock-climbing route. Watching them provided a good excuse to pause and get our breath. Nearing the saddle, as the boulders got huge, we veered to the right to get to the ridge top itself. As always we were taken aback by the spectacular view to the west that opened up as we breached the ridge top and were humbled by our first sight of the dramatic Eichorn Pinnacle rising almost surreally above the High Sierra vista.

We almost held our breath as we traversed across the steep rock slabs to the saddle between the peak and the pinnacle. Climbing up some boulders to this second saddle we again welcomed the sight of the distant Half Dome and the other monuments of Yosemite that seemed to stand mute witness to our puny human endeavors.

Then it was time to prepare ourselves yet again for the technical challenge. Once helmeted and harnessed and having left our belongings at the saddle, we contoured downwards from the saddle along a sloping ledge that starts about 15ft below the apex of the saddle and leads to a recess with a comfortable stance that is the starting point for the technical climb. Though other descriptions of the climb suggest two pitches (and some even suggest just one), we estimated that it might be best for us to use three short pitches. As we already knew only too well, the first and hardest on the nerves is almost horizontal. Bob Waymouth would lead. Using an anchor around a large horn beside the starting point. He climbed easily upwards to a tricky sloping ledge that has a fixed piton in the crack at the back of the ledge. There he deployed a runner on the piton and, using finger holds in the crack, eased his way down to the end of the narrowing ledge. Once there he reached down for the footholds below the level of the ledge. This is a nervy move but the footholds are large and solid; the major difficulty is the huge exposure at this point. He then stepped down again onto a short, small downward sloping ledge that led to a comfortable stance and a belay station in a small recess.

The rock horns just above this recess provide solid anchors for this belay station and there was room for all three of us as Grubbs and I in our turns completed this first pitch. Then it was time for the second, vertical pitch that has one slightly tricky move but is otherwise straightforward; several installed bolts protect that move. From the belay station we climbed above the rock horns and then up to the right to an increasingly easy chute that leads to a large ledge. The ledge has boulders that provide a good anchor for the next belay station. The last pitch proceeds up a large sloping crack that obviously leads to the summit. The easiest ascent route is along the sharp ridge to the

left of the crack and this brought us out onto the spectacular summit of the Eichorn Pinnacle, first Bob Waymouth, then Bob Grubbs and finally myself. It was a truly magnificent feeling to emerge on the summit after all the years of attempts on the Pinnacle. I paused before the last step to drink in the elation and the photograph of that moment tells its own tale as I stand perched on the edge of an abyss. The three of us knew this was a very special moment - but especially Grubbs and I whose declining physical abilities might mean that this was the apex of our climbing achievements. If so I felt I could live with that for this was an almost indescribable place on a magnificent day.

It was now time for a photographic record of this special moment, time for what we called the “hero shot”. Bob Waymouth had very kindly volunteered to take the “hero shot”, a photograph from below of Grubbs and I standing on top of the Eichorn Pinnacle. The summit was equipped with several solid bolts so we set up the 60 foot rappel down the north face to the point where we began the technical climb. Bob then rappelled down and took many “hero shots” of Grubbs and I from various points on the ridge between the Pinnacle and the Peak.

The euphoria was rampant as we pulled our rope down from the Pinnacle summit rap rings and sorted our belongings at the saddle. As we had done before we rappelled down the steep south face of Cathedral Peak to the short scree slope, loped down that and hiked around to the approach trail. It seemed like we floated down to the Cathedral Lakes trailhead, silently reveling in the triumph of our long-sought goal. As is often the case the difficulties and the failures made the final success all the sweeter. Back at camp, Grubbs and I sat under the trees with a beer. It wasn’t necessary to say anything. Indeed it seemed inappropriate to even try. We were two old men who knew this moment was very special and might not come again in our lifetimes.

Chapter 50

EMBROIDERED CLOTHS: LAST ACT

*“Those who speak to me do not know that
my heart is full with your unspoken words,
Those who crowd in my path do not know
that I am walking alone with you ...*

From “They who are near me” by Rabindranath Tagore.

Katharine Doreen Kerr and I lived and loved together for over 47 years, from the day we met on Jul.20, 1960, until her death on Aug.22, 2007. She was a lovely, gentle woman with whom it was a true privilege to share a large fraction of my life. We brought three children into this world and they, all three, enriched our lives immeasurably. We emigrated to California and made a home there in Pasadena where the country and the people showed us great kindness. In the first few years, believing that we were destined to return to the United Kingdom, we traveled widely, striving to see as much of the country as we could. Mostly we could only afford camping trips but our inexpensive 8ft by 8ft Sears tent was raised in almost all of the National Parks, Monuments and Recreation Areas west of the Rockies. Camping was not really Doreen’s choice but she endured it since the children enjoyed it so much. As the years rolled on and our immigration became permanent, we were able to enjoy many foreign trips to places as distant as Japan, Australia and Africa though her favorite destinations were England, France, Italy and, of course, Ireland. She missed her family, her parents and her sisters and it was always a joyous trip back to the United Kingdom to see them.

She lived a very private life, devoted to the children and to her animals. She loved to read and our house was filled with books. She also loved her animals, dogs, cats and horse. She had me build a spacious indoor/outdoor cage in our



With Kathy and Dana, with Bills Dream Boy and with Not.



In England in 1986 with Sadie and sisters Jacqui and Christine and in Ireland in 1991 with my mother and sister, Paula.



In Oxford in 1986 and Tuscany in 2002.

garage for two stray cats that Patrick brought home and who could not fend for themselves out of doors. The horse she bought was her greatest joy; she would spend hours feeding and grooming “Bills Dream Boy”, and learning the elements of dressage.

She was very proud of the accomplishments of all three children and enjoyed at least the first few years of our four grandchildren’s lives. The tragic and premature death of our son, Patrick (see “Streeteagle”) truly broke her heart. She was immensely proud of the first male born of her maternal line for five generations. She did all she could to encourage and support him (perhaps even too uncritically) and to shield him from my excessive disapproval. At the age of twenty three he was finally beginning to mature when suddenly and tragically he was taken from us. His death truly broke her heart. She never really recovered a will to live and her health inexorably declined in the years that followed. One of my great failures in life was my inability to halt that decline however hard I tried.

Then came the worst days of my life. My beautiful wife, my lovely Doreen, was diagnosed with colon cancer. My daughters and I did all we could to explore medical remedies but the faces of the doctors clearly indicated that the cancer had too wide a hold, had spread too far to have left any hope. Better to allow Doreen to take what enjoyment and peace she could from the few days that were left to her. I think she always knew there was little hope. For me there was a jumble of emotions, unbelievable sadness at the prospect of losing the one person to whom I had confessed my whole being, whom I always believed would outlive me. Anger and shame that I had not done more to get her to medical attention much earlier. Panic at what this looming tragedy would mean for my daughters and grandchildren. Helplessness, anguish and a guilt that I should be doing more to enrich her remaining days.

I remember several moments that are seared into my brain. The first moment when she emerged from the doctor’s office to tell me she had cancer. I could barely walk to our parked car - yet I cannot imagine what it was like for her. The moment of anger when we realized that our appointment for a CT scan would be delayed due to our own incompetence in making the right appointment. The terrible moment when we were shown the colonoscopy photos with those huge cancerous growths. Yet there were uplifting moments as well. The minutes in the ambulance that was taking her home to die; in her delight, she joked with the ambulance attendants about her almost weightless body. Her comments to her daughters when they lifted her into a sitting position just a couple of days before her death; “Augh, you naughty children ...”. But then, finally, the still, cold and lifeless body that no longer looked like her. The terrible zipping up of the body bag as the mortuary attendants took her out of our beloved Sierra Madre home for the last time. And, for the purpose of final identification, my last glimpse of her on the closed circuit TV screen in the mortuary. It was only a little over a month from the colonoscopy to her final breath. So little time to erase that beautiful life force, that inspirational kindness, those fluorescent blue eyes.

Almost as quietly as she lived her life, she slipped away in the small hours of

the morning of Aug.22, 2007. Knowing that the end was near I had spent the night sitting by her bedside. She was beyond speech but, in the hope that she could hear, I spoke to her softly of the good times that we had shared. Finally, about 4.30am when I could no longer keep my eyes open, I asked the hospice nurse to watch her while I got a few minutes sleep in my nearby bed. Fifteen minutes later the nurse woke me to tell me she was gone, gone while I slept. It was almost as if she knew it was time to go and that this was the best moment.

She wanted no ceremony, but rather a very private farewell and burial beside her son with only myself, her daughters and sisters present. We buried her high on the mountainside of Rose Hills Cemetery in Whittier. Dana, Kathy and I each spoke at her grave site. I knew then that if we were to survive this second tragedy, we could only do so with each other's assistance for only the three of us could know how we felt. But each of us also needed to make our private efforts, Dana and Kathy for the sake of their children and me for the sake of them. I had no idea where or how I could possibly find the strength.

Chapter 51

TWILIGHT

*“Somewhere in the depths of solitude, beyond wildness and freedom,
lay the trap of madness.”*

From “The Monkey Wrench Gang” (1975) by Edward Abbey.

In the weeks following Doreen’s death, friends came by to ensure that I ate. I went to stay with each of my daughters. I tried to busy myself with matters pertaining to Doreen, making sure all her family and friends knew of the circumstances and her wishes. Trying to decide what to do with all her belongings. Learning how to operate the washing machines. Dismantling the structure that contained several of her cats while she lived. And then, when I made the effort to get away from the house and walk in the mountains, I would scream her name across the canyon walls just to hear it echo back to me as if from the grave. But through all this it was too hard to face my own pain; there seemed no way to rebuild myself for it was almost impossible to imagine any constructive future.

Twilight was the worst of time. Lying alone on our bed as the sun set I could see little in the room in the fading light. Yet some things were clearer than ever before. It was as though all the pretensions had been torn away, leaving only my naked emotions, leaving only the truth. Yet that truth brought almost unbearable pain with crystal visions of what I should have faced all those years before when they might have saved his life, might have saved her life. I struggled mightily not dwell on what might have been, for there were some things that I did right, that brought both satisfaction and great joy. I tried hard to focus on those illuminated circles. But it was bloody, fucking hard and I barely survived it.

Desperate to get away from the house, I drove distractedly to the Pacific Ocean and along the coast of California, seeking in vain some solace from the waves and the sand. Stopping briefly where the road touches the sea, I wandered to a favorite perch on the rocks. Inevitably my mind drifted back over forty

years to events beside another ocean, events that brought Doreen to me and changed my life. At the end of more than forty years of marriage I asked myself whether I really knew anything about love and devotion that I could put into words. It was, perhaps, the wisdom of age that made me doubt that I did. Perhaps I would always have to shoulder that doubt for if I had truly loved her would I not have been able to save her life. But I do know a few things simply because they did not change in over forty years. I do know that love is not some Madison Avenue cliché. Forty years before and halfway around the world on that other rocky shore, I met and fell in love with that beautiful young girl. The memory of those moments now live as brightly for me as they did over forty years ago. I fell in love for a lifetime and never regretted it for a moment. It is just that I always imagined it would be my lifetime and not hers. It was a sensation that grew and metamorphosed in a myriad of ways as the years rolled on. But the magic was always there. As my father wrote in one of his letters to my mother

*"I feel when you are here as if
a star had somehow tumbled down the chimney
into an ordinary room"*

And that was how I always felt about Doreen.

Of course, there were many twists and turns in our marriage for all relationships are dynamic and constantly changing. There were moments when we could not imagine how our relationship could possibly continue. Perhaps William Butler Yeats best described such moments and their salvation when he wrote

*"We sat as silent as a stone
We knew, though she'd not said a word
That even the best of love must die,
And had been savagely undone
Were it not that Love upon the cry
Of a most ridiculous little bird
Tore from the clouds his marvelous moon."*

And those heart-rending moments did pass. I do not say it was easy. It was sometimes very, very hard to understand and truly sympathize with the other's point of view. Now in the twilight such moments have become illusory.

Despite everything, I do believe that I was extraordinarily lucky. Perhaps one of the saddest verses ever penned in the English language are the words of the poet T.S.Eliot who wrote

*"Footfalls echo in the memory
Down the passage which we did not take
Towards the door we never opened
Into the rose garden"*

Twice now I have opened that door and ventured forth on the odyssey of love. With all its hidden rocks and dangerous shoals it is a sea on which I feel fortunate to have sailed. I doubt that I could guide others on that voyage for I think it is one ocean for which there are no accurate and universal charts. I can but hope that those I leave behind have the wisdom to recognize that it is better to understand than to be understood. That it is better to give than to receive. That it is better to love than to be loved. In the words of St. Francis of Assisi, that it is in the giving that we receive and in the pardoning that we are pardoned. I can think of no better compass with which to chart their course.

In those weeks after her death, I felt drawn each day to the hillside where we buried her. I would look up into the sky and invariably would see a red-tailed hawk circling overhead in the afternoon updrafts. Sometimes there would be two and I would sustain myself imagining them to be the spirits of Doreen and Patrick watching to make sure that I tended for those they loved. I sometimes think that was all that kept me alive through those terrible days.

Chapter 52

PACUARE TEARS

*“Do not stand at my grave and cry;
I am not there. I did not die.”*

Anonymous.

A number of months before the cataclysmic diagnosis of Doreen’s cancer, I had learned that the American Canyoneering Association and its founder, Rich Carlson, were planning a trip to the canyons of Costa Rica. My tentative plan to attend this “rendezvous” with several of my fellow, southern California canyoneers had been abandoned in the maelstrom of the tragedy and I had not given it a second thought. But about a month after Doreen’s death when I had just started to function at some elementary level, two of those friends hatched a scheme to persuade me to go on this trip. Randi Poer called Scott Smith and encouraged him to take me to Costa Rica. They knew I would not go unless one of them was to ask me to accompany them. Scott is such a kind and gentle man that perhaps only he, of all my friends, could have persuaded me to go. I knew he would let me be alone with myself, that he would shield me from unwanted attention, unwelcome sympathy.

So it was that on Sep.1, 2007, with little preparation, I found myself boarding a plane at LAX on my way to San Jose, Costa Rica. Scott had persuaded me that a physical challenge in an unfamiliar but spectacular place would help me find a little distraction even if it could not ease the pain. And that country in Central America is nothing if not spectacular. Costa Rica has a spine of steep mountains and volcanoes covered in dense tropical forest. The rivers and canyons that run through these mountains are magnificent and present very different flora and fauna, a very different visual experience than any in the USA or Europe. Many small companies run guided adventures in this wilderness and we were joining a canyoneering group that had planned a selection of these adventures. We would base our activities in two different locales, spending a few days near La Fortuna in the Arenal Volcano area northwest of San Jose and

a few days more in Turrialba southeast of San Jose. In each of these locations, the group had signed up for help from guide services, Pure Trek Canyoning and Desafio in La Fortuna and Explornatura in Turrialba.

All of these companies had developed “commercial canyons” in which they had established anchors and other facilities to aid the inexperienced canyoneer. The defect with these commercial canyons is that they have usually been significantly altered to ease the passage for the guides and their clients. These alterations often include the installation not only of extensive fixed anchors but also of wooden platforms from which to enter the rappels. Some even have steps cut in the canyon bottom rock to ease downclimbs while in other canyons trails conduct the clients from one rappel to the next. Despite these alterations the canyons are spectacularly beautiful with luxurious multi-level canopies of tropical forest and exotic flora and fauna. It is a unique experience for a howler monkey to let loose with its terrifying howl just as you are about to enter a 150ft free rappel!

We spent the first four days at a ranch outside of La Fortuna, in the shadow of the towering Arenal Volcano. At night a continuous stream of red-hot rock could be seen tumbling down the side of this volcanic cone and lighting up the night sky. During the day the tropical heat and humidity combined with the surrounding jungle to create an otherworldly stage to draw my attention away from my grief. With this ranch as base we first descended two nearby commercial canyons, namely Piedra Canyon (translated as Stone Canyon but also known as Lost Canyon) run by the Desafio adventure company and Piedrita Canyon (translated as Little Stone Canyon) overseen by Pure Trek Canyoning. The first featured several big rappels (two from overhanging wooden platforms) and some downclimbing in a glorious tropical canyon with just a modest water flow. The second involved several big rappels from overhanging wooden platforms and descents through quite vigorous waterfalls. On the fourth day, the guides from the Explornatura Adventure Company agreed to show us a more remote, non-commercial canyon in order to exchange skills with the experts in our group. Thus we made our way through thick jungle to the upper reaches of the undeveloped Nonequito Canyon (translates to something like “no take away”) and spent the day descending a wild and natural tropical canyon with a beautiful series of rappels and vigorous whitewater. All of these adventures were enjoyable and comfortably distracting though not technically challenging.

The action then shifted to the town of Turrialba, the home base of the Explornatura Adventure Company. There we began with a descent of Puente Vigas Canyon (translated as Rope Bridge Canyon) just above Explornatura’s warehouse on the outskirts of Turrialba. This commercial canyon had been set up with a series of rappels interwoven with three long and exciting zip-line transits through the jungle canopy. Two of these ended high in trees and necessitated a rappel to reach the ground. These zip-line excitements were new to me and certainly entertaining but also well supervised and controlled. The adrenaline flowed but the soul was unstirred.

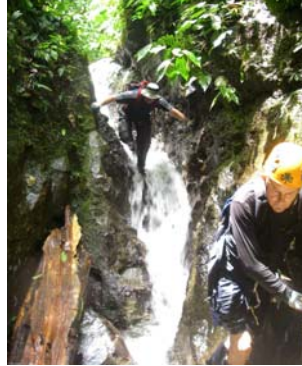
Scott had to return home and so I was left on my own before the last adventure; but I figured I should try to stand on my own feet. He had shown a

special friendship and I was not going to impose on him beyond the marvelous kindness he had already shown me. This last adventure was to be a two-day descent of the wild Pacuare River, a white water rafting trip through some of the most spectacular and untouched wilderness in Costa Rica. The Pacuare has its source in the Cordillera de Talamanca and flows 108km to the Caribbean. It leaves the mountains just before the town of Siquierres and downstream of this is of lesser interest. The mountain traverse is a popular venue for white water rafting, kayaking and river boarding; National Geographic named it one of the top 10 river trips in the world, as much for the untouched wilderness around it as for the whitewater adventure.

The rain forests that surround the river are indeed breathtaking, home to exotic species such as panthers, jaguars, ocelots and monkeys. In 1986 a rare black panther was seen about a mile from the river and jaguars have been spotted near the Haucas River Gorge. Anteaters are common as well as raccoons, river otters, iguanas, Capuchin monkeys, and sloths. Howler monkeys are found on the lower sections after the Dos Montanas canyon. Five species of snakes live in the forest; the poisonous ones include the Coral snake, the Bush Master and the Fer-de-Lance. The Laura and the Sopy Lota (a long black snake that eats poisonous snakes) are also common. The jungle frequently flashes with the bright blue color of the Blue Morpho butterfly, chestnut-mandibled toucans are common and parakeets can sometimes be seen after the Dos Montanas canyon. Other bird inhabitants include herons, hawks, ospreys and vultures.

Most of the river corridor through this wilderness is first generation rain forest that has never been touched. It is the traditional home of several groups of indigenous people. The Cabecar Indians live in the forest along the east side of the river. They are small scale subsistence farmers and ranchers, growing bananas and plantains. Although they are known to practice "black magic" they are peaceful and friendly. At one time another tribe, the Burucas Indians, lived on the other, Pacific side of the river.

The first known recreational river descent of the Pacuare was completed by Michael Cane in 1975. Three years later Cane started Costa Rica Expeditions to run commercial trips on the river and in subsequent years other commercial enterprises followed including the Explornatura Adventure Company of Turrialba with whom we were to travel. The heart pounding whitewater of the Pacuare along with its remote jungle location and warm water (65° Fahrenheit) have made it a very popular destination with adventure seekers. The mountain traverse is commonly divided into three parts, the Upper Upper, the Upper and the Lower Sections of which the more technical are the last two. The Upper section ends at Finca La Cruz and consists of about ten miles of class IV and V rapids as well as waterfalls. Our goal was the Lower Section consisting of 18 miles between the put-in at Tres Equis and the town of Siquirres. Over this distance the river drops a total of 1200ft through numerous rapids of class III and IV whitewater. It starts with a series of class III rapids but the action heats up as the Pacuare enters the Huacas River Gorge where, in addition to many class III, there are two class IV rapids called the Upper and Lower Huacas. Downstream the excitement continues with at least one more class IV



Descending Lost Canyon.



Hiking to and descending Nonequito Canyon.



The Pacuare River.

called Cimerones. The Lower Section is sometimes descended in one long day but it is more comfortably completed over two days. For these overnight trips, three campsites with lodges and canteens have been established about halfway through the Lower Section. The river is rain fed so it typically runs highest from May to January, the lowest water occurring in March and April. Though the river can be rafted all year round, the hurricane season in late summer can produce enough rain in 8 to 10 hours for the river to reach flood stage; it is then unsafe to attempt to run it.

We left Scott at the hotel in Turrialba; it was sad that he had to head home but I knew I needed to become accustomed to fending for myself. The rest of the group and I traveled by bus along a rough dirt road that dropped down to the Pacuare River at a place called Tres Equis, a name that signifies no more than a beach at which to instruct the rafters and pack supplies into the inflatable rafts. I was looking forward to my second significant whitewater expedition despite my misadventures on the River Kern in California (see "Cataracts of the Kern"). I hoped that this time I would be able to stay in the boat. There were five rafts each with five or six passengers plus one guide who sat in the back, steered and instructed. My fellow passengers were Jesus "Chewy" Guerrero who had guided us on Mexican canyoneering trips; he was accompanied by his wife. Also, sitting in front of me was Costa Rican Mauricio Odio who was a trained adventure guide. Fellow Californian Lauren Jefferis who sat behind me was a long time acquaintance with whom I had descended many canyons. It promised to be a fantastic adventure among some good friends. Though the river was somewhat swollen by recent rains, the guides had deemed it runnable though a little more exciting than usual.

The sun was shining as we set off from Tres Equis and readily negotiated the first few Class III rapids, appropriately called Bienvenidos (Welcome) and then Pelya Oho (Open Your Eyes). Other class III rapids followed in quick succession as we plunged deeper and deeper into the wilderness. I began to feel some competence and some confidence that I could stay in the boat even though I was somewhat reluctant to stick my feet as deeply as I should into the foothold pockets sown in the floor of the boat for precisely this purpose. My anxiety was caused by the possibility that an involuntary movement would torque and therefore reinjure one of my oft-damaged knees. But the day was beautiful, the company was delightful and there were moments when I could allow myself to smile. We stopped for lunch at a rocky beach where a magnificent waterfall tumbles down through the jungle into the Pacuare. Like the other meals this was a feast served on the makeshift table formed by turning one of the rafts upside down. After lunch some of us donned our rappelling gear and climbed up into the canyon above the waterfall. There we found a staircase of waterfalls and devised a canyoneering descent that dropped through some of the whitewater, though we avoided several of the most vigorous hydraulics. After this pleasant diversion we resumed our voyage down the Pacuare, through the Rodeo or Donde rapid and numerous others. Somewhere along this stretch, I had a momentary lapse of concentration while descending a fairly innocent Class III rapid. The boat unexpectedly beached on a midstream rock while I had my back to it and I

fell backwards out of the boat into a pool by the side of the river. Though I was quickly hauled back into the boat by my alert fellow crew, it was another reminder of my vulnerability to such accidents. However, there was little shock involved and I reclaimed my place with only a slightly damaged ego. The rest of the day was uneventful; we landed near our campsite in mid-afternoon and made our way up the jungle trail to our overnight campsite. This rustic facility consisted of an array of tents mounted on individual wooden platforms (designed to hold you above the ant-infested jungle floor) and a central canteen and dining area perched on the ridge overlooking a bend in the river. It was a spectacular setting and we all enjoyed an evening of good food prepared by the guides and spiced with lively conversation. The night passed pleasantly with many strange jungle sounds. However, alone in the tent without the need to pay constant attention to the swirling river, I wept quietly for my lost love.

The second day dawned with another fine meal. Soon the rafts were reloaded and we resumed our whitewater descent. Almost immediately, we passed Double Drop waterfall on the right side of the river, a signal that we were entering the Huacas River Gorge with a whole series of Class III rapids and two notorious Class IV, the Upper and Lower Huacas. I braced myself for what was to come. Several times we seemed to fly through the air only to plunge down underwater and then be jerked back to the surface. We crashed through Upper Huacas, raising our paddles into the air to celebrate that successful passage. Downstream our still-water passage passed beneath the towering Huacas waterfall that drops vertically over 100ft down a cliff on the right. Then into the roaring whitewater yet again as we surged through the Class IV Lower Huacas rapid, perhaps the most difficult of the Class IVs because of a tight move against an undercut cliff face. Soon we stopped again for lunch and I began to feel that I could complete the Pacuare adventure without any further mishap. After lunch we entered a lovely quiet section where the river meanders quietly between 100ft cliffs. An old suspension footbridge overhead reminded us of our imminent return to civilization though it lacked many of its rungs. Most of us slipped into the river to drift along with the rafts in the lovely jungle sunshine. We also took advantage of this quiet section to take lots of photographs, perhaps to remind us of the combination of simplicity and beauty that marked this adventure. Our descent of the Pacuare was almost complete. I felt invigorated and somewhat cleansed.

Downstream of the narrow, graceful gorge the rapids resumed. Upper then Lower Pinball came next with technical moves between numerous rocks. These were followed by Guatemala Rapid as the violence of the whitewater increased. Ahead lay the last big challenge, the last Class IV, the notorious Cimarones rapid with its huge hydraulics and a great black monolith in center stream that had claimed one life in the year that had just passed. Ahead we could see other rafts fly into the air and then plunge out of sight. All seemed to make it, skirting the black monolith through the awesome chute to its right. Then it was our turn. We rose once into the air and plunged deep into the whitewater. Up we flew again. Up and down yet again as we raced toward the monolith. Then, just before the chute, another deep dive, unfortunately not centered on



Cimarones Frames 1 and 2.



Cimarones Frames 3 and 4.



Cimarones Frames 5 and 6.

the hole. With the sidewise drop that ensued, I fell backwards as we crashed into the bottom of the hole. My momentum carried me out of the boat into the thundering maelstrom. The whole misadventure was captured by a series of still photos one of which shows what might have been my last moment, a single leg sticking up out of the water beside the crashing boat.

What happened next I simply do not know. Except that somehow I hung onto the lifeline that is strung along the side of the boat and, somersaulting over this, managed to haul myself back to the side of the boat as we shot down the chute, missing the black monolith by a matter of inches. I do remember not knowing what way was up and struggling to find air. Riding along the side of the boat as my friends hung onto me, we somehow made it through the rest of the

rapid. This time I was badly shaken. Yet through all that struggle, I remember thinking that it was not my time, that I needed to survive for many people some of whom had already suffered too much. It was a genuine epiphany, a moment that would always separate my past from my future. Not that I recognized this at the time for shock held my perspective to a very brief window of the future. If I were a religious man, I might believe that Doreen was telling me something important. If so the message was clear.

There is not much left to tell. Through the mists of my shock I dimly recall the last few Class III rapids: Indian Rapid with its undercut features and many channels on the right hand side that we snuck by on the left; Dos Montanas, an "s" curved rapid that feeds right into the steep and narrow canyon by the same name that was at one time going to be the site of a hydropower dam. Then the final rapid known as "Graduation" or "Boats to the Wall".

We landed at Siquirres and began the long trip home, benumbed by what had happened and yet excited about the future. Though a piece of me died several months before and a piece had been exorcised in Cimarones, there was much left to live with and hopefully much left to enjoy.

Chapter 53

OF GRACE AND MAGIC

*“Though I am old with wandering
Through hollow lands and hilly lands,
I will find out where she has gone,
And kiss her lips and take her hands;
And walk among long dappled grass,
And pluck till time and times are done
The silver apples of the moon,
The golden apples of the sun.”*

From “The song of wandering Aengus” by William Butler Yeats.

It was the summer of 1978 and he did not really want to think about why he was driving for nearly three hours for a very brief dinner invitation; if he had stopped to think he would have had to conclude this was crazy. But as he sped along the busy Interstate 95 toward Guilford he could not help but think back more than twenty years to the lovely 17-year old girl with the beautiful smile that he had last seen so long ago. He knew she was married and had four daughters. He imagined she and her husband had a comfortable and affluent life in the little Connecticut coastal village of Guilford. He wondered how she (and her mother who was living with them) would react to this jarring intrusion from long ago. Would they wonder what on earth this man was doing essentially inviting himself to dinner and driving all that way for such a superficial encounter? But he did not want to think; if he thought he would have had to accept that all he wanted to do was see her just one more time and remember the love he felt for her all those years ago. But that did not seem proper for a happily married man with three children. So he choose to drive and not to think.

It had all begun many decades ago and many thousands of miles away. Begun in the small, sleepy Northern Irish village of Magherafelt. At about five years of age, they had gone together to the tiny kindergarten attached to the Rainey Endowed School in that rural village. They became friends then and

that friendship lasted throughout their school days. They had played together, children of two of the small number of middle class families in the village and members of the same Presbyterian church. She had witnessed some of his crazier exploits such as the time he jumped from a high second floor window with a home made parachute. Indeed his mother blamed her for encouraging that exploit, unfairly in her eyes. Yet, many years later he would wonder whether her sparkling laugh with its hint of devilment had not indeed encouraged this and other crazy exploits. She also remembered the time he had inadvertently ridden his bike down a steep embankment at high speed and become entangled in the barbed wire fence at the bottom, a stunt that required some 60 stitches to repair the rips to his skin.

At the age of 17 this friendship suddenly and briefly blossomed into a romantic relationship. This was short-lived for when she went off to nursing school in the big city of Belfast, they drifted apart and went on to their separate lives. He met and eventually married his Doreen; they had three children and made a life in sunny southern California. She met and married a doctor, Colin Angliker; they had four daughters and also emigrated, in their case to Canada eventually moving to Montreal. Though there was virtually no communication, they could not quite forget each other. In the boys case this was why he was driving through the rain toward the little Connecticut coastal village of Guilford.

How he came to know of her whereabouts involved a remarkable coincidence that had the essence of destiny. Strangely it came about through his academic professional interests. In the mid-1970s he and a handful of other scientists around the world became interested in the strange mechanics involved in the flow of granular materials. Through this activity he struck up a collegial and personal friendship with a professor at Magill University (in Montreal) by the name of Stuart Savage. One night in a bar at Cornell University they were enjoying a beer after a long symposium when the talk turned to Montreal. He casually remarked that a former high-school sweetheart of his now lived there. Stuart politely asked for her name and when he replied "Barbara Angliker" a look of astonishment came over Stuart's face. "She was my neighbor" he replied. So it was that he learned that Barbara and her family had moved away from Montreal, to New England and the New Haven area.

Arriving for that dinner in the late afternoon she greeted him warmly, made him feel a little more comfortable and spent some time giving him a tour of the lovely old New England home in which they lived. Then it was time to prepare dinner and her husband, Colin, returned from work to join the pre-dinner drinks. It was all very pleasant but reserved. Her mother was particularly friendly and made the situation more comfortable than it might otherwise have been. He sensed a tension and wondered from whence it came. She sat between her visitor and her mother and did not say much. Once dinner was over he recognized that perhaps it would be best if he started the long drive home. So he began his goodbyes. Getting up to leave he was a little surprised that her mother urged her to accompany him to the gate as he left. He was struck by the forcefulness of this suggestion and also by the sad look in Barbara's eyes as she said goodbye to him at the gate. Had he not been so absorbed by his own turbulent feelings

he might have understood the emotional tensions of the evening a little better.

He returned to his wife and children and got on with life. Some years later he learned from his mother and the Magherafelt grapevine that there had been a very unpleasant divorce and that Barbara now lived alone in Guilford (several of her daughters lived nearby). Occasionally he idly googled both her and her husband and found reference to the divorce and to some of his activities. When her mother died Barbara and her sister called on his mother when they carried their mother's ashes back to Magherafelt. So it was that he learned of these developments from his mother. His mother even had a photograph of that visit that showed a face that reignited that ancient affection. He took time to compose a letter of condolence to Barbara, one that seemed to resonate with her for she sent back a heartfelt response.

Again some years passed. Then he happened to be asked to participate in a technical feasibility study at General Dynamics, Electric Boat Division, in Groton, Connecticut. Groton happens to be an easy 40 minute drive east of Guilford. Again without wanting to think too much about his own motivation, he immediately wondered about whether he might visit with her again. Eventually he got up the courage to seek his wife's permission to have dinner with Barbara, permission that was granted though the underlying thoughts on both sides were not explored. However, both he and his wife were confident enough in their relationship to recognize that this was mostly him being his usual curious self and that this dinner would not have any significant consequence for their marriage.

So it was that after business one day he drove those 40 minutes to Guilford where Barbara and he had a lovely dinner in a Guilford restaurant, reminiscing about their youth and the community in which they grew up together. Another such harmless dinner occurred about a year later. Barbara would come to call these the "polite dinners". Nothing remotely inappropriate occurred during them though they both learned that they enjoyed each other's company very much. He was surprised by the extent to which that childhood friendship and shared experience were resumed after so many years.

Some more time passed before the tragic developments of the year 2007. After about 6 months of uncertain health, Doreen was diagnosed in July 2007 as suffering from colon cancer that had spread to her liver and her lungs. All possible life-extending measures were explored before the inevitable was accepted and his lovely wife, friend and companion of some 47 years passed away on Aug. 22, 2007, just a month after the diagnosis. She died peacefully surrounded by her closest family and was laid to rest beside her son in Rose Hills Cemetery in Whittier, California.

As was the case after the earlier tragedy of his son's death, he somehow managed to survive the terrible agony of that loss but only with the mutual support of his daughters, Dana and Kathy who mourned with him. However, they had other responsibilities and so he was inevitably left alone in a now bleak and lonely house, left with the life-threatening struggle of emotional survival. Sometimes he would hike into the nearby mountains after sunset and scream Doreen's name into the dark. Sometimes he would conclude that it might be

easier to end his own life, a fundamental right he believed he possessed. Always the thought of his two daughters and their children prevented his suicide. Gradually the blackness receded. Friends helped too. He began to go to work again. And in Nov.2007, he was again asked by Electric Boat to come to Groton, Connecticut. It seemed perfectly appropriate to again ask Barbara to have dinner with him. Again all propriety was observed, though this time it seemed a little different for now he was no longer married. They enjoyed each other's company very much and agreed to see each other again before too long.

Returning to California, the thought of this lovely friend of long ago kept returning often in his mind. Finally, after much thought, he decided to act. He wrote this email to Barbara:

My dear Barbara:

For a number of weeks I have thought to sit down and try to write down my thoughts regarding the two of us. But I have hesitated for a couple of reasons. First and most obviously because I recognize the possibility that my thoughts may still be somewhat jumbled by grief and conditioned by loneliness. Second because in making suggestions for the future (however indeterminate that might be) I run the risk of upsetting you and endangering a friendship newly born but anciently valued. In response to the first I argue to myself that whatever jumbling or conditioning there may be, they do not change the 50 year-old love and affection I have for you. And in response to the second I trust you will, as always, deal with me kindly and honestly.

Fundamentally, as I did 50 years ago, I want to ask you whether you see a future for the two of us beyond the friendship of one or two dinners a year, however delightful those might be. I sure hope the answer is different this time around but if it is not I will continue to enjoy and value our more distant friendship. You might ask for clarification of my meaning, but I leave that for whatever routes both of us find comfortable in following. We could think of a small start such as a long weekend somewhere away from both our homes. But maybe I go too far with even this suggestion. Most of all I want to end by telling you how much I love you and how much joy I think a deeper relationship could bring to both of us.

With much love

Chris

He waited in suspense for the next few days while, unbeknownst to him, Barbara wrestled with how to reply. She later said she exhausted the patience of her daughters in struggling with how to respond. Eventually she sent the following email in reply:

Dear Chris,

First of all let me start out by thanking you for your beautiful and very touching letter, and for sharing your thoughts so openly and honestly with me. I hope that I can always be as open and honest with you.

After my divorce I guess to some extent I built a wall around myself as protection from ever getting hurt again. It took me a long time to rebuild my self esteem, so it would be a very big step for me to allow anyone into my life again. However having said that I feel that I would like to take that step and explore the possibility of something deeper than a friendship with you and see where it takes us. I hope that you will understand and appreciate my need to take things slowly for both our sakes, but I look forward to the journey.

With love to you,

Barbara

He was ecstatic when he read that last sentence. Somehow it meant that there might be life and love left for him yet.

The “journey” as Barbara appropriately described it began at that moment. He sent her a dozen red roses with the message “For the journey”. They both expected that journey, if it continued at all, to last many months, perhaps even years. But from the start of the visit to Connecticut that followed, events and emotions seemed to have their own momentum. He was absolutely bowled over, fell in love with her again after a fifty year interruption. Was it her smile, her lilting laugh? Was it her evident sensitivity to his recent loss, her unassuming kindness and grace? Was it their shared heritage? Maybe all of these and yet these could not have been enough in and of themselves. There had to be some special, undefinable magic that drew them inevitably together. That magic made it all seem so right, so predestined. She would say that instead of taking it slowly as they had agreed to do, he moved like a freight train. But it really was not him. It was the magic that had its own momentum, its own predestined pace and that magic overtook them both. In short, love was like a sky, a heaven that crashed down all over them both.

Returning from that visit he felt like a seventeen year old - not able to think of anyone or anything but her. In short and quite unexpectedly he had fallen deeply and uncontrollably in love with this lovely, beautiful woman. He also believed those feelings were reciprocated. He went back to Guilford two weeks later and the emotions accelerated even further. He was certain then that he wanted very much to spend the rest of his life with Barbara and he hoped very much she felt the same though she was rightly a little more circumspect. Then came a break of about four weeks over Christmas and New Year. He told both of his daughters then that he might have to go back on his resolve not to get married again. During that extended break he really felt a little unbalanced by his separation from her even though they talked by phone every day. Her

magical present to him on Christmas day was to tell him (on the phone) that she loved him. He probably grinned like an idiot for the rest of that special day. To his daughters he wrote:

Barbara is a very, very special person for me. I love this lovely, gentle, kind and beautiful woman very, very much. From deep depression after Doreen's death she showed me that there might still be life and love for me and she returned the optimism and love that was born in those visits east. I know beyond a shadow of doubt that I want to spend the rest of my life with her.

Flying across the continent again in early January, they resumed their breakneck courtship. This culminated in a moment on the evening of Jan.11 when the magic cascaded up through his brain and he asked her to marry him. It was a special and almost completely impetuous decision. Though he had practiced the words of a measured proposal on the plane journey there, it was a plan for a future many weeks away when he would have had time to seek the approval of his two daughters. The moment was so impetuous that Barbara was not sure she had heard him properly and twice asked him to repeat the question. When it finally sank in her face lit up with her glorious smile and, now to his surprise, said "absolutely I will marry you!". He knew he would relive that glorious moment for the rest of his life.

Chapter 54

THE SKYWALKER

*"I stood, my eyes turned upward still
And drank the air and breathed the light.
Then, like a hawk upon the wind,
I climbed the sky, I made the flight."*

by Elizabeth J. Buchtenkirk.

The tears of emotion rolled uncontrollably down my cheeks as the magnificent machine roared into the night sky in a blaze of lightning, flame and thunder. Volatile waves of pride, joy, elation, fear, and sorrow all coursed through my body. Pride in the two magnificent young men, Garrett Reisman and Bob Behnken, whom I had tutored and who rode this monster into space. Fear, of course, for their safety and the well-being of another student, Simone Francis, who stood just a few yards away. This is dangerous business and all of us, though we know the danger only too well, are adventurers willing to pay those costs should they come. Pride that I had some small part in the development of the incredible turbopumps at the heart of Space Shuttle engines, perhaps the most remarkable turbomachines ever built. It had all begun in the early 1970s when, as a young scientist/engineer I first became involved with the space program studying the instabilities of liquid-propelled rocket engines and learning how the Main Engines of the Space Shuttle could avoid potentially catastrophic failure due to those instabilities. Named the Pogo instabilities because the vehicle vibration that resulted could be likened to the child's toy of the same name, the Pogo instability had plagued many of the earlier rocket engines including the Saturn rockets that carried men to the moon. Ultimately the facilities I helped to construct and the understanding that I helped uncover led to designs (and particularly the Space Shuttle Main Engine design) that avoided this malaise. So as Endeavour cleared the launch gantry I felt a sense of having contributed to the safe passage of all who rode that magnificent machine. There was also sorrow for Garrett carried with him mementoes of my son Patrick and my late

wife Doreen, symbols of lost loves being carried high into the heavens. Among these symbols, Doreen and my wedding rings linked together and the two Celtic crosses Doreen and I wore around our necks in remembrance of Patrick. But there was also hope for the future, for my eldest daughter Dana and her two children were there to witness the launch. And, at the last moment, the future wedding rings of Barbara and myself were sneaked aboard in Garrett's pocket.

This moment, 2.28am on March 11, 2008, was truly a defining moment in my life, a vertex of almost all I had been or would be. The Florida night sky was suddenly and explosively filled with light and thunder as fire and smoke shot across the swamp and the spacecraft accelerated vertically into the sky. The Space Shuttle Endeavour on Mission STS-123 soared skyward on its way to outer space. I stood transfixed as it rose into the clouds with the noise and vibration of thunder crashing down all around me. It was minutes before I could stir myself to follow the crowds back to the buses in time to avoid the acid clouds drifting toward us across the swamp water.

* * *

It had all begun many years before in the summer of 1991. Earlier in that year when I was looking for a new graduate student to bring to Caltech as a member of my research team, I encountered the application of a student at the University of Pennsylvania by the name of Garrett Reisman. He had an excellent academic record like so many of our applicants. But what I liked about this young man was his versatility and his conviviality for I thought to put him to work in a group of accomplished but individualistic students. We talked by phone and he made the decision to come to Caltech for his graduate studies. Thus in October of 1991 he embarked on four years of classes and research that ultimately led to his Ph.D. He turned out to be a careful, thorough and imaginative experimentalist who was an excellent presenter of his research work. His Ph.D. thesis involved water tunnel investigations of the phenomenon of cloud cavitation. He was able to photograph and recognize the presence of bubble collapse shock waves within collapsing clouds of cavitation bubbles. It was very nice work and I still show the photographs and results he obtained in seminars I give on the subject.

But that is much less than half of our relationship and a digression is needed to fill in the rest. It so happened that in the 1980s I had begun to do a great deal of hiking and mountain biking in the local San Gabriel mountains with which I had always been fascinated. Indeed, in a small way, I had been exploring them ever since I arrived in southern California in 1969 and my children recall, as youngsters, climbing up waterfalls and dangling from makeshift ropes. But the 1980s saw me greatly expand my solo excursions. I began exploring beyond the end of the trails as described elsewhere in these journals. Then, about 1993, I was focusing on trying to find a way to descend a steep side canyon that we called Skull Canyon in order to access the middle section of the larger Devil's Canyon. I recruited several of the newer graduate students to accompany me on a Skull Canyon expedition. One of the most eager and enthusiastic was

Garrett. Our successful descent of Skull Canyon that day began a whole raft of explorations in the San Gabriel mountains. During all those hours spent together Garrett and I became close friends and would remain so throughout our lives. After my son, Patrick, was tragically killed in an automobile accident Garrett became like a son to me and this relationship was further cemented after his own father died of cancer.

In the years that followed we became more and more ambitious in tackling canyons that presented more serious obstacles. Eaton Canyon held a special fascination for us. We had hiked up to Idlehour Campground and explored down as far as a place we came to know as the "Point of No Return", where a small slide down into a deep swimming pool meant that return upstream would be exceedingly difficult without a rope. We had also conducted several expeditions in which we tried to get as far as we could up Eaton Canyon from the bottom. In these efforts we bypassed the big falls at the bottom by climbing over the ridge above where wooden stairways had once been a fixture. Upstream of that we arrived at a deceptively easy looking obstacle that we came to call "Naked Triumph Falls" after Garrett led the way by swimming the pool naked before leaping out of the deep water to ascend the small falls. It was an epic but characteristic Reisman moment, remembered ever after by all those who witnessed it. His effort allowed the rest of us to ascend and pass the falls. But, further upstream, we were never able to find a way around the large deep pool and 12ft falls that descenders now jump during a descent. Worryingly, the topo map showed there could be many difficult obstacles between the "Point of No Return" and these 12ft falls. Though we were determined to attempt a descent, we could find no information anywhere that might guide us.

It had become obvious to all of the group that, in order to get to some of the more interesting and exciting places in Eaton Canyon and elsewhere in the San Gabriels (and other mountainous locales in the southwest), it would be necessary to acquire technical rock climbing skills and equipment. Since Garrett had some rock climbing experience, it was natural that we would arrange an opportunity for him to teach us some basic skills. It was typical of our young, cavalier approach that this learning would be done, not in some boring gymnasium, but while descending one of the major San Gabriel canyons. I had picked out Bear Canyon in the Devil's Canyon Wilderness Area as one I would like to explore. So, one Saturday in the early 1990s, we collected together some ropes and climbing harnesses and set off in the early morning for the road above Crystal Lake in order to descend into upper Bear Canyon. There were about seven of us and only Garrett had ever rappelled before. He claimed it was easy and he would teach us "on the job" as it were. In that group was another future astronaut, Bob Behnken, and Bob, I remember, came dressed in what he considered appropriate attire for this adventure, full army fatigues and big, black army boots. Even a camouflage hat. When I think back that somehow epitomizes how naive we all were - and we didn't have a single helmet in the whole group! What happened became a much-storied legend in the group of astronauts that Garrett and Bob joined a number of years later and so I digress briefly to relate it.



Left: At Gold Dollar Mine. Right: Climbing the Grand Teton - second from right.



Left: In Bailey Canyon. Middle and Right: In the Great Falls of the Fox.



Left: Space Shuttle Discovery on the launch pad. Right: Bob (left) and Garrett in space.

We dropped down into Bear Creek from the end of the highway at Crystal Lake and penetrated quite deeply into the canyon before we encountered the first necessary rappel, a drop that would be trivial for us today. It consisted of a vertical 12ft drop into a deep pool. There was a very convenient tree about 10ft back from the sharp lip at the top of the drop. Garrett took over. After much talk (as always with Garrett!) he rigged the rope around the base of the tree and asked for the first volunteer. Bob stepped forward in his natty fatigues. Garrett instructed him at considerable length and, so instructed, Bob then started backwards toward the lip. Once there, he very slowly began to rotate backwards with his feet on the edge. Unfortunately Garrett had rigged the rope so low on the tree that this rappel entry was much more difficult than it could have been. Bob got about two thirds of the way into his rotation before the inevitable happened. He lost his balance, swiveled sideways and ended upside down just over the lip with the black army boots sticking straight up. Fortunately he hung onto the rope. Garrett rushed forward and peered apprehensively over the edge. Coming face to face, as it were, with Bob's posterior he collapsed in laughter and the rest of us had to rush forward to rescue Bob from a much worse demise. Recognizing Garrett's mistake we elevated the anchor and the rest of the canyon descent proceeded without incident.

Now flash forward several years to when Bob is going through his interviews to be an astronaut and Garrett is already one. Bob tells this story as an example of how he could keep his cool under adverse circumstances. As he remembers, he thinks it helped him to be selected, particularly since it also made fun of Garrett and we all liked to make fun of Garrett. Flash forward another decade when we learn that they have both been selected to be on board STS-123. We also learn that Bob is to make two space walks on the end of the robotic arm. We also learn who is to be in control of the arm: Garrett!

After that ignominious beginning our canyoneering expertise could only improve. We began to learn skill in rappeling by trial and error, by devising our own anchor methods and other rope techniques. Now that we had acquired some technical skills and equipment, we began a series of technical canyoneering descents. One of our first objectives was Eaton Canyon. Though we still had virtually no information on what lay between the "Point of No Return" and the 12ft falls, Garrett and I decided to attempt a descent without what we would now call "beta". After several irreversible rappels, we arrived at the top of the falls we now call "The Gully". I don't think I will ever forget looking down at the pool at the bottom of that abyss that seemed hundreds of feet away. But we made it down. And to make the descent even more exciting the river was flowing lustily that day so we ended the descent behind the falls and had to do our first swimming disconnect.

In the 1990s others began to join our adventures, in particular three younger graduate students who became key canyoneering pioneers, Clancy Rowley, Mark Duttweiler and Simone Francis. Years later Simone and Garrett were married and I like to think that I helped make that union. Those were years of great adventure. Seemingly every weekend involved a new exploration into the unknown though we tried to interpret the topographical maps in order to predict where it

would be necessary to rappel. Sometimes, as with Eaton Canyon, we conducted preliminary reconnaissance hikes. We even made use of the fact that Garrett was a qualified pilot in order to conduct aerial reconnaissance. I remember one afternoon when we circled high over the deep gorge in Fox Canyon to try to glean information on the numerous drops in that spectacular canyon. Garrett would tip the plane over so that I could photograph vertically downwards into the depths. All to no avail for the shadows were much too dark to discern the details in the deep narrow gorge where the drops we came to call the “Great Falls of the Fox” were located. Subsequently we used information from a local search and rescue team member to descend the Great Falls, a truly spectacular adventure that we repeated many times.

* * *

In 1996 Garrett went to work with TRW as a Spacecraft Guidance, Navigation and Control Engineer in the Space and Technology Division, Redondo Beach, California, where he designed the thruster-based attitude control system for the NASA Aqua Spacecraft. Since he was close by we still found time for canyoneering. Then, in July 1998, on his second application he was selected by NASA for the 19th group of astronaut candidates as a mission specialist. However, before he actually moved to Houston he asked me to come along on a visit to Edwards Air Force Base where the Shuttle Discovery was undergoing rehab and we were allowed to crawl through it. Even after his move to Houston we found opportunity to get together again, several times for rock climbing and canyoneering and once when I flew an experiment in the NASA Zero Gravity KC135 (see “Vomit Comet”). It was a long wait before he was assigned to a Space Shuttle flight, in fact some ten years before he was named to the STS-123 crew. During that time his assignments included working on the space station robotic arm, the next generation space shuttle cockpit and living in the Aquarius underwater habitat as a crew member of the NASA Extreme Environment Mission Operations program. The year after Garrett was selected, Bob Behnken was chosen and we celebrated having two of our Mechanical Engineering graduates together in the astronaut program. I was often asked what I thought made these two young men “the right stuff” for the astronaut program and I would answer that in my view it was a combination of their engineering judgment, athleticism, conviviality and cool-headed-ness.

After the long wait for a Shuttle assignment, Garrett was finally selected to serve with both the Expedition 16 and the Expedition 17 crews as a flight engineer aboard the Space Station. He and Bob were to launch together as members of the STS-123 crew aboard the Space Shuttle Endeavour on March 11, 2008. Bob would come back in the same Shuttle but Garrett would live in the Space Station for 3 months and return to Earth with the crew of STS-124 aboard the Space Shuttle Discovery on June 14, 2008. During his tour of duty aboard the station, he was scheduled to perform one 7 hour space walk and to execute numerous tasks with the Station’s robotic arm and new robotic manipulator, Dextre. The two global tasks associated with Garrett’s

and Bob's space walks were the assembly and placement of this Canadian-built robot arm and the installation of a new modular addition to the Station, a Japanese laboratory called "Kibo". Because of the latter, there was heightened interest in this mission in Japan and that gave rise to some personal involvement on my part.

So it was that, accompanied by my daughter, Dana, and her two children, I traveled to Cape Canaveral in March, 2008, in order to witness the launch of STS-123. The day before the night launch was taken up with a tour of the NASA launch facilities including a close-up visit to the launch pad prior to the fueling of the liquid propellants. Later in the afternoon, there was a large party in Garrett's honor organized by his family followed by transport to the special visitor viewing area. The launch proceeded on time and in the aftermath we traveled home in something of a benumbed daze.

In the days that followed I made my way back to California and then across the Pacific to Japan where I had been invited to spend a three month sabbatical at the University of Tokyo supported, coincidentally, by the Japanese Space Agency, JAXA. There I was scheduled to give a series of lectures to a combined audience of University faculty, researchers and students and JAXA staff members who commuted from as far away as Tsukuba (50 km from Tokyo). The lectures were directly connected with the Japanese Space Program in that they dealt with turbomachine design and performance. The university had kindly arranged an apartment for me quite close to the campus so it was an easy walk back and forth each day. I was able to keep in touch with Garrett by email since he received those emails in the Space Station and one evening he even telephoned me in my apartment. In his spare moments he enjoyed taking photographs of earth and, in particular, relished the challenge of identifying and photographing specific locations on earth. For example, at the request of one of my granddaughters he took some pictures from space of her hometown, Perth, Australia, that she proudly showed to her elementary school class. He also photographed one of our favorite canyoneering destinations, Zion National Park in Utah. And he took a photograph of Mount Fuji that I was able to show at the outset of my lecture the next morning much to the enjoyment of my Japanese audience especially the JAXA staff members. They also enjoyed the photographs of his space walks since a number of them remembered his research work many years before. But, perhaps, the greatest cheer was for Barbara who came on a ten day visit and for the photographs of our wedding rings floating in zero-gravity in the Space Station.

Of course, for Garrett the two highlights of the adventure were the launch and the space walk. The launch involved an extended period of 3g linear acceleration, something that cannot be adequately simulated on earth. Garrett described it as an awesome experience. The space walk was not only awesome but also truly exhausting. After seven hours he was barely able to move. But these are unique memories that will be with him for the rest of his life.

Garrett's conviviality was a great plus for NASA and was utilized for many public relations stunts including a video tour of the Space Station, an interview on the Steve Colbert show and a ceremonial opening pitch at Yankee Stadium



Left: Garrett (center) and Bob (right). Right: Garrett space walking.



Left: Zion Canyon from space. Right: Mount Fuji from space.



Left: Wedding rings in space. Right: The bus home approaches.

that was conducted in the Space Station. Even his return to Earth on June 14, 2008, was notable. Most astronauts who spend an extended time in the Space Station cannot walk when they first return to Earth. They have to be helped from the Shuttle to a hospital bed. Garrett, on the other hand, not only walked out of the vehicle and down the steps, but also toured the underside of Endeavour with the other crew members. And, that evening he showed up at the local hamburger joint frequented by the astronauts.

In the aftermath of his high adventure, there were not only many public relations chores to attend to but also much contemplation regarding the future. We wondered if he would get to fly again before the Space Shuttles are moth-balled in 2010 but it seemed unlikely given the size of the astronaut core. In fact he did fly again in STS-132 and he did spacewalk again.

Whatever the future holds, it will be impossible to match the extraordinary adventure of those days on STS-123 and STS-132. Garrett himself will never be the same however much he might try. But I do believe that “The Skywalker” has the wisdom to look to the future rather than the past, to reach for the sky in other endeavors and, in his turn, to create new adventures for the next generation.

Epilogue

It seems appropriate to bring this autobiographical account to a close while I still have my mental faculties though my physical ability for adventure has dwindled. When I look back I feel deeply blessed to have been able to live a life of adventure in both the physical and intellectual worlds. Moreover to have been able, at the same time to enjoy the love of the two marvelous women, Doreen and Barbara, to whom this account is dedicated.

Though I come to the end of my written story I am resolved that it will not be the end of my adventures. I have always held firm to the words of the English poet T.S.Eliot who wrote

*“We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.”*

For the ultimate discovery always seemed to me to lie within my own soul whether the route lay through some intellectual quest or through some unexplored canyon or mountain peak.