

Darkies Can Fight (2nd Edition)

by

Carl T.F.Ross, BSc., PhD., DSc., C.Eng., FRINA, MSNAME.

**(Former Professor of Structural Dynamics, University of
Portsmouth, PORTSMOUTH. PO1 3DJ, UK.)**

**Dedicated to: My ayah – a member of that silent majority of British
India.**

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“The difference between heaven and hell is that in heaven you have an infinite number of solvable problems and in hell you have an infinite number of unsolvable problems”

“Genius is 1% inspiration and 99% perspiration” – Thomas A. Edison, 1847 – 1931.

“Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the World” – Albert Einstein. 1879 – 1955.

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Chapter 1 - The beginning

I was born in Kharagpur, India in 1935, in 412 Fourth Avenue. I was the third child and the third son of an Anglo-Indian family. Kharagpur was in the north east of India and although all my parents' children were born there, my parents came from British Cochin in the south west of India; this state is now called Kerala. My mother was more or less of pure European extraction and I have her family tree dating back to 1735. My father, although he was a British subject by birth was probably of Goanese descent. Goa, which was a former Portuguese colony, is also in the southwest of India. At the time of my birth, my father was the Assistant Chief Draughtsman of the Bengal Nagpur Railway (B.N.R). Later he was to become the Chief Draughtsman of the B.N.R. Prior to him becoming a draughtsman, he served his six or seven year apprenticeship, possibly in the building shown in Fig. 1.1.



Fig. 1.1. Apprentices' Training Centre, Kharagpur.

Today, the area that came under his jurisdiction covers not only Bengal and Nagpur, but also Bangladesh. He may have been descended from the mixed relationships of the great Portuguese explorers of the 17th century and the local Indian girls. As these girls were Dravidians, they were much darker skinned than their lighter skinned Indian counterparts in the North of India, who were Aryans. I would like to point out here that Aryans are the descendants of the worshippers of the Brahmin goddess Aria and they were not exclusively the blond haired blue-eyed people described by the Nazis. In fact, most Aryans are dark haired people. Thus, my father was very dark and my mother looked of Mediterranean appearance.

My earliest recollection was when I was about 3 years old, when we lived in Fourth Avenue. I was standing in a room, when suddenly a mouse started to run across the floor. Before it could reach the other side of the room our cat (an unneutered Ginger Tom), ran after it, caught up with it and then bit its head off! I looked with horror at this headless mouse, with blood oozing out from its shoulders and which a few seconds ago was alive and well. The cat's power at doing this frightened me and I became very upset. I had to be reassured by the ayah that the cat would not do this to me. When we left that house to move into our new home, which was about 100 yards (about 100 m) away, the cat would not stay there. One of my aunts, namely my Aunt Flo said that the way to help settle the cat into its new surroundings was to coat its whiskers with butter, but this did not work; the cat returned to the old house.

Fig 1.2. Thomas & Phyllis Ross
(about 1930).



My parents had six children, four boys and two girls; their names in descending order of age were: Stan, Ansel (Colin), Carl (me), Hal (Helen), Zee and Brian. A photograph of my parents is shown in Fig. 1.2, which was taken about 1930. We were all baptised in the Catholic Church shown in Fig. 1.3.



Fig. 1.3. The Catholic Church in Kharagpur.

We were all of similar colour skin, namely light brown, except for the two girls; Helen has the lightest colour skin in the family and Zee has a bit darker skin colour than her. My paternal grandfather was a manager of a tea plantation in Cochin and my maternal grandfather was a clerk in the same state. My paternal grandfather's name was Francis Ross; sometime in the early part of the 19th century or even earlier,

our surname was changed from Rosario to Ross. It was changed in order to help one of my ancestors get a job in British India. My paternal grandmother's maiden name was Victoria Henriques. My maternal grandfather was called Daniel Charles Beale and my maternal grandmother's maiden name was Emma Maudlin Gunther. My maternal grandfather and grandmother were second cousins. We were all Catholics and were all educated at private European schools in the English language. We were all bi-lingual or multi-lingual, but spoke to each other in English and to the servants in an Indian language that they understood; our culture was British. A photograph of my maternal grandparents and their children is shown in Fig. 1.4; my mother was the oldest girl who was standing to the right of her father. My grandparents' children at that time were in order of age: Kenneth, Phyllis (my Mother), Daphne, Zena (the nun), Joey (sitting on his father's knee), and Estelle (sitting on her mother's knee); the youngest, yet to be born, was Mavis. Grandma Beale was wearing a kimono, because she was pregnant with her last child; the girl in the middle became a catholic nun (Sr. Evangelist) and later a Reverend Mother, before eventually reverting to becoming an ordinary nun again. In the south of India, Sr. Evangelist did a similar job to that of Mother Teresa of Calcutta in the north east of India.



Fig 1.4. The family of my maternal grandparents.

Kharagpur was a sleepy railway town, where much of the artefacts that were used in railway engineering for the states of Bengal and Nagpur were designed and manufactured; some of these were produced under British licences. The Railway owned most of the infrastructure, including the hospital, houses, recreational facilities, a school, etc. A photograph of the Kharagpur Railway Station is shown in Fig. 1.5. Kharagpur boasts to have the longest railway station platform in the world.



Fig. 1.5 Kharagpur Railway Station.

A photograph of the hospital is shown in Fig. 1.6. The hospital was next-door to our house in Third Avenue, which we moved to when I was three years old.

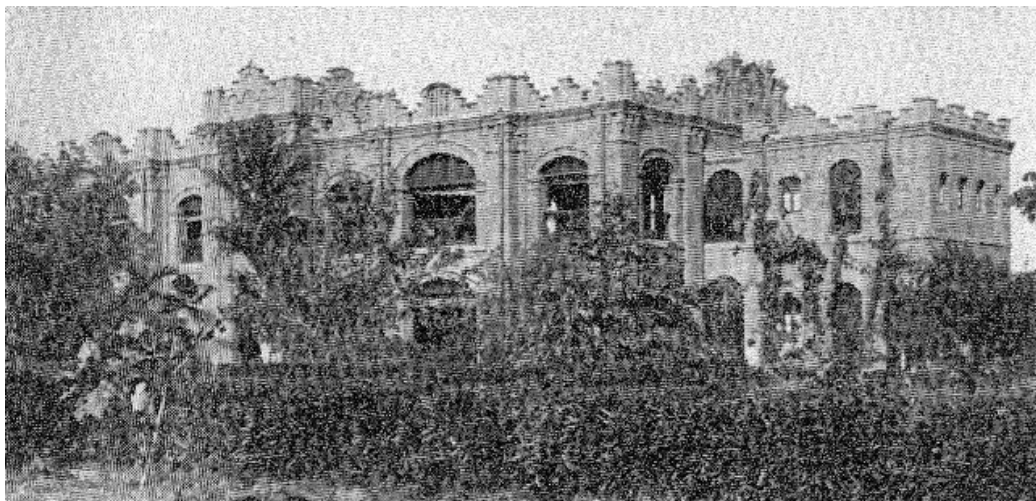


Fig . 1.6 Kharagpur Hospital.

The most senior person in Kharagpur was the Chief Mechanical Engineer or CME; he was British and his principal qualification was a Higher National Certificate (HNC) in Mechanical Engineering. He was even in charge of the hospital doctors and nurses. His accommodation was palatial and was the very best in the town. As far as I can see the Railway built most of the town. My father's principal qualification was a City & Guilds in Railway engineering. Our accommodation was excellent as well, as can be seen by the house in Fig. 1.7. This was not our house but one very similar to it, some 100 yards (100 m) away. Our house, together with my mother and her five oldest children is shown in Fig. 1.8; each of us can be recognised in Fig. 1.8 by our relative heights.

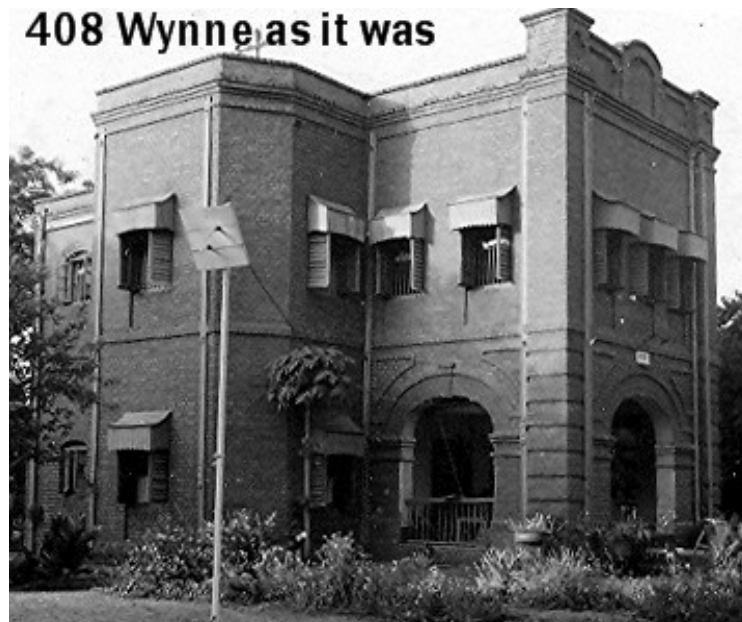


Fig. 1.7 A house similar to ours' in Kharagpur

The house was detached in about an acre of land; upstairs it had three very large bedrooms and two very big bathrooms. Downstairs there was a large dining room and a large drawing room and two large pantries. One of the pantries was used as a storeroom. There was also a large veranda downstairs, in the front of the house.

Separate from the house were the servants' quarters and the kitchen. My mother did not do any work; her servants would do all her chores. She had two cooks, who were Moslems and were also husband and wife. They had two boys, who were about the same age as me. Another servant was a waiter; his name was Thurnia. Other servants of hers included an ayah (child's nanny), a mali (gardener) and a maithrani called Bengi (lavatory cleaner and sweeper). The ayah was a high caste Hindu called Mothi Lahl. Lahl means red in Hindustani. The mali was a medium caste Hindu and Bengi was of the lowest caste, namely an untouchable. Bengi had about six children and the ayah would not touch her, because she was of the lowest caste and the ayah was of quite a high caste. Bengi's eldest child was a very beautiful girl, but her fate was effectively sealed. From birth, she was scheduled to be a lavatory cleaner and sweeper for all her life. She believed in reincarnation and said to us "If I am a good person in this life, I will be reincarnated in a higher caste in my next life" Her second eldest child was a handsome young boy called Beema and I liked playing with him; we had no hang-ups about playing with untouchables, as we were Christians.

All our servants and the surrounding poor Indians had to use a communal toilet some 800yards (800m) from our house. They called their toilet a 'thutti; I think it was very basic!

The Hindus' caste system in British India appeared to unofficially recognise the British and the educated Anglo-Indians as some kind of super-castes above them. In turn, the British and the Anglo-Indians respected the Hindus' caste system.

High-caste Hindus were not allowed to touch untouchables. Thus, if the ayah wanted to go to (say) the toilet and she had baby Brian in her care, she would enlist Bengi's help. Bengi would sit alongside the ayah without touching her. Bengi would place her arms in a catching mode and the ayah would put her arms in a throwing mode. The ayah would then throw the baby into Bengi's arms without touching her and Bengi would catch the baby. After ayah returned from her ablutions, the procedure would be reversed, again without touching each other.

The bathrooms did not have flush toilets or running water. Each one of our family had a commode, which was nicknamed a 'thunderbox'. When the thunderbox was dirtied, you simply shouted for Bengi and she would take the thunderbox down to the open sewer, where she would clean it. For this reason, you did not use toilet paper; you simply washed your rear with soap and water. Bengi transported water to big metal tubs, by hand, in the two bathrooms.

Another dirty job that she had to do was to handwash the washable dirty sanitary towels of my mother and her 3 sisters'; my mother's three sisters lodged with us for a number of years in those days. At that time in Kharagpur, disposable sanitary towels were not readily available! Poor old Bengi!

In general, we took daily 'showers'. In taking our showers, water was poured on to the bodies of the small children by the ayah from a handheld container and then she would soap you. Then she would wash the soap off your body, by pouring water from the handheld container after filling it from the metal tub. The bath water was always cold and quite pleasant in cooling one down in the scalding temperatures of India. If the ayah got soap into my eyes, so that they stung, I would call her an oolu (owl).

The servants were paid monthly. The cooks were paid a total of about £2- per month between them. Ayah was paid about £1-50 per month and Bengi got about £1-25 per month. Bengi's husband worked as a lavatory cleaner at the works of the Bengal Nagpur Railway in Kharagpur; I think that my father helped him to get a job there. The servants all had free quarters provided by my parents, which consisted of one room per servant-family. The servants managed on these paltry wages, but in general they could only afford to eat one main meal a day, with the exception of the cooks, who probably ate twice a day. Not one of the servants was in any way overweight. They were all illiterate, so they were made to acknowledge receipt of their monthly wages, by placing their right thumbprint on a foolscap pad that my mother kept. The servants queued for their wages in a line, pointing to my sitting mother. She would make each servant roll their right thumb on an inkpad and then place their thumb, in the position she directed them to on the foolscap pad.

Bengi would occasionally run out of food before the end of the month and my mother was usually informed of this by the ayah; never Bengi! On these occasions, my mother would give Bengi a loan, which was taken out of her wages the following month. On Christian festival days such as Christmas and Easter, my mother would usually buy the servants a present; ayah usually wanted and got a new sari.

The four older children were not born in the house shown in Fig. 1.8, but in another house some 100 yards (about 100 m) away in 4th Avenue. The two younger children were born in the house shown in Fig. 1.8. We left the house that I was born in, and moved into the house of Fig. 1.8 when I was about three years old; I can still remember the move. The servants and other labourers carried most of the furniture and other belongings on their heads through an alley separating a house and the hospital. I know I was about three years of age at that time, because I remember celebrating my fourth birthday in the house of Third Avenue. I did not know it was my fourth birthday on that day until my mother told me so in the presence of Stan and Colin. The older boys said to me that I would have to go to school now and that I would be caned for not knowing my tables; it frightened the living daylight out of me.

In general, for our birthdays and at Christmas we did not get any toys. Instead, we were given new clothes and or shoes. In the case of our shoes, they were made to measure by an Indian cobbler; he was called Number 13, because his address was at Number 13 in the market.

Fig. 1.8 Our Kharagpur house, (309 Third Avenue).



My mother would decide which of my feet was larger and I would have to place that foot on the cobbler's foolscap writing pad. It was usually my left foot. The cobbler would then draw around it with a pencil and a week or so later, we would collect the shoes, which would be built according to a design pre-selected by my mother. The market fascinated me; I would regularly be taken there for a treat. I loved its exotic smells; in particular the smells of spices, fruit, oriental foods and sweets.

When my father took me to the market, he would buy me an Indian sweet, usually a russergula. This sweet was white in colour and about 1.25 inches (3.2 cms) in diameter. The sweet was milk based; it was soft and very sweet. One had to acquire a taste for it to enjoy it. Sometimes he would buy me a packet of shelled peanuts; cooked in Indian style. That is, the peanuts were baked in a spice powder and they still had their brown skins intact, immediately surrounding the peanut, not the outer shell!

One incident that I remember occurred when I was about 5 years old. I swallowed an orange pip and I asked Colin if I would be all right. He said that an orange tree will grow in my stomach and when it grew through my head I would die. I was very worried about his remark and worried about it for about a week. Later that week, I was walking with my Dad and my two older brothers and I asked him how long I would live? He immediately interrogated me about the reason for my concern and when I told him, he reassured me that I was not going to die and that the seed had already passed through my system; I was relieved and a cloud seemed to lift from my worrying little brow.

Now most people in the west think that India's national game is cricket, but this is only the sport of the highly educated classes, who are in a minority in India. The game that is played by the vast majority of males in India is called gilly and dundoo. The dundoo is a stick, usually cut from a branch of a tree; it is about 2ft-6ins (0.76m) long and about 1 in (2.54cm) diameter. The gilly is much smaller piece of wood; it is about 3ins (7.6cm) long and about 0.5ins (1.3cm) in diameter; it too is usually cut from a branch of a tree. The gilly is tapered at both ends, usually with the aid of a

sharp knife. The game is played as follows. The gilly is laid down horizontally on a flat piece of the ground. The striker of the gilly then hits it so that it spins vertically upwards into the air and he then strikes it with the dundoo, sending it as far as he can. If he does not hit the gilly on its tip, while it is lying flat on the ground, it will either not move or move in a horizontal trajectory and he will not be able to strike it in mid-air with the dundoo. Next, the opposing striker of the gilly repeats the performance, seeing if he can hit it further than his opponent. There is no set time for the game; you keep playing it until there is mutual agreement that the game has ended. There are no real winners in the game of gilly and dundoo; only admiration for the best performance. I was really in admiration of Beema's performance; he always played superbly. Another sport of the Indians is in flying fighting kites.

These kites are flown high in the sky, near the vicinity of the opposing kite flyer. The object of the game is to cut the string holding the opponent's kite, so that his kite will be 'lost'. In order to assist your efforts, you usually used glass-coated string at the top end of your string. The glass-coated string was called *marnger*; it was relatively expensive. However, for those who wanted to make their own *marnger*, they often used a mixture of cactus and glass powder, which they coated their kite string with. *Marnger* was only used at the top of the kite string, near the kite itself and not where the kite flyer held the string; thus avoiding any cut hands.

Another sport played by the Indians was 'Indian tops'. These tops are made from wood and are conical in shape. Protruding from the narrower end of the top is a long metal spike, which is sharpened, often like the sharp end of a chisel. Sometimes the spike is about 3 inches (7.5 cms) long. The game is played as follows. The opponent's top is placed on a flat part of the ground. The 'striking player' then wraps the top's string around the conical body of his top, holding the top and the surplus of the string in his hand. He then throws the top in an over arm manner at the prostrate top, keeping a firm hold of the top's string with his striking hand. What he is trying to do is to penetrate the wooden body of the prostrate top (called 'goongeing'), or even trying to split the prostrate top into pieces. After he strikes, he and his opponent try to scoop up their tops, whether spinning or stationary, with the top's string, holding the top's string with both hands. If his opponent scoops up his top first, then the striker has to place his top on to the flat piece of ground, so that his opponent can then become the striker.

Marbles too were played differently in India. In Britain the player 'throwing' the marble would normally be standing upright. He would hold the marble between his bent thumb and his bent forefinger, so that the marble was between the outer surface of his thumbnail and the inside of his forefinger. He would then flick his marble at his opponent's marble. In India, the striker would be sitting in a squatting position. He would place his thumb on the ground and hold the marble between the inside of his index finger and the inside of the forefinger of his other hand. Keeping the thumb of his 'striking hand' on the ground, he would aim his marble at his opponent's marble, keeping the thumb of his striking hand on the ground.

Very often my dad would take me with him to play housey-housey (bingo) in the evening in the European Institute; a photograph of which is shown in Fig. 1.9. The European Institute was the meeting place of all the Anglo-Indians and the British for entertainment. It housed the cinema, the dance hall and was also used for sporting events, such as bowls, cricket, hockey and football and athletics. The Gurkhas would regularly play western band music in the bandstand shown in the front of the picture.



Fig. 1.9. The European Institute in Kharagpur.

Even though I was under 9 years old, I had no problem in playing bingo, as I was always good with numbers. On one occasion I won first prize for a full house and I called out ‘house’ in my squeaky little voice. Everybody looked at me and they burst out laughing when my father said that I was in for a beating if I had not won the full house. However, I had won and my father collected 25 rupees (about £2- in those days). On the way back home that night we travelled in a cycle rickshaw and he promised to give me some of the money; but he did not keep his promise. He thought that I would forget, but I never did. The cycle rickshaw would stop some 100 yards (100m) from our house because it was too wide to travel along a narrow path to it. My father would walk ahead of us, shining a torch in front of him on the ground so that he could avoid snakes.

On one occasion when we were returning home late at night, my sister Helen nearly stepped on two deadly poisonous small snakes, called kraits. She jumped over them and I ran to the veranda where there was a hockey stick. I returned with the hockey stick, but one krait had vanished; I smashed the head in of the other krait. Its blood stained the tip of the hockey stick, as indeed the blood of other kraits, which had been similarly dealt with by my bigger brothers, had previously stained the tip of the old hockey stick.

On another occasion, when I was about 7 years old, I heard the children of the Indian servants of the hospital shouting quite agitatedly “Russi, russi!” The Hindus would not call a snake by its correct name, namely “sarmp”, because the snake was of religious significance in their faith. The word “russi” was the word for rope and they described the snake as such because of their reverence for this creature. I thought the snake was a grass snake so I went up to it and smashed its head in with the heel of my tiny shoe, its blood being spattered over the heel. If I had missed I would not be here now. Prior to this event, I was told by my older brothers never ever to pick up a ‘dead’ snake with my bare hands, so I balanced the dead snake on a twig and took it home to my mother. When she saw it she went ‘ballistic’. She screamed at me “That is not a grass snake; it is a deadly poisonous krait!”

My father would spoil us, but my mother would not; she was very stern. She made a naïve interpretation of the biblical quotation “Spare the rod and spoil the child!” My eldest brother (Stan) used to wet his bed and although I was 5 years younger than him, I did not wet my bed. Every morning, she would ask my father to beat Stan quite

unmercifully with a cane for wetting his bed. My Dad would chase Stan all around the large front bedroom, whipping him all over his body. My mother would egg my father on by repeatedly shouting “Knock it out of him! Knock it out of him!” Every morning the same ritual was performed; we were terrified that we would get similar treatment and we were very sorry for our brother. She would also hold me up as an example of a child, who although a lot younger than Stan, did not bed wet. This caused Stan to resent me and for him to encourage Helen and me to have a fistfight. He would say to me “You are a ‘sissy’; I bet that you cannot beat your sister in a fistfight!” He would then encourage Helen to fight me telling her “You can beat Carl in a fistfight; go on, take him on!” I would always beat Helen in the fistfight, but I would then receive a thrashing from my mother for hitting her and Stan would be pleased that some of his dignity was restored.

When I reached about the age of seven and returned from school, which finished about 1.00pm, I would play in the back garden with my two sisters. My mother would usually go to bed for an hour or so in the afternoon around this time. When she woke, she would call out for us at the top of the stairs. She would be waiting for us at the back entrance to the house on the first floor, with a cane behind her back. She would cane me quite hard, three times on the legs for getting too suntanned in the beautiful Indian weather. She would cane Helen twice and Zee once, both on the legs also for getting suntanned. She did not like us playing in the sun because we became too dark. This ritual followed every day and the markings on our legs showed up all day; Zee was only about two years old! One evening when my father returned from work, I showed him the weals on my leg; he was quite horrified and questioned her in our presence. She lied and told him that we were badly behaved. On another occasion, I was sitting alongside her at mass on a Sunday morning. When the priest made his sermon, he quoted quite vehemently from the bible “Spare the rod and spoil the child!” He repeated this quotation several times with much emphasis; I knew then that I was going to get beaten later that day. Sure enough, during that afternoon I was quietly playing with some marbles on the concrete floor in the dining room; my mother was breathing very heavily as the priest had whipped up her emotions. One of my marbles rolled gently towards her, it did not touch her. With a sudden burst of anger, she punched me fully in the mouth with her left fist, the wedding ring on her ring finger splitting my lip and causing me to bleed. She saw her Hollywood heroes punch the enemy in the face and she simply copied them. While I was crying she yelled at me “Spare the rod and spoil the child”, several times. One of her troubles was that she did not have enough to do, as she had 6 servants to do all her housework. Additionally, she would repeat to me after she gave me a battering that “A mother can do no wrong as God is guiding her in bringing up her children”. When I was about 4 years old, I went to my mother for a cuddle. As I got near her she grabbed my left shoulder with her right hand and pushed me away and she said, “Do not come near me!” After that incident I never ever went to her again for a cuddle!

She did not like us playing with the other Anglo-Indian boys, so she hired the services of a small orphan Indian boy to play with us. She fed him and let him sleep on the floor on the landing; I think that she gave him some pocket money. He was not allowed to use our facilities, including the toilets. His name was Josey and he was a Christian from the local Catholic orphanage for poor Indian boys. Josey was about 2 years older than me and he had a very mild temperament. Josey had other duties, such as cleaning the shoes and bringing in our drinking water into our pantry. Prior to us consuming the drinking water, it was boiled and then transported to a large earthenware container in the pantry. Josey had ear infections in both ears and

suffered much pain from time to time; I think that it may have been treatable, but my Dad never considered sending him to the hospital. Occasionally, Josey made a mistake with his household chores and my Dad would hit him. Eventually, Josey left our household; he preferred it at the orphanage! A few years prior to Josey coming into our employment, another Indian Catholic orphan boy called Pyethali, was engaged to play with my two older brothers, when they were small. In the case of Pyethali it was a highly successful venture. I met Pyethali when he was a young man; he was visiting my family and they made him very welcome. I found him to be really pleasant person who burst into spontaneous laughter at the 'drop of a hat'.

I had 2 large ball bearings that I played with; these were normally used in locomotives and an adult who worked at the B.N.R. gave me them. I cherished them and I used to call them my 'dorms'; they were about 1 inch (2.54 cms) in diameter. I was, in general, not allowed to play with the other boys in our street because my mother thought that they were too naughty; they were not; it was her poor judgement of the normal behaviour of little boys! Thus, for most of the time, I played by myself with an imaginary friend who I called 'Vince'. Every afternoon after school the imaginary Vince and I would play a game of marbles with my dorms; I always won! I had years of pleasure playing dorms with Vince. On one occasion, however, one of my dorms rolled out of our garden into the road. I was frightened that I would lose it, as I had a trek of about 50 yards (about 50 m) to the gate, so I tried to jump over the barbwire fence. I did not make it and the barbwire fence cut my right thigh very badly. I regained my dorm and tried to hide my wound from my mother, as she would always cane me if I cut myself, even if it were an accident. However, the servants saw the blood streaming down my leg and reported it to my mother. She called me in for treatment but I refused because I usually got a beating for hurting myself. Eventually, I went indoors for a sleep and she treated me with Iodine while I was asleep. She always treated our cuts with Iodine and it was always very painful.

To avoid us catching typhoid (enteric), she would make us swallow a dessertspoonful of castor oil every Saturday morning and to shield the taste, she used to make us eat a whole spiced pickled lime. If you refused you took a beating, but you still had to take your castor oil and spiced pickled lime. I did not know what was worse, taking the castor oil or eating the spiced pickled lime. Later in life, I realised that taking castor oil was no way of stopping someone from catching typhoid. She was quite vehement in her belief that the taking of castor oil prevented the onset of typhoid and repeated this to all and sundry when this topic was mentioned. In fact, she was proven wrong because Helen caught typhoid when she was about 6 years old. The doctors told my parents that Helen had caught enteric, but not until they were in England did my parents realise that enteric was typhoid; I drew this to their attention from an Oxford dictionary. Helen was treated in the Railway Hospital, which was next door to our house; it was a miracle that she survived, but thank goodness that she did!

Another method that some of the adults practised to avoid catching typhoid, was to give themselves an enema. However, I do not think this method worked, because they were treating the 'wrong end'; in general the children were never given an enema.

My mum used to keep chickens in the back garden; she had about 40 white leghorns, which she kept as egg layers. She preferred white chickens and white animals to non-white chickens and animals. In general she would not slaughter her white leghorns. She also separately kept some local brown coloured fowl, which she kept for the table. On one occasion a disease broke out with her chickens; it was a digestive

disease, so she went around with the cook, catching each fowl in turn and forcing each one to swallow a teaspoon of castor oil. Needless to say, she lost all the fowls. When I became 7 years old, I informed my Uncle Sam that it was my birthday; he gave me 7 rupees (about 50 pence) to celebrate. No one had given me that sum of money before! I used it to buy a brown baby female goat; my grandma said we shall call the kid 'Molly'. Anyhow, unknown to me when Molly grew up, my mother had Molly mated with a local goat and the result produced 'Nancy' and Nancy produced Pansy. Eventually we had over a dozen goats, all but one a female. When the male was small I like head butting him. As soon as I got down on all fours he knew that it was head butting time. He would leave his mother's side and come charging at me, with his head down; I in turn, would put my head down to stop him in his tracks. Undaunted by my reaction to his antics, he would repeat the exercise until he eventually tired. I had great fun with this kid on many occasions, until my mother sold him to one of the servants who wanted to sacrifice him to please her god. When we left India, she sold all the goats but she wouldn't give me a penny of the proceeds. When I was older, a group of us boys would take our catapults with us to go out 'hunting'. We usually tried to 'shoot' birds or squirrels, but were always unsuccessful. We were more successful at killing bloodsuckers (a type of chameleon), with the aid of our catapults. After we killed them, we would place them on the highway, and the carrion birds would eat them later that evening. Most of the time, these acts would take place on Sixth Avenue; it was good for 'hunting'. Adults usually ignored us, but on one occasion an educated English woman told us not to kill the bloodsuckers and to go home; we obeyed her without fuss. On another occasion, when I was hunting, I killed a dove with my catapult, in our back garden. The dove had just flown onto the banyan tree, when I 'let fly' with my catapult and was successful at the first attempt; the three smaller children ate that dove for our evening meal; Brian was not born at that time. The cook made a kind of spicy roast meal of the dove; it was delicious.

On another occasion, I went hunting with my friend Brian in Kharagpur; it must have been during the school holidays, as we were about 10 years old. Brian took his 0.22 air rifle with him and I took my catapult. We had no luck in Sixth Avenue, so we decided to walk into a remote Hindu village, called Hijli, on our own. When we got there, some small Indian boys including an older Sikh boy surrounded us. The Indian boys were asking Brian about his gun in Hindustani and Brian was explaining its capabilities to them. The older Sikh boy then asked Brian if he could hold Brian's gun and Brian handed it over to the Sikh boy. Suddenly, the Sikh boy yelled, "Salah!" which is a swear word similar to one used in the west like, "Bastard". The Sikh boy then swung the gun around and fired it directly into the face of one of the small Hindu boys. The slug settled just below the Hindu boy's right eye and the region around his right eye immediately became swollen. The young Hindu boy started yelling, "Murgyah! Murgyah!" which meant "I am dying! I am dying!" An adult Hindu then came on to the scene and said, "I will take the boy to the hospital". Brian and I were quite upset; Brian retrieved his gun and said to me "Shall I shoot the Sikh?" I said, "No; let us return home!" The adult Hindu had no transport, so he walked with the little Hindu boy to the hospital, which was some two miles (3.2 km) away. The police were not involved. I did not report the incident to anyone else, but Brian told his mother. She enquired at the hospital and they said that they had difficulty in retrieving the slug from under the Hindu boy's right eye. I think the Hindu boy recovered, but I don't know if his sight was impaired. Regrettably, Indians

were expendable in those days. Brian and his family emigrated to England in the 1940's and I think that they settled in the Bristol area.

My two sisters and I always ate separately from the adults and our two older brothers. We ate earlier and we had different but delicious food. However, because the adults did not sample our food, the cooks used to deliberately make our food too spicy for small children to eat. Thus, we would leave most of it every evening and the cooks and their children would eat up what we left. The parents did not know that this went on for several years and as a result I was effectively malnourished! If we did not eat our food, our mother usually caned us.

As a small child I had a phenomenal memory; I could remember everything that happened the day before, including every word of every sentence that had been uttered the previous day. On one occasion my mother put something away in a 'safe place'. Several weeks later, she was searching for this item, high and low, but she could not remember where she put it. When I discovered her problem, I immediately informed her where she had put this item, but she dismissed my suggestion, saying that I was too small to remember where she'd put it. Eventually, after several hours, she tried my suggestion and to her amazement she found it. She informed my father of my memory skills and from then on, she always informed me where she 'hid' an item; I never failed to remember where she had put it. From then on she regularly bragged to all and sundry that I had this incredible photographic memory.

On October 16th, 1942 we experienced a ferocious cyclone in the Bay of Bengal; I was 7 years old at the time. Cyclones are called hurricanes when they occur in the Atlantic Ocean and typhoons in the Pacific Ocean; we were in the Indian Ocean. I remember that the cyclone started about 3.00pm, gaining speed as the afternoon progressed. My Dad arrived home safely after work and shortly after his arrival, several friends and relatives who were on their way home got caught up in it; they all sought refuge in our house. They could not telephone their loved ones as neither their family nor we had telephones; their relatives had to guess that they had taken safe refuge. I remember the wind howling in the evening and the storm pipes whistling in the wind. We were all safe as our house was solidly brick-built, so too were the servants in their quarters. I don't know how everyone was fed, but no doubt we were, as the kitchen was only about 30 yards (30 m) away. The next morning the storm had vanished and we all went out to inspect the damage. Our banyan tree had lost a couple of its branches and there were dead wild birds strewn all over the place. I got hold of a bucket and started to fill it with the carcasses of these beautiful birds. I took the dead birds to a tap and tried to bring them back to life by opening their beaks and filling them full of tap water; I only succeeded in 'bloating out' their bellies. Earlier in the year I had seen a Hollywood film, where sailors, who were 'lost' at sea in a boat, were revived by their rescuers when given fresh water. I thought that this was how dead people were brought back to life.

About once a month a blind beggar, led by his little boy would come to our front door, begging. My parents never turned him away. My father said "Never refuse to give money to a blind beggar". His parents may have deliberately blinded the beggar at birth, so that he could become a successful professional beggar!

About once a year a group of twenty or so nomads would come begging at our front door. They were a mixture of adults and children; they were very thin and very black; their children would simply sit and not play. When this took place, my mother would order the cooks to make the nomads a meal of vegetable curry and rice and feed them all. Many Hindus were vegetarians, so she took no chances in offering them meat. After the group was fed they would continue on their journey, to where I don't know,

but they did not return until about a year later. Many of the neighbours complained of my Mum's act of humanity, but she ignored them.

Much later in life I was to learn that poverty was not restricted to the Asian and African continents. An old English friend of mine, who spent his life in Portsmouth, informed me that when he went to school in Portsmouth in the 1920's, there was a young English schoolboy who often ate mice sandwiches for lunch. Starling pies were not uncommon either during that period!

When I was about 7 years old my father bought a pedigree bull terrier pup, which he called Bonzo Carl Olan; he entered him for shows in Calcutta and Bonzo won a few prizes. He was a white bull terrier with a small black marking on his snout; my mother wanted a white dog. She preferred white animals to coloured ones; she even practised colour discrimination with animals. My father use to tease me; he used to say to me, "I named you after the dog", however, I was not a fool; I knew that I was about 6 years older than Bonzo. I had a lot of spare time and I played a lot with Bonzo. Eventually, I effectively became Bonzo's master and he protected me. For example, if my mother went to cane me, Bonzo would gently grip her right arm between his teeth and stop her. He would not bite her or hurt her but he would very skilfully restrain her from beating me. He did not like to see his master hurt. When Bonzo got a little older, my father sold him for profit. My two sisters and I protested at this, but our pleas were ignored. I remember when the servant of Bonzo's new master came to lead him away. As they were walking away from our house, Bonzo kept stopping and turning around to take a look at me. Both Bonzo and I were very sad that we would not see each other again. Bonzo fretted for us at his new home, because he stopped eating. His new master requested my father to go to his house to feed Bonzo. We never saw Bonzo again. Poor old Bonzo!

A plan of Kharagpur drawn in the 1930's is shown in Fig. 1.10, together with a 'key' to the map on page 18.

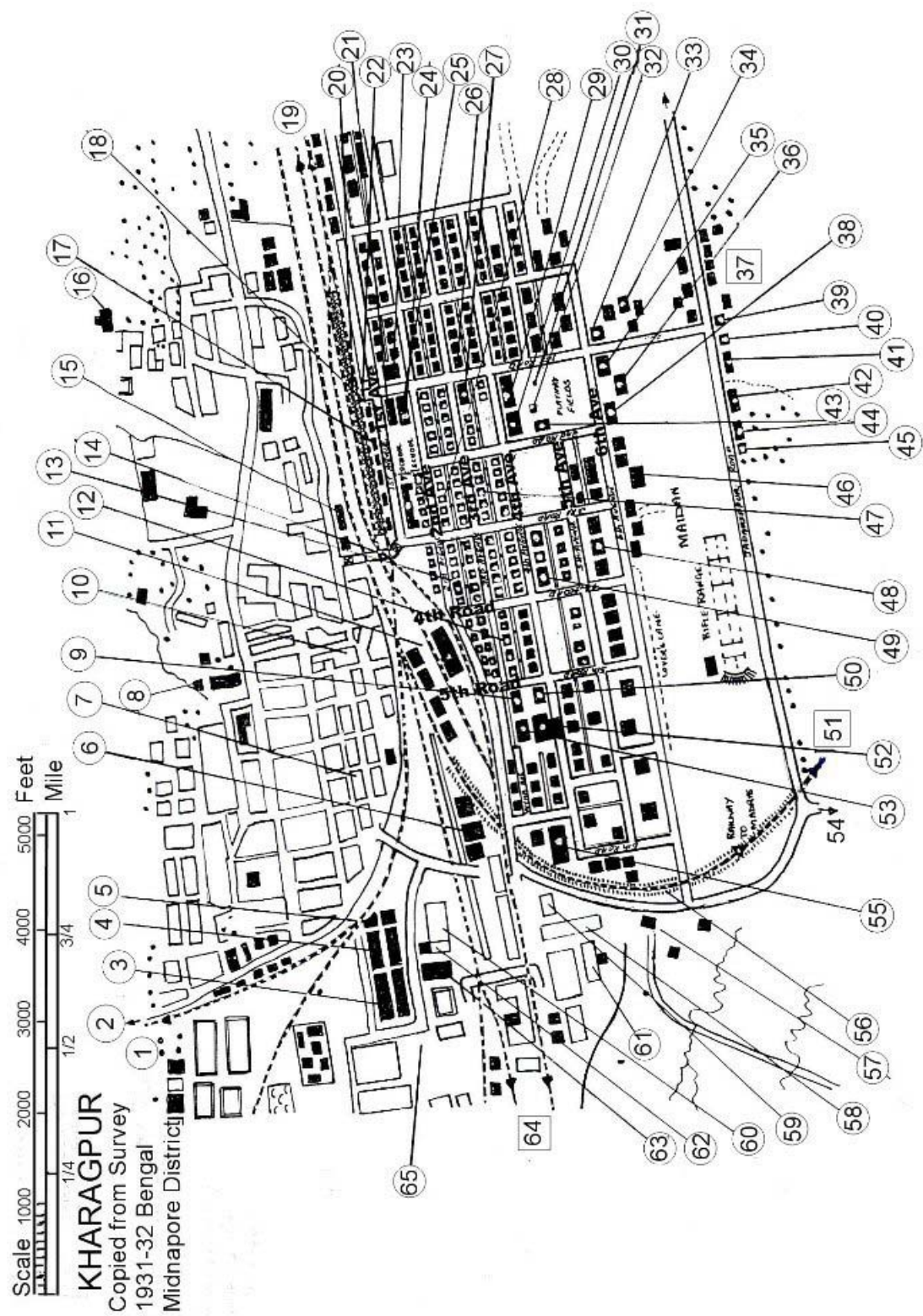


Fig. 1.10 Street Map of Kharagpur in the 1931- 1932 era.

‘KEY’ TO STREET MAP OF FIG. 1.10.

1 to Calcutta 20 Railway Station 21 Rest House
22 Underground Passage 23 Post & Telegraph 24 Avery's Machine
25 Billamoria's Store 26 Control Office 27 All Saints Church of
England
28 Teachers' Quarters 29 Armoury 30 European Institute
31 Tennis Courts 32 Bandstand 33 Masonic Lodge
34 Wynn Court Officers' Quarters 35 Parochial Hall 36 Priest's House
37 Japatapur 38 Sacred Heart RC Church
41 Bunyan House
43 Bowling Green 44
46 Officers' Club 47 48 CME's (Chief Mechanical Engineer) House
49 Baptist Union Church 50 AMO's Quarters 51 To Cuttack, 170
miles
52 Railway Hospital (Main Part) 53 Maternity Wing 54 To Hijli
55 Apprentices' Home 56 Culvert 57 West End Foremans Quarters
58 Saw Mill 59 Watch & Warp 60 Heat Treatment
61 Electric 62 Machine Shop 63 Erecting Shop
64 To Bombay, Tartanaga 79 miles 65 Bengal Nagpur Railway
Workshops Railway to Midnapore 2 Road to cemetery 3 Carriage Shop
1. 4 Boiler Shop 5 Blacksmith Foundry 6 CME's Office
7 Type Housing 8 Church 9 Dispensary
10 Markets 11 Locomotive Sheds 12
13 Ration Shop During War 14 Level Crossing Gates 15 Signal Box
16 Khargeswar Mandir Shrine 17 Station Committee Rooms 18
Parking & Rickshaw Stand
19 Railway

For greater clarification of the above “Key”, readers are advised to pay a visit to Corinne Baxter’s (nee) Crampton website; see below. The site is worth a visit to get an insight of life in Kharagpur in the closing days of the British Raj!

<http://web.ncf.ca/kharagpurdiaspora/Part2.htm>

Chapter 2 - School.

In India the academic year started in January and finished in December. I was 4 years of age in October 1939, and as I was four when I started school, I must have started school in 1940. The vast majority of Anglo-Indians went to private fee paying schools and we were no exception. My mother decided that I should go to a local private day school when I was 4 years old. She chose a small school with only one elderly female teacher, on the grounds that this teacher was very strict. In fact she was a cane-wielding maniac and my mother knew it, because my two older brothers went there before me and were able to relate the beatings they received at the hands of this teacher. In any case, my mother admitted to us that she was surprised to see the red weals on my eldest brothers legs, at the hands of this maniac, when he was very small. All ages between 4 and 7 were in one class. The teacher would try to teach numeracy and literacy skills to this fairly large age range, but because the age range in the class was quite large, her expectancies for the 4 and 5 year olds were too high. She would go around the class asking each child in turn the result of a simple multiplication. If they got it wrong she would hit them with a very thick cane. Sometimes the multiplication could involve relatively large single-figure numbers, which a 5 or 6 year old would find difficult to answer. On one occasion she called me to the front of the class to get a caning; Helen was also a pupil in this class. When she started to beat me, Helen ran to the front of the class and tried to snatch the cane away from this teacher. The teacher was shocked at Helen's reaction and to my luck she stopped caning me. Helen was probably only about 4 years old at the time.

The problem was worsened because my mother would not teach us our tables at home. When we went home after school finished at 1.00 pm, she would take her daily siesta. Additionally, she would not buy us children's reading books and as our ayah, who was illiterate, put us to bed, we did not make the progress that a child would make in a normal fee-paying school. So we were regularly caned at infant school, not for misbehaviour but for not knowing our tables. Fortunately, the teacher retired when I was about 6 years old and I went to another small school in the same avenue. This school was, however, run by two young females, who were kind and patient. My numeracy and literacy skills improved dramatically and I was happy, at least at school.

For a short time after I left my first school, I attended Mrs. Bunyan's School. The Bunyan's school was near a railway line and I remember us children playing during the playtime breaks, near this track. I remember us placing nails and plain pins on the railway line just prior to the rapid passage of an express train. The nails and plain pins would become flattened as a result of this and resembled miniature swords, which we played with. Later, we got more adventurous and put large pebbles on the railway line, only to see them turned to powder. We kept increasing the size of the pebbles, which formed part of the ballast of the railway lines, until some adult realised what we were up to and from then on, we were banned from playing on the railway lines. Fig. 2.1 shows a photograph of the type of train that operated in India in those days.

At this time my two elder brothers were boarders at St. Joseph's European High School in Bangalore in the south of India. St. Joseph's was a Jesuit boarding school. I was to join them in January 1945 when I was only 9 years old! My father wanted to send them to St. Joseph's in Darjeeling, but my mother, who was not particularly well educated herself, insisted that India's best mathematicians were in southern India. Bangalore was about 1000 miles (1609m km) away from Kharagpur, and it took 4 days to get there by train. We changed trains at Madras. Additionally, the academic

year at St. Joseph's consisted of 2 terms, one from January to Easter and the other from after Easter to December. Thus, travelling home for the weekend or a 'half-term' was out of the question. One term lasted for 8 months; my ayah fretted for me.

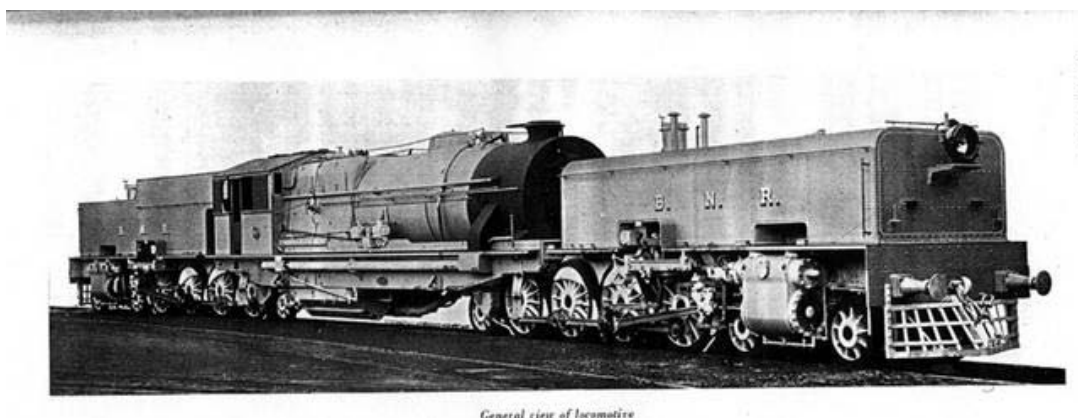


Fig. 2.1. A locomotive in action.

She tried to persuade my mother to send me to the local private day school, but her protests were dismissed. How I loved my ayah; that lovely brown-skinned gentle Hindu woman from Tengra Village, who doted on me. I did not appreciate her; I would make fun of her by saying, "Mothi Lahl; Lumba bahl". Lumba meant long and bahl meant hair. She had lovely long hair, which she kept tidily in a bun; she was very clean. Every day, she would take a 'bath' using the cold-water tap outside the kitchen. She would very skilfully cover her body with a sari, so that nobody could see her body, while she took her 'bath'. The sari may have got a little wet, but in the burning Indian sun it would have dried within a few minutes. She did not use soap; she could not afford to buy a cake of soap. In any case the soap may have been made from cows' fat and as she was a Hindu, the cow was of religious significance in her faith and she may have sinned if she had used soap. The other servants also took their baths in a similar fashion; nobody took any notice of them. There was only one cold-water tap for use by the servants. The servants were all very discreet when they took their 'baths'. Unfortunately, my mother did not teach us to respect Indians!

When I was about 5 years old I saw Bengi breastfeeding her baby in the shade of the banyan tree. I asked Bengi what she was doing and she told me she was breastfeeding her baby. I was very interested in this and asked her if she could show me how the baby got the milk into her mouth and Bengi gave me a clear demonstration of the process. I was filled with wonder of this 'miracle' and related it to my mother. My mother was angry with Bengi and told her not to feed her baby again in public.

Every night my ayah would prepare the three of us (Helen, Zee and me) for bed; she would tuck us into bed and gently sing an Indian lullaby. In her soft sweet voice she would repeatedly sing to me, "Hathi (Elephant) gia (goes to) Junglemay (the Jungle), mera (my) Rajah (King) soagyea (sleeps)". She always called me her 'Rajah', her king. After a few minutes of her singing to me, I would fall asleep. When I went to boarding school, she missed me badly. She would take the two girls to the Catholic Church and she would take a small coin out of her pocket and give it to my sister Helen. She would ask Helen to put the small coin into the Offertory Box and light a candle for me and then to pray that I would be safe and well; Helen would do this. My ayah loved the decorative beauty of the Catholic Church. She said to my mother,

“What beautiful Gods you have got!” My mother tried to convert my ayah to Catholicism, but she never succeeded. When the British and the Anglo-Indians left India after 1947, she had no work, because her job was to work as a nanny for the British and the Anglo-Indians. I understand from an Aunt who stayed on for a few years after we left, that my ayah died of starvation; she deserved a better fate than that! I understand that she asked my Aunt for a photograph of me, her precious ‘Carloo-Baba’, but my Aunt and my mother were not on speaking terms at that time and my ayah never received a picture of me. Baba means child in Hindustani. Before our train left Kharagpur Railway Station, I asked my Dad for 8 annas (half a rupee) and I put it into my beloved ayah’s hands. I was only 12 years old when I arrived in England; if I were just a few years older I might have been able to prevent my beloved ayah from starving to death. She only needed a few pence a week to keep her alive, but she was illiterate and she had no bank account. We would have had great difficulty in passing the money on to her. I will never forget the sadness on her face, as she looked in disbelief when the train pulled away; my ayah and I were never to see each other again. During my lifetime, I have met thousands of very nice people, but I believe that my ayah was the nicest person that I have ever met; she was like a living saint. She was not a Christian, but her great kindness and gentility would put most Christians to shame. As a child I never appreciated her. She was my mother figure! If only I could ‘turn the clock back’. May God forgive me from not helping my ayah!

Chapter 3 - Boarding School.

When we arrived at Bangalore Railway Station, we always travelled by ‘phaeton’ (a light 4 wheeled carriage, drawn by horses) to the school; usually there were about 4 or 6 horses that pulled each carriage. It took 3 days to travel from Kharagpur to Madras and another day from Madras to Bangalore. We changed trains for Bangalore at Madras. Because my father worked on the railways, he obtained discount for our rail journeys; we had a sleeping compartment booked for our exclusive use, where each of us had our own sleeping berth. Each ‘sleeper’ had its own flush toilet; thus we were self-contained; there was no through-passage in the train. We travelled second class; the rich travelled first class. The poorer Indians travelled Third Class, where facilities were primitive. Before we reached Madras, we travelled over a long narrow bridge, called the Godavari Bridge. This bridge would sway in the wind; it was quite frightening! It was 2.754 km (1.71 miles) long and a view of it, with a train in place, is shown in Fig 3.1. The bridge, which was the second longest bridge in India, took about an hour to cross! At Madras, we took a short break from travelling and visited the ‘Mohrs Market’. It really was an interesting market; the smells of oriental spices and foodstuffs still haunt me. We learnt to ‘haggle’ for our purchases at this market. To get to the market, we had to cross a bridge, which spanned a very smelly river called the Silvery Coombe. When English women crossed the bridge spanning the Silvery Coombe, they held perfumed handkerchiefs to their noses; we put up with the smell of the Silvery Coombe when we crossed it. The odour was probably caused by raw sewage being pumped into this river. Beggars used to sit on this bridge crossing the Silvery Coombe. On one occasion, we saw a very thin beggar; he was thinner than many of the survivors of ‘Belsen’ that I had seen on British TV. He was starving and was in the last stages of life; he was shivering, despite the fact that it was a very hot day. He was dying in public! We wanted to give him some money, but the other beggars said to us, “Do not give him anything! He is finished! Give it to us!” I wanted to give him money, but I was scared; his condition frightened me and I did not give him any money; I regret it, despite the fact that if I had given him any money, the other beggars would have taken some of it off him. As he was in the last stages of life, he was unable to defend himself. I was only about 10 years old at that time. Ironically, after this incident we had lunch in a restaurant at Madras, as it was our usual custom to do so; no alcohol was ever consumed by anyone on these occasions.

Fig. 3.1 The old Godavari Bridge.



On one occasion, when we were travelling back up north to our home, the train stopped in no man’s land, perhaps some 30 miles (48 km) from the nearest railway

station. We got a bit bored and descended down to the track where we were playing. After a while, the older boys got back into their compartment and left me there on my own. They made the mistake of shutting the door and therefore I could not see which compartment they were in; I was only about 11 years old at the time and could not look into the compartments, as the train was not on a platform and I was too small to see into the carriages from the track. Suddenly the train started without warning and I jumped on to the step of a compartment and looked in; it was not my compartment, so I hopped off this step and jumped on to the step of the next compartment; this was not my compartment either. The train was now gathering speed, so I hopped off this step to jump on to the step of the next one, but I had a job keeping up with the train; it was leaving me behind. I gritted my teeth and accelerated as hard as I could, to keep up with the train and jumped on to the step of the next compartment. This time I was lucky; it was the right compartment and my brother Colin and his friend pulled me in through the window. They were only about 14 years old and we were not accompanied by any adults. It was not unusual for the boys to travel without the company of adults. I had a lucky escape. If I had been left behind with no water or head covering and facing the scalding Indian sun in no man's land, I may not have been here now.

When we did stop at a railway station, I thoroughly enjoyed the colourful scenes that greeted our arrival. The Indian women, dressed in their colourful saris, would walk along the platform, balancing big baskets on their heads, trying to sell their fruit. They sold mangoes, guavas, pineapples, oranges, papayas and bananas. I liked the variegated colours of many of the fruits, especially the big juicy mangoes. The colour of the mangoes very often varied from green to yellow through to deep red. The Indian men sold large green coconuts for their juice; these coconuts were called darves,. They also sold Indian sweets and spiced savoury food as well. If you ordered a darve, they would cut off the top of the darve with their machetes, so that you could drink the juice. Nowadays they provide you with a straw to help you drink the darve juice without it spilling down your shirt, but in those days they didn't. The train usually stopped for about half an hour at each station and thus we were able to order our meal, which was served to us at the next stop. The meals were usually served piping hot.

There was mass starvation in India during the Second World War and one of the problems that caused this was that the British had taken away the food of the poor Indian people to feed the 'British' troops on the Burma Front, where we were in heavy conflict with the Japanese. These troops were not only British, but were also Anglo-Indians and Indians. In fact, a disproportionately large number of troops who were awarded the V.C. were Indians. Both my father and my uncles were involved in the Burma Campaign; a photograph of my father is shown in Fig. 3.2; my Uncle Sam, who was a Sergeant, fought at Imphal. Uncle Sam was 6ft. 3ins (1.91m) tall; he was very handsome. Uncle Sam was in the R.A.M.C.I. and my father was a lieutenant in the Indian Engineers. My father was connected with transport to the British troops in Burma. Uncle Sam was my boyhood hero; a photograph of him carrying his kit bag is shown in Fig. 3.3. Uncle Sam fought at Imphal and judging by the experiences he related to me, he may have fought in the very bloody "Battle of the tennis courts"! The tennis courts were in a strategic position and whoever held them was effectively a 'killing machine'. He was a very brave man. I had two other uncles who fought as commissioned officers for the British in India.

The poor Indians did not revolt as a result of the British taking away their food to feed the troops in Burma; they just cried and they died in their millions. Their reactions

say a lot of good things for the Indian temperament at that time. They did not go around waving a Red Flag! One might think that the British were heartless at doing this, but they had no option, because had Burma fallen, the Japanese would have overrun India and there would have been widespread slaughter, slavery and starvation as a result of losing the Burma Campaign. Millions of Indians starved to death in the resulting famine, but I do not think that the famine was reported in the British Press at that time! Another good thing about the Indian temperament at that time was that some 2 million Indians volunteered to fight for the British in World War 2. Even in World War 1, some 60, 000 Indian soldiers gave up their lives for the British cause.



Fig. 3.2. The late Lt. Thomas Vincent Ross.

The Jesuits ran the boarding school, the front of which is shown in Fig. 3.4. In the front of the school was a large statue of the 'St. Joseph', dressed in his customary red. The school was solidly brick built and airy. It had quite wide interior and exterior corridors; in fact it was somewhat palatial. The Jesuits were strict but in general, they were fair. I started in the 3rd form, where I had a female teacher, who was very talented and skilful. She was young and pretty and full of enthusiasm for her subjects, whatever they were; she was a joy to listen to. Her first lesson was on the creation of the world and its inhabitants.

My teacher gave the 'lecture' with great gusto; she had delivered it before, several times obviously and I was completely overcome with wonder, by her delivery. There

were about 17 in the class and at the end of the lesson she asked us if we had any questions. I said, “God created all these wonderful things, but who created God?” She was lost for words for a moment and then she said holding her forefinger across her mouth, “Shuush! You must not say that or the earth may open up and swallow you alive!” I withdrew the question immediately, but ever since then it is a question that has puzzled me; maybe it is simply a matter that because we are finite, we cannot understand infinity?

Fig. 3.3 My Uncle Sam.



Fig. 3.4. St. Joseph's European High School, Bangalore.

There were two classes of boarders, namely Parlour boarders and standard class boarders. The parents of Parlour boarders paid higher fees than those of standard class boarders. Prior to me joining St. Joseph's, the discrimination was even worse, as they had: Parlour boarders and also first, second and third class boarders; the latter group being treated a little better than orphans. Originally, my father paid for Stan and Colin to be second-class boarders, but responding to their plea to join a higher class, he made them first class boarders. Parlour boarders had such luxuries as net curtains around their beds to protect them from the mosquitoes, together with warm water for when they washed; the rest of us had no such luxuries. Additionally, the Parlour boarders had a better menu and they ate at the same table as the priests and teachers. The boarders slept in three dormitories, namely 'Small Dorm' for those who had not reached puberty, 'Middle Dorm' for those in their mid-teens and 'Big Dorm' for those in their high-teens and above. I was in 'Small Dorm'; we had one Parlour boarder in Small Dorm; his surname was Nagh. He was a very quiet boy who regularly burst into tears, because he missed his mother. He was about two years younger than me. My brother Colin was in 'Middle Dorm' and my brother Stan was in 'Big Dorm'. I was referred to as 'Young Ross', Colin was referred to as 'Middle Ross' and Stan was referred to as 'Big Ross'. Nobody called you by your Christian name; they always called you by your surname, and you addressed them similarly. Most of the students were Anglo-Indians but there were a handful of British and Indian students; the Indian students were very rich. One of the Indians was called 'Somu'; he was the grandson of the Maharajah of Mysore; he was in 'Big Dorm' and a friend of Stan. Somu was a Parlour Boarder and he was a very nice person. Stan and Somu were brilliant swimmers; Stan would win all the surface swimming races in the school, but Somu would win the underwater swimming race.

The swimming pool was 25 yards (about 25 m) long and of proportional width. It was spotless, but it was never chlorinated. To the best of my knowledge, no one contracted any disease because the swimming pool was not chlorinated. Small Dorm was allowed to use the pool once a week, but Big Dorm could use it more frequently, because they did not need supervision. Most of us could not afford 'fashionable' swimming trunks; remember the war was on; instead we used a pair of lengthy shorts, which were made of thick coloured cotton and were of knee length. We loved swimming and looked forward to our weekly 'dip'; a photograph of the swimming pool is shown in Fig. 3.5. Every year there was a sports' swimming competition. All the boys, swimmers and spectators looked forward to it. I came second in the backstroke for small boys and our relay team came first. I was winning the crawl, but accidentally inhaled some water and as a result of this I was eventually unplaced. On one occasion some swimmers from an American military base challenged us to a swimming competition, but they withdrew their offer when they discovered that we did not chlorinate our swimming pool water. Small Dorm was very disappointed when they got news of the American withdrawal.

For sporting events, the school was divided into four houses, namely St. Andrews (blue), St. Davids (yellow), St. Georges (red) and St. Patricks (green). I was in St. Davids; Colin was in St. Patricks and Stan was in St. Andrews. St. Davids had the best sportsmen and won most of the sporting trophies.

Fig. 3.5. The swimming pool.



Our captain was Arthur David; he was an Anglo-Burman of enormous sporting talent. He would win most of the athletic field events. Additionally, he was a brilliant cricketer, a brilliant footballer and also a brilliant hockey player. In both soccer and hockey, he played centre forward. After he left school, he played centre forward for Burma in soccer. Rugby was not played at the school because the pitches in Bangalore were rock hard and too dangerous to play a game like rugby, because of the bodily contact with the ground that is normally associated with that game. We had a clay pitch in the school playing fields within the school compounds and another playing field elsewhere in Bangalore. In addition to these, there were two smaller pitches within the school grounds, reserved for Small Dorm. Hockey was played on one of the small pitches and soccer on the other small pitch; I preferred playing hockey, because at that time I suffered from some knee trouble. Too much kneeling at the School's Chapel may have caused this. I may have had housemaid's knee. We played every day, after 'Home-Work' and we became good sportsmen. One of the great sporting geniuses produced by our school was the very great Indian Test cricketer, namely Dravid.

Sports' Day was a very special occasion. We were given extra pocket money to spend at the school tuck shop. The shop was run by an elderly Indian called Widdy; it was alongside the hockey pitch. I think that Widdy's is still in existence today, but Widdy's grandson now runs it. Widdy was a chain beedee (Indian cigarette) smoker and when you ordered your sweets, Widdy would put down his beedee on the counter and the turn around to collect your order and then serve you. After he served you he would return to his beedee. On one occasion, Widdy put down his beedee on the counter to serve young Baxter and as soon as Widdy turned his back, young Baxter ran away with Widdy's beedee out of devilment. Young Baxter tried to smoke Widdy's beedee, but as he was only about seven years of age at the time, he did not enjoy it. Widdy was most upset about the matter and told Father Gilhardi of young Baxter's behaviour; Gilhardi was amused.

On Sports' Day, we always had an 'Old Boys Race'. One of the 'famous' old boys was a certain Major Davenport; he was very generous to the school and had earlier donated 1,000 rupees (about £77-) to help build the Grotto. On one occasion, Major Davenport took part in the old boys' 100 yards' (100m) race; he was a lot older than

the other old boys, so he was given a 50-yard (50 m) start. Despite this, all the other competitors hopelessly beat him. Fr. Jacques ordered a re-run and this time Major Davenport was given a 75-yard (75m) start. Needless to say, Davenport won. During the medals' ceremony, Davenport was presented with a shiny 'silver' cup and Jacques made a big fuss of him. Davenport's two children often took major roles in the school plays, but I do not think that they made it in the theatre. I believe that later in life, Davenport rose to a much higher position in the military ranks.

I was reasonably good at games and thoroughly enjoyed taking part in all sporting events. My sporting hero at that time was Joe Louis, the heavyweight boxing Champion of the World. Other local professional boxing heroes were 'Young Thali' and 'Maung Thong'. I never saw any of them in action but listened in awe to those who had seen them. However, we did see our school's first team in action, against rival boarding schools in Bangalore, namely Bishop Cotton's and Baldwin's. These games were always played in a tiered stadium in Bangalore, where all the boys from both of the rival schools attended; all had a great time.

Fr. Gilhardi often 'ran' the school plays, including organising the costumes and scenes; they were of a very high standard. Usually they were musicals where Gilhardi provided the lyrics. I often took a small part in these plays, but Stan usually took a leading role. For example, in 'Treasure Island', he took the part of Long John Silver; his left leg was firmly strapped to his thigh to give him the appearance of a one-legged man. A rumour spread around Small Dorm that in order to play the part of the one-legged Long John Silver, Stan had to have his leg amputated at the knee; I was horrified at the thought but did not pass comment! After the play, I was relieved to see that Stan still had two normal legs.

On one occasion the pupils in small dorm were playing indoors in the evening, when we saw a flying rhino beetle. We all chased the flying rhino beetle and when it came within my reach, I caught it. However, at this time the bell went for the saying of the Angelus and Matron lead us in this solemn prayer. As I had to put my hands together in prayer, I put the rhino beetle into my right pocket. Matron started to say the Angelus and we were answering her prayers, when suddenly the rhino beetle escaped from my pocket and made a beeline for Matron's head. It kept flying round her head, possibly because she was the tallest person in the room. Matron swayed her head from side to side, dodging the flying rhino beetle while saying the Angelus, but it would not leave her alone until after the Angelus had finished. Matron wanted to know who released it and I correctly got the blame. Matron vented her anger at me with a few shrill words, but I did not get a caning. The rhino beetle is so called because it looks like a miniature rhinoceros; it is very hard, but it is completely harmless. It is slightly bigger than a bumblebee, but makes a much louder noise than a bumblebee when in full flight.

We had to go to mass every morning, before breakfast. The overwhelming majority of us received Holy Communion every day. On Sundays, the mass was longer and on Sunday evening, we all had to go to Benediction. After Benediction, we had a school assembly for all the boarders. Father Jacques, who was the Head teacher, addressed the school assembly. Jacques was a first cousin of my maternal grandmother. In fact, I had two great 'uncles' who were Jesuit priests. Jacques was a very serious man; I never saw him smile. Every year we had a Retreat, where we were not allowed to speak to each other for three whole days. Instead, we had to pray and read religious documents for most of the day. During Retreat, we attended church several times a day. A Missionary would deliver us 'blood curdling' sermons on each day; often he would inform us that we could be certain that one day we will die; I was only 9 years

old during my first Retreat! Retreat was not compulsory, but the vast majority of students went into Retreat at least once a year, possibly due to peer pressure. The Deputy Head Teacher, namely Fr. Gilhardi, took a special interest in Small Dorm. He was a good man; he was of Italian origin. During Retreat, he would loan the Small Dorm religious ‘comics’, which we enjoyed reading. He also ran the ‘Cubs’, ‘Scouts’ and the ‘Crusaders’. He would take all the boarders camping to Oscrahal in Ooty, once a year. Ooty was where the richer British sent their families during the hot season; Darjeeling was another retreat for the families of the richer British. Ooty was nicknamed by the British, ‘Snooty-Ooty’; it was not far from Bangalore. Ooty was in the hills and because of this it had a very pleasant climate. There were quite a large number of lakes there and they were ideal for swimming, although you had to be careful of water snakes. On one occasion, a yellow water snake of unknown species bit Stan. However, he was not treated for this as ‘others’ said, “Water snakes are not poisonous”. He survived without getting ill, so perhaps they were right.

On another occasion a group from Small Dorm, including myself went for a walk in the wild in Ooty. We came across an Indian village and nobody appeared to be around. We walked into the village and noticed some of the fruit trees had lovely ripe guavas hanging from them. We took a guava each and were caught in the act by an Indian woman from the village. She said something to us in her language, which we could not understand. We asked her if she could speak English but she couldn’t. I said to the other boys, “Shall I speak to her in Hindustani?” They said, “No. That is a northern Indian language and we are in the south of India; she won’t understand you.” They then tried two southern Indian languages, namely, Tamil and Malyalam, but she could not understand us. I said to my school friends, “Let me try Hindustani! We have nothing to lose.” They agreed and I tried Hindustani and she understood me. I said to my school friends, “What shall I say to her?” They said, “Tell her that a small girl said we can help ourselves to guavas. I said this to her in Hindustani and the Indian woman replied, “Do not take any notice of the little girl, however, you can keep the guavas.” My Hindustani had got us out of a jam!

A photograph of a group of St. Joseph’s small dorm, together with some of the small boys from the rival Church of England School, namely Bishop Cotton’s is shown in Fig. 3.6.



Fig. 3.6 Small boys at ‘Ooty’

In Fig. 3.6, I am second from the right in the front row. My friend Brian is to my left. Fr. Gilhardi is the priest on the right of the picture in the back row; the other priest to his right is an Anglican. In general, most of 'Small Dorm' is in the front of the picture.

One interesting incident that occurred was when Big Dorm decided to raid the earthenware chatty pots that held the poor Indians' alcohol. They stored this alcohol in earthenware chatty pots tied high in the sky, to the tops of tall trees. They did this to avoid the vinegar fly, because if the vinegar fly got near their alcohol, it would turn into vinegar; they called their alcohol dharoo. Stan and his friends went searching for the dharoo, with their catapults in hand. The object of the exercise was to fire their catapults at the earthenware chatty pots in the treetops. When they had punctured one or two chatty pots, they would stand under them with their mouths wide open, so that they could sample the dharoo; they succeeded, but got caught in the act. The Indian villagers responded by chasing Big Dorm and brandishing their sticks at them. Big Dorm managed to escape.

Fr. Gilhardi was formerly the Head Teacher, but gave the post up to Jacques; I do not know why? Perhaps Jacques was better with the bookkeeping or perhaps Gilhardi preferred being a father figure to the boys; some of them were only five years old. Jacques was never a father figure! The occupants of Small Dorm were required to go to confession once a week; I liked going to Fr. Gilhardi; he knew that the sins of the boarders in Small Dorm could only be trivial. He was a popular confessor. On one occasion he was so popular that a long queue had formed for him. There was no queue for the confessional box manned by Father Humbert (a German), so I went to him. I was only about nine years old at the time; I was a boarder and I had been to confession only 7 days earlier. I confessed to him; to the best of my memory at that time, I only had about 5 venial sins. I confessed these sins to Father Humbert and he said to me, "Who do you think you are; the Virgin Mary? You must have more sins than that! I will not give you absolution!" However, even though I was only 9 years old, I was a pragmatist, so I made up some imaginary venial sins that I had not committed, including telling lies that I had just committed in the confessional box and he said "That is better!" and he gave me absolution. I never ever went to Fr. Humbert for confession again! Gilhardi taught me many good habits, including moving my bowels 'first' thing in the morning. At mass, nearly all the worshippers were boarders, but there were a small handful of outsiders who joined us on Sunday mornings. One of these was a young girl whose name was Pamela Shortland. She was a stunning beauty and all the boys, including Small Dorm were in love with her. She would go up the aisle to receive Holy Communion and we would watch her every move. Shortly after India got their independence, Gilhardi went to somewhere in Africa as a missionary. Jacques stayed on as Principal of the school, even until 1959. In 1960, I got married, but prior to this I had to have proof that I had been confirmed and Jacques provided this information from St. Joseph's High School in 1959.

Small Dorm had room for about 50 beds, but when I was there, the number of occupants was about 40. Small Dorm had a toilet at one end, near its entrance. On the other side of the entryway, there were the quarters for a man, not a priest, who had to be on night duty in the dormitory. When I arrived in 1945, that man was Mr. Lynch; he too was a cane-wielding maniac. He and the matron looked after Small Dorm, but the matron only worked during out-of-school hours and not at night; Matron would wake us up in the morning and put us to bed at dusk. After bedtime, Lynch took over. If a boy wet his bed, Lynch would cane him unmercifully. When I

first set foot in Small Dorm, after my maternal Grandma left me there, Lynch and the matron came to see me. Lynch said to me, "So you are a Ross. If you wet your bed like Big Ross used to do, I will beat you!" Long before this event, I had heard of Lynch's notoriety. Lynch used to thrash Stan every morning, beating him black and blue until Stan left Small Dorm; Stan got a much worse beating at the hands of Lynch than any of us got at home. Lynch used to beat Stan, telling Stan that he must 'submit' to him, to avoid further caning. Stan refused to submit to Lynch and Lynch caned Stan until Lynch got tired; Stan would not submit! One vacation when Stan returned home, my Mum noticed the terrible bruising on Stan's body and she drew it to my father's attention! My father said, "It will make a man of him"

When my first morning at St. Joseph's dawned, Lynch and Matron awakened me; they looked under my bed to see if I had wet my bed, but I had not. Lynch said to Matron, pointing at me "This one is not like his brother". At the end of my first week in Small Dorm, Matron made us all write a letter to our mothers. I wrote to my Mum telling her that I was unhappy and that I did not like the Matron. Matron, however, always vetted our letters. On reading my letter, which was written by a small sad and unhappy boy, Matron tore it up and dictated to me what I should write. She made me write that I was happy and that I liked the Matron and she made me 'paint a very rosy picture' of the school, before she approved and posted my letter. On one occasion Matron was late and all the young boys had overslept and were late for mass. After all, none of us had watches in Small Dorm. Gilhardi came in furious and asked why we were late; Matron lied and told Gilhardi that we would not get up. Gilhardi believed her and caned us all. I realised then that life was not fair. On another occasion, Matron was late in the evening and we could not get our games' equipment, because it was locked away in the games' room. We were impatient, because we wanted to go out and play, but we could not because Matron was late, so I playfully put my key in the lock. One of the boys reported me for doing that and Matron sent me off to Jacques to get the cane. Jacques caned me in silence, without asking me to explain anything. Fortunately Lynch left his employment within about a year of my arrival at St Joseph's.

In Small Dorm, it was widely rumoured that some of the priests practiced self-flagellation. Often some of the boys from Small Dorm would put their ears against a priest's bedroom door and swear that they could hear the characteristic noises associated with self-flagellation.

Another man, not a priest, who requested us to call him 'Tommy', replaced Lynch. He was a slim red-faced Irishman. Tommy was not cruel to us, but unknown to the authorities, Tommy was a paedophile; not that we knew what a paedophile was at that time. Looking back with the gift of hindsight, it is fairly obvious that paedophiles would be attracted by a job such as that. At Chapel, Tommy would receive Holy Communion every day. He always went last to the altar and made a melodramatic demonstration of his piety. Everybody had to wait for Tommy to return to his pew before the mass could continue; Tommy took so long to take communion! Often, after the priest had served Tommy with Holy Communion, Tommy would keep kneeling at the communion rail for over five minutes more. He would then slowly walk back to his pew, with his eyes firmly closed. He must, however, have had them slightly open, or he would not have been able to find his way back to his pew, which was always at the back of the Chapel. We all got on well with Tommy, but when lights were out, Tommy would walk around the dormitory. Tommy's room was open at the top, so that the lamps from his room would light that part of the Small Dorm's ceiling that was immediately above his room. Thus, it was not pitch black when

'lights were out'; we were grateful for this. After we all said our prayers, 'lights were out', but I used to kneel on my bed and say further prayers for all my family. My last sentence when saying my private prayers was always, "May I know when I am dying" One evening after 'lights were out', I was lying in bed, just thinking, when I noticed one of the boys went into Tommy's room; he was followed shortly by another boy. I was curious, as I had never seen this behaviour before. Next morning I asked the boys what they were doing in Tommy's room the night before and they said that Tommy had given them chocolates. This ritual followed for several nights over quite a lengthy period of time, but fortunately I was not tempted to visit Tommy. Even though I did not know the facts of life at that time I knew that it was wrong to visit Tommy in his room after 'lights were out'. One evening the same pattern occurred and I took no notice until I saw a young priest walk into Tommy's room, while he was entertaining the two boys who visited him after 'lights were out'. I heard a scuffle and the two boys came running out, back to their beds. I think that the young priest had hit Tommy. Next, the young priest fetched Fr. Gilhardi and I heard some muffled arguing; I think that Gilhardi had given Tommy his marching orders. Next morning, Tommy had disappeared and so to had the two little boys. I think that the two boys had probably been sent for some form of therapy and rehabilitation prior to returning to school; they were very secretive as to where they had gone and would not inform us of this, despite repeated questioning on their return. I do not think that their parents were informed either. I was lucky the paedophile didn't fancy me!

The young priest replaced Tommy and a large jolly black matron replaced the stricter lighter skinned matron. Things were looking up at last in Small Dorm! I was still, however, home sick; I found the 8-month term too long. In the morning, before I awakened, I used to look up at the ceiling with closed eyes and slowly opened them to see whether I was at home or at boarding school. If I saw the ceiling of the Small Dorm, my heart used to sink right down into my feet. However, after taking my morning wash, I would become a bit more cheerful.

In the evenings, before 'lights were out' we would play 'Whist' and 'Draughts' and 'Carambs'; we all became very good at these games. 'Carambs' is a board game, similar in aim to snooker, except that instead of snooker type balls, you knocked into the 4 pockets of the Carams' Board, the black and white wooden discs that you normally used in 'Draughts'. The board was highly polished with a special powder to make the board surface very slippery. To strike the draughts' discs, you used a striker disc, which was made from a plastic of about twice the diameter of the discs used in Draughts'. You flicked the striker disc with two of your fingers or a finger together with a thumb. Thus the striker disc was of a much greater mass than the smaller wooden disks to be struck. Half the disks were white and the other half was black; there was also a single red disc, which had to be 'pocketed' last. Two players played the game against each other, one who had to 'pocket' the black disks and the other had to pocket the white ones; whoever 'pocketed' their disks first, was the winner. Only two people at a time played Carambs. The Carambs' Board was a wooden square wooden of dimensions of about 2 ft. by 2 ft; a wooden fender enclosed it.

There were about 20 outside flush toilets reserved for the boys. Although they were flush toilets one did not have local control of the flushing arrangements; this was for water conservation reasons. "Waste not, want not!" was the regular message one found on the adverts in the cinema screens and near taps, etc. The toilets were all flushed together automatically. Thus, when you went to the toilet there were usually the faeces and used toilet paper of a previous user there and you had to 'go on top' of these. We were used to this and did not find it disgusting. One thing that did puzzle

me when I first went to the toilets was the graffiti on the walls. There were a large number of drawings of backsides all over, together with messages such as "I love Tom" or "I love" some other male name. Hearts were drawn all over the walls with arrows penetrating them, which had a male name written inside the figure of the heart. On one occasion, all the toilets were occupied and I needed to use one, so I banged on some of the doors and yelled out, "Hurry up, I need to use a toilet!" I heard a reply from one of the toilets, "Ross, is anyone else out there with you?" "No!" I replied. "Are you sure Ross" came the voice from the closed toilet? "Yes" I replied and to my amazement, out came two Middle Dorm boys. "Hey" said I "There were two of you in there!" "That's nothing" said the teenager, "There are three boys in the next toilet!" Sure enough, 3 teenage boys came out of that toilet and then all the toilet doors opened and out streamed pairs of teenage boys from all the toilets. I was amazed, but I was pleased to have the use of a toilet for normal purposes. One might be disgusted at the behaviour of some of these boys, but perhaps most normal teenage boys who were locked together in the school for an eight-month term, without a break, might behave like this. I was lucky; I left the school before the onset of puberty.

We also had a small infirmary with about 12 beds, together with a dispensary. The Brother in charge of the infirmary and the dispensary was a really pleasant person. We loved his homemade cough mixture and most mornings after mass, we would go to the dispensary to sample a treat of his cough medicine. My mother gave me strict instructions to go to the dispensary every Saturday morning to take my weekly dose of castor oil; I did this. It was not necessary, as I was never constipated. The purpose of the infirmary was to treat students who got a mild fever or some other mild infection, until they were better. We never got influenza in that part of the world; in fact I never ever got a cold while I was in India. About once a year we would get a fever, which would be treated with aspirin and plenty of drinking water, together with plenty of rest.

On one occasion, I and another boy contacted chicken pox; I was about 10 years old at the time; he was even younger. My body came out in lots of small 'blisters' but I felt normal. I kept bursting these 'blisters' with my fingers for about a week and Matron was not concerned. Eventually, a young priest inspected the torsos of this boy and mine; he concluded that we had the killer disease, namely small pox. He took us to a doctor, who confirmed it was small pox and they sent us to an isolation hospital, where the nurse informed us that we had small pox. The ward had about 60 beds and the two of us were put together at one end nobody else was in that ward. Later, other boys were brought into the isolation hospital; all incorrectly diagnosed with small pox; eventually there were about 50 boys. After about a week in the hospital, the doctors decided that everybody had chicken pox, but that I had small pox. We all got better and played in the hospital gardens. The older boys used to say to me, "Don't play with us Ross, because you have got small pox!" Eventually, the doctors decided that I had chicken pox. I think that most of those doctors had Third World qualifications. To speed our recovery, a male nurse would cut off our chicken pox scabs with a razor blade; he used the same razor blade for all of us. I do not know of my parents' reaction when a thousand or so miles away, they mistakenly heard that I had contacted the killer disease, namely small pox.

After morning Mass, we had breakfast and then we went to school, which were all on the same premises. My teachers were female graduates; their quality of teaching was excellent. They were both Anglo-Indians. I cannot remember the name of my

teacher in the Third Standard; she was very pretty; we used to call her 'Miss'. In the Fourth and Fifth Standards, I had Miss Perris.

In India, you had to pass your annual exams to proceed to the next Standard. Every week we had a weekly test in mathematics and if we failed the test we were caned by Jacques. There were about 17 boys in Standard 3 and one week, about 15 of us failed that weekly test; obviously the teacher had set us a too difficult test; I got 8%! Jacques came into the classroom and ordered us to follow him to his room, where he would give us the cane. At that time I had not been caned before and volunteered to be the first in the queue; this proved to be a mistake! I put my right hand out with the palm facing upwards. Jacques aimed at the inside face of my wrist, because he thought that I would move my right arm towards me when he brought the cane down. He adopted this approach because if I did move my arm towards me when he struck, he would succeed to cane me in the palm of my hand, where he intended his cane to fall. However, I kept my hand still and Jacques' cane made contact with the inside of my wrist. Now because we were small boys, Jacques intended to just give us one 'cut'. I did not know this, because I was a new boy and put my left hand out. Again Jacques aimed for the inside surface of my left wrist and once again, I kept my arm still. Again, Jacques' cane made contact with the inside surface of my wrist. After we all got caned, I was rebuked by the boys who had been at St. Joseph's longer than me; they told me that I should not have put my other hand out, as small boys only get one 'cut'; that was my mistake. The veins on the inside of my wrist swelled up as a result of my caning and the other boys told me to bare my wrists to cold water flowing from a running tap; I did this. It was sound advice. In the next week, I got 92% for my weekly mathematics test!

Academically I did quite well and passed from the Third Standard to Fourth Standard at the end of 1945 and also passed from Fourth Standard to Fifth Standard at the end of 1946. At the end of 1947, I passed Fifth Standard and I was promoted into Sixth Standard, but we left boarding school then as we were preparing for emigration to England. If we stayed on in India, and I had passed all my exams, I was scheduled to take my 'O' levels at 14 years of age and my 'A' levels at 16 years of age! The curriculum was very academic; for example, in English we studied English Grammar and English Composition. The mathematics' syllabi were of a very high standard; besides arithmetic, we studied elementary algebra, mensuration and Euclidean geometry. By the age of twelve I had also had three years studying French. My father would not let me study Latin, as he reckoned quite incorrectly that Latin was a dead language and of little use. My best subject was Religious Knowledge; I always came second in Religious Knowledge. At the end of my first year at St. Joseph's, I took part in a quiz on Religious Knowledge; it was a knockout competition. After a while there were only two of us left and neither of us could knock the other one out, so Gilhardi awarded us both a prize. I got a small statue of the 'Sacred Heart of Jesus'. Gilhardi blessed the statue for me.

Mum often sent us parcels, via Stan, but neither Colin nor I would see the contents of these, because Stan would keep them for himself and his friends in Big Dorm. My two older brothers told me not to talk to them or even acknowledge their presence at school; they thought it would be too humiliating for them to talk to someone in Small Dorm.

In September 1947, my two brothers took their Junior Cambridge (GCE equivalents) together. Although Colin was 2 years younger than Stan, he had academically caught up with Stan. Both passed their Junior Cambridge, but Colin beat his older brother. In fact, Colin did exceptionally well at the mathematical subjects; he obtained a few

distinctions. After they finished their exams, they moved back to Kharagpur, leaving me high and dry at Bangalore on my own. I was not allowed to leave until the end of the academic year in December 1947. I travelled back to Kharagpur with a lady friend of our family and her small daughter; we had our own sleeping compartment. I remember the phaeton being driven to the local convent where we picked up this young girl; she had lovely black ringlets, which was quite the fashion for small girls. The train journey, as usual, took 4 days and we had a break at Madras. In January 1948, my father sent me to the private Railway School in Kharagpur, until we sailed for England; I was only at the Railway school for about 3 months and I never settled there. My education was now about to go into reverse gear.

Chapter 4 –The Exodus.

India got her independence on the midnight hour of August 14th 1947; the Anglo-Indians feared an Indian backlash, because for over 100 years, the Anglo-Indians had supported the British to the hilt. The Anglo-Indians even helped the British to ‘put down’ many cases of civil unrest by the Indians. For these and other favours the Anglo-Indians were granted the status of being British subjects by birth shortly after the First World War. The Anglo-Indians were particularly skilful at peacefully defusing civil unrest by the Indians. This was because the Anglo-Indian understood the minds of both the British and that of the Indians. For example, on one occasion, the Indians were carrying out a peaceful demonstration by lying on the rail tracks in front of an interstate express train; they lay there in their thousands and would not budge, no matter what the threat. They would have quite willingly given up their lives for their cause. The British did not know what to do and sought the advice of the Anglo-Indians. Their response was to buy a number of metal buckets and to pay untouchables to urinate into the buckets. They then informed these high caste Hindus that if they did not move they would pour the urine of the untouchables on to the prostrate protesters. The ruse worked; the protesters got up and went home peacefully.

Fig. 4.1. From left to right Helen, me, Zee and in the pram, Brian (deceased). (1948).



Since arriving in Britain, many of my British friends said to me, “The Anglo-Indians should have had more foresight before they decided to support Britain against Indian unrest”. However, my view is that the gift of hindsight is always much more scientific than the gift of foresight. When Sir Winston Churchill was in power and there was civil unrest in India, due to Gandhi and others asking for independence, Churchill said that India would not get independence for a thousand years! However, he lost the British general election on the 26th July 1945 to Clement Atlee. Atlee was a completely different ‘kettle of fish’ to Churchill and to the dismay of the British in India and the Anglo-Indians; he ‘immediately’ started negotiating with the Indian leaders for Indian Independence. Concern was, however, raised as to the plight of the

Anglo-Indians in post-independent India, but unknown to us, the Atlee government had carried out an injunction on the British press, preventing them from publishing the so-called Anglo-Indian problem. Immediately after Indian independence, the exodus of the Anglo-Indians, together with that of the British commenced. Our parents' first choice of country was Australia, but because my father was quite dark-skinned, the Australian authorities advised us against emigrating to Australia, despite the fact that we were highly educated and had a lot of money. There was some talk of emigrating to the USA, but my father was very pro-British. Fig.4.1 shows a photograph of the four youngest children in our family, namely Helen, Zee, baby Brian and me. It was taken outside our house in Kharagpur, just prior to our departure from dear old Mother India. Zee is the pretty one on the right. A photograph of my father is shown in Fig. 4.2, taken in 1948 in Kharagpur, just prior to us leaving India.

Fig. 4.2. The late Thomas Vincent Ross. (Taken in 1948).



So we left Kharagpur, Bengal on about the 8th of April 1948, by train, heading for the port of Bombay, where we were scheduled for departure to dear old 'Blightly'. Ironically, the word 'Blighty' comes from the Hindustani word 'Bilaith', which means England. We left Bombay on the 10th of April 1948 on the SS Ormonde, a luxury liner. My father had to pay £50- for my passage and £50- each for the two older boys and also the two adults. He paid a lot less for those who were under 12 years of age and probably nothing for my young brother Brian, who was only about 18 months old. My mother moaned at me because of the high cost of my fare for my journey to England. We travelled 2nd Class on the liner and we had a cabin above sea level, together with a porthole. My parents and the four younger children had one

cabin and the Stan and Colin had their own cabin. In our cabin, I had an upper bunk and my job was to operate the ventilation via the punkah louvres. As I could speak fluent English and Hindustani, together with a ‘spattering’ of French, I realised that the name of these vents were composed from two different languages, namely Hindustani and French. Punkah in Hindustani means fan and louver in French means ‘to open’. Fig. 4.3 shows a photograph of the S.S.Ormonde and Fig. 4.4 shows a typical menu we had for breakfast, lunch and dinner.



Fig. 4.3 S.S. Ormonde.

On board, we had quite a bit of entertainment and excellent food. For breakfast, we could have a full English breakfast or something else. My mother usually insisted that I have a kipper. When I saw my first kipper, I was horrified at the number of bones it had in it and I was frightened to eat it in case I got a bone stuck in my throat. The English waiter told me that you simply chewed the kipper with bones and all and swallowed it. I did this with some trepidation and was astonished that no bones got stuck in my throat. I enjoyed the kipper. On other occasions I ate fried bacon or a boiled egg, but I did not fancy fried egg at that age, as the yoke did not look appetising. We had a four-course lunch and a four-course dinner. All the meals were delicious and we did not get a stomach upset. Mind you all the crew were British.



Fig. 4.4. A typical menu for the day



Every now and then we had a special meal together with entertainment for the youngsters. We had a disproportionately large amount of sweet things on these occasions. On board, I was introduced for the first time to an eating apple. In India we heard so much about apples, never ever tasting one because they were so expensive. We read about them in British books and we romanticised about them. Before we started to eat our apples, the steward told my sister Helen to rub the apple against the cheeks of her face; she did this and her cheeks became quite pink. I tried the same and was disappointed that mine did not turn pink. After all, my skin was a darker shade than hers. On taking my first bite of my apple I was very disappointed with its taste; perhaps the apple was a little stale or perhaps I had not acquired a taste for British fruits? After the first night's sailing my two sisters and I suffered a little from seasickness. Our cabin steward advised us to go to the boat deck, which was above sea level. Here we found the fresh air relieved us of nausea. For the vast majority of our daytime travel, we played on the boat deck. We took two of our own teak deckchairs on board and for much of the time, we 'hung around' our two teak deckchairs; we never took them down to the cabin throughout the passage. We played a number of games on the boat deck and especially 'Coits'. There was also a fancy Dress Ball for First and Second Class passengers, but none of my family attended; see Fig. 4.5. Third class passengers were not invited!

The weather was superb throughout the trip, but for most days all you could see around you was the vastness of the oceans. On deck, my job was to look after baby Brian. Very often Brian would crawl transversely across the deck to the side of the ship and I had to pick him up and bring him back to the centreline of the boat. If I had not done this, Brian could have quite easily fallen into the ocean! We stopped at Aden and also at Port Said. We travelled on the Indian Ocean, through the Red Sea, via the Suez Canal into the Mediterranean. When we stopped at Aden, we were advised not to disembark, as Aden was experiencing civil unrest. When we stopped at Port Said, the women were advised not to disembark because their western dresses may cause offence to the local population. My father and two older brothers were the only ones of our family to disembark at Port Said; they went shopping and bought a few souvenirs. An Arab magician entertained us on board. He carried out some powerful tricks including retrieving baby chicks from my midriff. I was so close to him but I was convinced that he was doing real magic and 'pulling' baby chicks from stomach! I asked him if I could have a chick, but naturally he refused. The sea was very calm throughout, but after we left the Mediterranean, we were warned that the sea would get rougher when we travel through the Bay of Biscay. My eldest brother, namely Stan informed me that the sea was rough in the Bay of Biscay, because at this point the seven seas met! I do not know if his statement was correct or was it an old sailor's tale? Sure enough, the cabin steward was right; we felt nauseas at the Bay of Biscay, but were not physically sick. We had not heard of travel sickness tablets at that point in time; perhaps they had not been invented by 1948.

As we approached England, the cabin steward told us we would see the white cliffs of Dover, which sure enough impressed us. We had not seen soil composed of chalk before. The weather got colder naturally, but it was reasonably fair.

We arrived at Tilbury Docks, London on the 28th of April 1948. It was a fine evening, but my father decided that we would not disembark until the next day, as he wanted to travel with his six children in an unknown country by daylight. Also, we had a lot of luggage and this would have taken quite a lot of time for customs' clearance. I looked overboard and noticed the docks' workers. I was staggered to see white labourers. I said to my Mum "Look Mum, they have white coolies in this

country". My mother looked horrified at my statement; she said, "Shush, you must not call them coolies!" In the morning, my Dad had to get our luggage through customs; he took my two older brothers and me to the customs' house for this purpose. I remember the customs' officer asking him to open up various trunks, which he did quite dutifully; I could not understand why this uniformed man was so interested in our luggage. There were no problems and we boarded our train for Waterloo. In the waiting room at the station, I noticed that there were some chocolate bars behind the counter. I asked my Dad if he would buy me some chocolate. He ordered some chocolate but the shop assistant asked him if he had any coupons? He hadn't got any coupons and he asked her where he could obtain them; she gave him some instructions. I did not get my chocolate that day!

Chapter 5 - In England.

We travelled by train towards our destination, namely Haslemere in Surrey. I noticed how green the country was; I had never seen so much greenery before. In India the grass was usually tall and yellow; the sight of such green grass took my breath away! It was after all spring in England. We got off at Haslemere Railway Station, and my father and the four younger children headed for a guest house in Hindhead; my two older brothers had to stay in another guesthouse, as the accommodation we stayed in did not have enough beds for the eight of us.

My parents shared a room with baby Brian and my two sisters shared a room. I was given the luxury of having my own room. This was on the first floor at the right side of the house, looking at the house from the road. The address of our guesthouse was: Highcombe Edge, Hindhead, Surrey, England; it still stands today; it was on the left of the A3, heading towards London, just past the traffic lights. It was very near the Devil's Punch Bowl. We loved running wild in the Devil's Punch Bowl.

Opposite our accommodation was a Tudor building, in which there was a restaurant with a dance floor; it was called the "Sally Lunn". It is now an oriental restaurant. We had superb meals at the guesthouse, usually starting with soup. There was another customer there; he was an elderly Englishman. He was a nice guy, but he objected to us making a noise with our mouths when we first started drinking our soup. We only did this when the soup was hot because we did not want to burn our mouths; we did not do it when the soup was lukewarm. In India, you had to slurp your soup or tea because the ambient temperature was so high that it would take ages for your soup or tea to cool down to lukewarm. My father volunteered that none of us would have soup so that we would not offend the old man. The old man insisted that we had our soup but not make noise with it when we first sipped it.

The Guesthouse manager informed us that we needed to get 'Identity Cards' before we could get our Ration Coupons; my identity card is shown in Fig. 5.1.

On the morning of the 30th April 1948, my mother said that we must take a walk along the London Road in Hindhead and see if we could see any large industrial works, so that the two older boys could get jobs; in dear little rural Hindhead! All we found was a petrol (gas) filling station. My mother said to my father "Go in there and see if there are any jobs for the two older boys", but my father was not a fool, he knew what the size of a large industrial concern would be? He decided then that we would have to move on to a large town or city. He wrote to our former next-door neighbour in Kharagpur, namely Mr. Roche, who had emigrated to England some six months earlier. The Roche's now lived in Gillingham in Kent in a house that had once been lived in by Charles Dickens; their house was called "Bleak House". The house was on the main road connecting Chatham to Rainham, via Gillingham. Bleak House was a large three-storey terraced house. It had a small back garden; where Mrs Roche grew chrysanthemums amongst other things. There were 8 of us and the Roche's were also a big family. There must have been a lot of noise in that house at that time. My father was desperate to get his own property and the Roche's probably did not know what they let themselves in for when they invited us to stay with them.

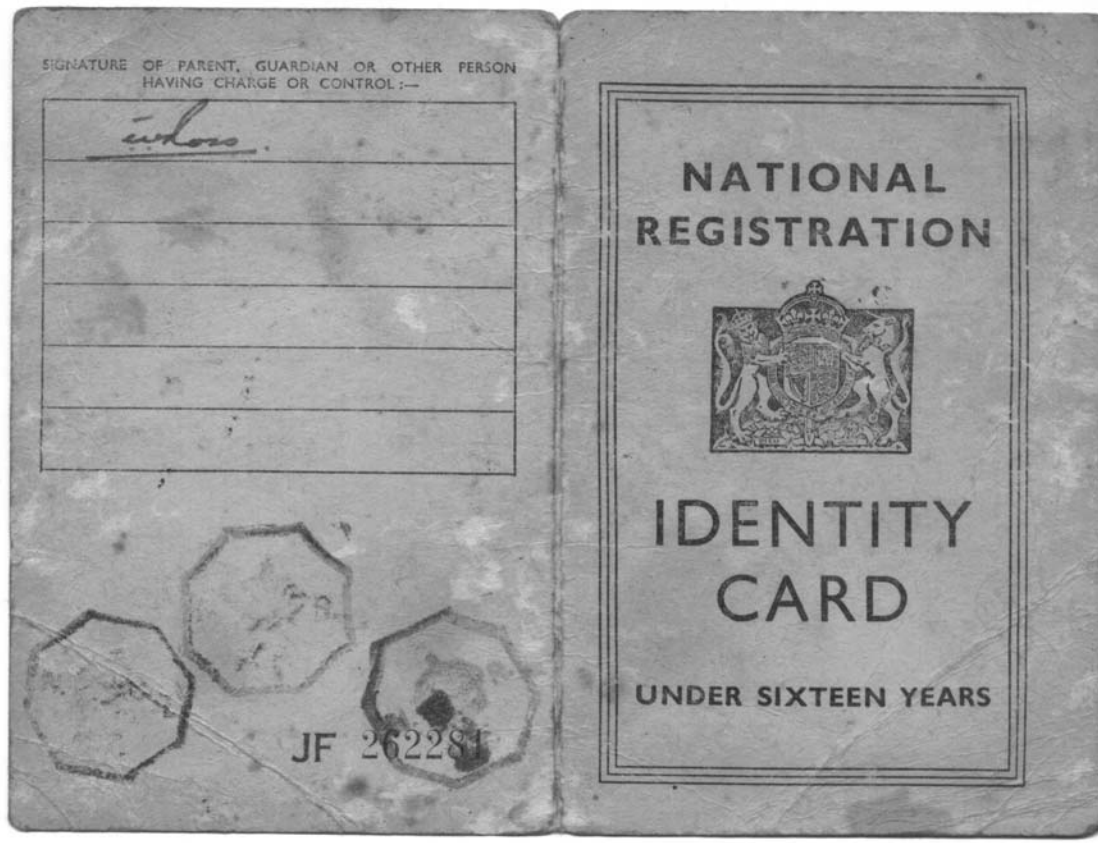


Fig. 5.1. My Identity Card.

My father went ‘house-hunting’ and eventually set his sights on a house in Central Park Gardens, Chatham, Kent. The house was a not too old terraced house with three bedrooms, although one of the bedrooms was really a box room. It had a lounge, a dining room and a kitchen. It also had a small front and a back garden, but it was too small for us; it only had one bathroom! The house was built in the late 1930’s and its original price was £500-. However, the war had taken place and the price of the property had dramatically increased. My father paid £1,750- for it; I think that he put down a deposit of £750- and took out a mortgage for £1,000-. I know for a fact that when he retired in India a couple of months earlier, he got a retirement lump sum of 64,000- rupees (about £5,000 at that time). When I was with him in Calcutta, he asked Lloyd’s Bank for a ‘statement’; they gave him a piece of paper with the value of his lump sum written on it. He showed it to me in delight and I never forgot it. When we got back to Kharagpur, my mother asked him how much he had got; he lied and grossly underestimated the sum. She didn’t believe him and asked me what my Dad’s lump sum was; I told her the truth. He was very silent and surprised that I remembered. As at that time the rate of exchange was 13 rupees to the pound he had just under £5000-. It was a lot of money and looking back with the gift of hindsight, I think that it was better that he got a lump sum instead of a monthly pension, because a few years later the Indian Government stopped people taking out large sums of money from India. With £5000- in his hand he could have bought two large detached houses, but I suppose that he decided he needed spending money for a few years. I think that he concluded that the two oldest boys were 18 and 16 years at that time and they would soon leave home and our house would then be big enough for 2 adults and 4

children. Compared with our old place in Kharagpur, my first impression of our Chatham house was that it looked more like a doll's house. However, when I walked around it I was surprised how spacious it was. Before we moved in, my father took us to visit it. The previous occupiers had left, but to our horror a young couple with their small baby had moved in. They gave us some 'cock and bull' story that they had paid 3 month's rent in advance to the previous owners to occupy our lounge. Our Dad went to see Mr. Shilling, our estate agent and complained about this to him. Mr. Shilling got them out and we moved in.

After we moved in to our Chatham home, someone in the neighbourhood spread a malicious rumour that we were housed in a council house. Children came up to me and said in their Chatham dialect, "Do you live in a cawnsill ause?" This type of question puzzled us, as we did not know what a council house was, let alone a 'cawnsill ause'. We certainly did not live in a council house, but did not understand them and this caused the malicious rumour to spread even further.

Another rumour that was spread was that we were Red Indians and that my Dad was 'Big Chief Sitting Bull'. When we went to church on a Sunday morning, little boys would make Red Indian type calls. One girl knocked on the front door and said 'How!' with her hand held upright and to the side of her face. She had a handful of comics with her and said, "Me bring you comic". When we replied to her in fluent English, she said in a startled voice, "You speak English?" The comics were 'Beanos' and 'Dandies', which we regularly read in India. We were grateful for the comics. The local 'kids' were very interested in our stamp collections, they eyed with envy our large collection of Indian and Commonwealth stamps; quite a lot of stamp swapping took place.

Stan got a job as a gas fitters' mate and Colin got himself a clerical job for a local builder; they must have found this a complete contrast to the English boarding schools they had left 6 months ago. My mother asked the next-door neighbour about my future education. This good woman was only an upper working class lady and her knowledge of education was somewhat limited. She said that as I was 12 years of age I was too old to sit the 11-plus, so I had to go to a Secondary Modern School. She explained that in Kent there were three types of state secondary schools, which in descending academic order of excellence were: Grammar schools, Technical schools and Secondary Modern schools and they were all free. My father was relieved to find that he had not got to pay school fees for us anymore! So he took me for an interview at Highfields' Secondary Modern School, Chatham. The school appeared to be recently built. The headmaster's name was Mr. Belton. He asked me, "Have you passed for grammar school?" I replied, "No.", but failed to inform him that I was too old to take the eleven-plus and whereas I had not passed the eleven-plus, I had not failed it either. He gave me a quick test on elementary mathematics and he was surprised how good I was. He then arranged that I take the 12-plus for entry into the Technical school on my third day at a British school. My father took me to the technical school, namely Chatham Technical School for Boys and left me with the Deputy Headmaster, a Mr. Wright, who conducted my examinations for two concurrent days. I had no problem at all with the mathematics' examination and Mr. Wright said that I would be coming to 'his' school. In the English exam I had to write an essay; I chose an essay on sport. Although I had not been to Darjeeling, my brothers who had been there often romanticised about it. Hence, I wrote my essay on the possibilities of playing a large variety of sports in Darjeeling, varying from the sports that I played in Bangalore to imaginary so called winter sports. I did not do very well in the intelligence test, because I had never seen one like that before. I

overestimated the difficulty of the intelligence test. For example, the first line had 3 squares and a circle and I was required to encircle the odd one out; I thought that it was a trick question and stared at it for about one minute. Thus, I did not complete the first page and Mr. Wright told me to speed things up! Although, I passed my 12-plus, I was still required to attend Highfield Secondary Modern School for two more months.

When I turned up for my first day at Highfield Secondary Modern School, I was put in the top form of the first year, namely Class 1A. I had no problem with mathematics and English, but I had difficulties with geography, as I had never seen a map of Britain before. In India, we studied the geography of India and not of Britain. We started off with a test, where we had to place an 'X' on a blank map of Britain to show towns which had coal mines. I got 1 out of 20; I got Durham right; it was pure luck! In English I got an A- for my essay, but I did not understand the marking scheme; in India everything was marked out of a 100. The teacher called out the name of each of the boys in the class and they gave him the mark that the teacher had put on their script. I asked this boy what my mark was; he replied in his Chatham dialect, "Aye minus" When the teacher asked me to tell him what mark he had given me, I replied, "I minus". The teacher could not understand me and asked the boy next to me, what mark I had got? The boy said, "Aye minus" and the teacher correctly interpreted this as A-. Another subject that I had problems with was the theory and history of music. I had never studied this subject before and scored a resounding zero in the test.

When playtime came, a large number of boys would encircle me as if I were an exhibit from the Zoo and they would fire questions at me. They would say, "Why have you got such lovely white teeth?" "How many times a week do you brush your teeth?" I replied "I brush them daily". They were surprised that I brushed them so frequently. "What toothpaste do you use?" I replied "Colgate toothpaste". Many of these youngsters brushed their teeth only about once a month or so and as a result of this, most of them had bad teeth. Additionally, many were not very well off and could not afford toothpaste; instead they used Euchryl or Gibbs' tooth powder, which was contained in a small round tin. If I stepped forward the inquisitive circle of boys in front of me would step backwards and if I stepped sideways to my left, the circle of boys would step sideways to my left, ensuring that they kept their distance from me; this procedure went on for several weeks until the boys got used to me. The teachers did not intervene. On one occasion I stepped forwards and the circle of boys in front of me stepped backwards apart from one boy; he stood his ground. The other boys said to him "Step back!" but he wouldn't. He said, "I am not afraid of him!" The other boys said to him "Darkies can fight; remember Joe Louis"; it was this statement, which gave me the title of my book. On hearing this, the boy stepped backwards immediately. I was not the victim of any racial abuse at this school, but the same cannot be said when I went to my next school, namely the Chatham Technical School for Boys.

The normal length of the course at Chatham Tech was 3 years; there were 3 forms per year and roughly 30 boys per form. The first thing that the new boys were subjected was a 'ducking'. This took the simple and harmless form of putting each first year boys' face underwater in a washbasin for about 10 seconds; I escaped a ducking; I do not know how?

My main problem in my earlier years at Chatham Tech was that I was small. Although I was approaching 13 years of age, I was only 4ft. 10ins (1.47 m) tall and I weighed 4stone-7lbs (63 lbs or 28.6 kg). I was one of the smallest boys in school.

Additionally, I was the only dark-skinned boy in the school and I was one of a few middle class kids. Also, I was one of about 6 Catholics there. Thus, I was a minority in race, creed and class. I was not bullied by my own year, but by some of the second and third years. They would call me "A little wog or a woglet" I had never been called these names before but I knew they were connected with the colour of a golliwog. Out of the 270 boys in the school, only three would regularly racially abuse me; one was 2 years ahead of me and two were one year ahead of me. They would corner me without touching me and taunt me with racial insults; one of the boys was particularly nasty to me. At home I was beaten almost daily by my mother, very often just for getting suntanned. She would beat me and say, "You are as black as the Ace of Spades; you dirty wretch" By dirt, she did not mean that I was unhygienic, but that I was suntanned. Thus from the age of 12 years to 14 years I had no peace at home or at school, except in the classroom. I could not run or hide from this abuse. The only peace I got was when I was inside the classroom. My wife who was a schoolteacher, said to me recently, "That if that happened today, you would not even get peace in the classroom either" At night I prayed to God to make me white; I prayed so hard and one day God answered my prayers. He switched off part of my brain that made me very aware of my body and limbs. When this fist happened, I was afraid, I thought that I was going mad. My mother often said to me, "When you grow up they will lock you in a lunatic asylum. You have water on the brain!" After a few months, this part of my brain switched itself on again and I was once again very aware of my body and limbs. However, the abuse continued and that part of my brain switched itself off again forever. I have managed quite well without it, having gained 3 university degrees, two of them being doctorates and I obviously use a different part of my brain to make me aware of my body and limbs.

However, at that time I thought that I was going mad and kept bursting into tears, so the doctors sent me to be assessed by a Psychologist and a Psychiatrist. They said that I was very intelligent and that I was bordering on being a genius; they said that there was nothing wrong with me, but they detected that my mother was physically and mentally abusing me. The Psychiatrist said that I did not need any treatment, but I did not have the verbal dexterity to explain that part of my brain had switched off. The Psychiatrist sent for my mother and offered my mother psychiatric treatment. She scoffed at the Psychiatrist and made derisive remarks about British psychiatrists; needless to say my mother refused psychiatric treatment. The psychiatrist also said to her, "Be gentle with this boy; he is very intelligent and sensitive" I think that I would describe my mother's behaviour as being very irrational, but I do not think that she was mentally ill.

My mother's abuse of me took other forms. For example, at the dinner table we were not allowed to talk and every evening my mother would ask Helen to fetch her a tumbler of water. If I 'opened my mouth' at the table, which I often did, she would throw the tumbler full of water into my face. The water would be all over the top of my body and into my food. I would sit in silence and eat my food without complaint. However, I was a pragmatist and I worked on her in a subtle manner. For example, we took two newspapers, 'The Daily Express' which was delivered to the door and 'The Daily Mirror', which my father would buy when he went to work. On returning from work we always greeted him with a request to read the 'Mirror'. My sisters liked reading 'Belinda' and I like reading 'Garth'. I was older than the others at home and I would read it more extensively. When I read the 'Mirror', I noticed that there was very often an article on some father being sent to prison for being cruel to his child or children, so after I finished with the 'Mirror', I would leave it open at the

page that contained the article on child cruelty at my mother's place on the table. She fell for it every time and made derisive remarks about British justice on this matter, but I was working on her beliefs in a slow but methodological manner. I think that my method worked because very slowly she changed and was not quite as severe with my younger brother and sisters.

The problem that I had with the child psychiatrist happened in the winter and the beatings from my mother continued until the summer when I was nearly 15 years old. It was during the school holidays during that summer when I was 14 years old that things were about to change for me. I had been playing cricket on a bomb site all day. I returned for my evening meal, looking very suntanned, when my mother grabbed me by the left ear and started twisting my ear and at the same time yelling abuse at me, "That I was as black as the Ace of Spades and that I was a dirty wretch" I lost my temper and hit her with my fist on her left shoulder, bringing my fist downwards on to her shoulder as hard as I can. She was shaken by this and never hit me again, but she told me that she would tell my father and brothers what I had done. She kept her promise when my father and brothers returned later that evening; they threatened me with all sorts of physical punishment, but they did not do any thing to me, much to my relief. I started to grow rapidly after the age of twelve and at 16 years of age, I was 5ft. 6ins (1.67m) tall and I weighed 7stones (44.5 kg). As I grew bigger and because the older boys had left the school, the bullying stopped. I was quite a pragmatist even at that age and I realised that the British working classes respected a boxer and I concluded that to survive adolescence I had to become a boxer.

I was not the only one in the house to be beaten by my mother, although I got it the worst. For example, when my sister Helen had her first period as a child, she was in distress, because she did not understand why she was bleeding between the legs. I came in from school; my oldest brother Stan was also there; he was speechless. The three of us were the only ones in our house at that time. Helen was very distressed and showed me the blood on her knickers and was crying out quite inconsolably that she had been a bad girl and God had punished her for that and she was going to die. I realised that my mother had probably told Helen, before she reached puberty, that if she were a bad girl she would bleed between the legs. Despite the fact that she was a completely sweet and innocent girl she was in a very bad state of trauma. I was only about 14 years of age and I tried to reassure that she was not going to die and that she was having a period. Helen did not believe me and continued to wail, repeating, "I am going to die!" My mother returned home about an hour or so after this incident and I heard her say to Helen, in the kitchen, that if she were good and read the Bible and prayed, the bleeding might stop. Despite my young age, I was horrified by my mother's reaction to Helen's trauma. I felt so sorry for my sweet and innocent little sister! I seem to recollect that later that evening and for a few days after that, Helen read the Bible and prayed for her bleeding to stop and when the bleeding finally stopped, I heard my Mum say to Helen "See, I told you so!" I seem to remember that she objected to the 'girls' receiving lessons on human reproduction when each of them, in turn, went to secondary school.

When Zee was a child, she would go 'swimming' with her school friend in the outdoor swimming pool in Rochester. As a result, she became suntanned and she was also chastised for this. She would repeatedly say to Zee the same words that she had said to me 'You are as black as the Ace of Spades, you dirty wretch'. The reference to dirt was not based on a lack of hygiene, but on being suntanned.

My brother Brian, who was born in September 1946 and was some eleven years younger than me, was similarly traumatised because of his brown skin. On one

occasion, when he was about 7 years old, he scrubbed his face with a nailbrush trying to remove his brown skin from his face. He succeeded to some extent, but needless to say, he was badly scarred. Another incident occurred when Brian was a small child, of pre-school age. Helen had contracted meningitis. Mum wanted to visit her in hospital, but did not want to take Brian to hospital in case he contracted meningitis. Mum had not got a baby sitter, so she locked little Brian in the garden shed and carried out her visit to the hospital. Brian informed me of this incident when he was an adult. Brian died on 17th January 1990; I regret that when I was bigger I did not do enough to protect him from the savagery she delivered on him because she did not have sound judgement.

I loved playing cricket on the bomb site; I batted, fielded and bowled all day in the summer holidays and every evening in the summer term. I became quite good, my highest score being 626 not out. The other young cricketers forced me to retire on reaching that score. I could not afford any cricketing gear, but someone had a cricket bat and someone else had a cricket ball and yet someone else would have had some stumps. We always invited the boys who had cricketing gear to have a game. When I first started playing cricket, fielding became a bit of a problem for me. This was because when the cricket ball went into the tall grass, I was ultra-cautious when retrieving the ball, because I was frightened that I might get bitten by a poisonous snake; the other boys simply laughed at me and said, "We do not get poisonous snakes in this country!" It took me 'sometime' not to worry about walking in the tall grass in England!

We got no presents for our birthdays or for Christmas; we may have been given a small amount of money on our birthdays. When I turned fourteen, everybody forgot my birthday; I suffered in silence. The next day my mother remembered it and she simply laughed out loud that everybody had forgotten my fourteenth birthday. She was very amused, but I was very hurt; I suffered in silence. She made no attempt to redress her absent-mindedness or even to apologise. We received 6d (2.5 p) pocket money per week, but we could only afford some cheap sweets with such a small amount of money. Although sweets were on ration, we never ever used up our ration of sweets. On Saturday mornings, we were given 6d (2.5 p) to go to the children's cinema show. We loved these occasions, but could never afford an ice cream or even the cheaper ice-lolly. We were envious of others who could afford these luxuries, but we never asked our parents for more money. At the start of the cinema show we sang, "We come along on Saturday mornings greeting everybody with a smile, smile, smile. Greeting everybody with a smile" We loved 'Cowboys and Indians' and especially 'Buffalo Bill' with his white horse. We also loved and cheered the 'good Indians' and we hated and booed the 'baddies'. When I was 15 years old, we had our pocket money raised to 1 shilling (5 p). In the summer, when it was hot, one of my friends would buy a bottle of 'Tizer' a non-alcoholic sweet fizzy drink. He would take first 'swig' out of the bottle and then each of us in turn, would take a 'swig' out of the bottle; we never caught any disease by carrying out this practice. Fortunes had changed for us since those 'heady days' in dear old Mother India, when we had 6 servants and plenty of money!

In 1948, my father was 57 years old and he had just retired from his job as Chief Draughtsman of the Bengal Nagpur Railway in India; his retirement lump sum was just under £5,000-. He looked forward to retirement in England, but alas this was not possible as yet, as the cost of living in England was considerably higher than in India and his £5,000- would soon disappear. He quickly realised this and got a job as a draughtsman at Fraser and Chalmers in Erith, Kent in the steam turbine division. As

his previous experience was with steam driven railway trains and he had no experience with steam turbines, he had to start from the bottom again. He did this without complaint, accepting a starting wage of about £7- per week. However, he soon got to grips with his new profession and within a couple of years, his wage was increased to about £10- per week. Later, he was promoted to Senior Draughtsman with a further raise in his wages. However, he was relatively poor compared with the lifestyle that he had left back in India. The firm was eventually taken over by GEC. He had quite a tortuous journey up to Erith every day; he could not afford a car and in any case, he could not drive. Thus, he caught a bus to Chatham Railway Station very early in the morning (about 6.30 am) and then took a train to Erith. From Erith, he had a longish walk to the 'Works'. He usually returned home about 7.00 pm. After he had his dinner, on returning home, he would spend the evening doing complicated calculations on horse racing. He was meticulous with his hand-written books on the odds that a horse might win a race; his handwriting was small and neat. He was seldom successful with his betting. When he was in India, he would bet at the flamboyant 'races' in Calcutta; his brother Joe usually accompanied him. Also, he played cards for money at the local European Institute in Kharagpur; my mother reckoned that he had lost a small fortune in gambling. We never knew how much he lost in gambling, but it must have been considerable. This lifestyle was in sharp contrast to the lifestyle he was to lead in England, where his bets were very small. He first got a serious illness in 1956 when he contracted rheumatic fever. He was treated at home by my mother and during his fever; his body temperature rose to very high levels so that he became delirious. When he was in this condition, he spoke and sang in fluent Portuguese. My mother, who at that time had been married to him for 29 years, did not realise that he could speak fluent Portuguese; he'd kept it a secret from her, perhaps to hide his Goanese origins. He recovered from that illness but got another bout of rheumatic fever about two years later. The second bout had done some damage to his heart; he retired from full-time employment at the age of 71 years. After retiring, his health seemed to improve and he enjoyed a modest lifestyle until his death in 1977, when he was nearly 86 years old.

When my mother came to England, she was 37 years old; we all thought she was old! Now while in India, she had 6 servants and as my father was very well off, she had an idyllic lifestyle. She did not bring up the children, although she supervised the ayah who did bring up the small children. She did not do the cooking; two cooks did this. She did not do the washing. The dirty washing was collected by the 'Dhobi' (a laundry man). He would arrange cold hand washing of each item of clothing and return them to our house. A servant did the ironing. The iron was not electrically powered. It looked like a modern iron but was a little wider. It was hollow inside and to give it its heat, red-hot charcoal was placed inside it. She did not have to clean; a servant did it. She did not have to go out and buy the groceries; the cooks did that. Now in England, she had to do everything. She had to cook; she had never cooked before and she didn't know how? She soon learnt; she bought recipe books and asked the neighbours how to cook. Her friends and neighbours taught her how to cook and eventually, she became a good cook. She had to do the 'washing up'; she had some help from Helen on this task. Dishwashers were not invented then. She also had to clean the house. My father bought her a vacuum cleaner; it was an upright model, called a Hoover Junior. It was very expensive; it cost £26-. Wooden planks were used in the construction of the floors in our house. In those days, it was fashionable to cover the wooden floors with 'linoleum' (lino) and to place on top of the lino a small rug. She additionally had to wash the clothes. Automatic washing machines

were not invented then. My father bought her a wash boiler for boiling her whites. The process in using this machine was to boil the water and then stir the sodden clothes and washing powder manually, with a wooden stick. She then had to lift each item out of the boiler with a wooden utensil. She then had to hand rinse each item of clothing in cold water, we had no running hot water at the time. Next, she had to remove the water from the washed clothing by wringing out each item of clothing in a hand-operated mangle; usually outside the house. Only then could she hang up her washing. Bleach was added to the boiling water. Coloured clothes had to be hand washed! Every Monday morning was washing day and she prayed that the weather would be good, so her clothes could dry before dusk. I used to bring her clothes in for her sometimes. She did this without complaint, bearing in mind the life of luxury that she had left back in India. In the winter months, she developed great cuts in the palms of her hands and fingers; these were caused by placing her hands too often in washing up water and probably not drying them thoroughly afterwards. One of the problems was that everything outside the living room was cold and or damp. Her hands were very painful and it was common for housewives of that era to suffer from these cuts in the palms of their hands. She sought medical help, but these cuts only disappeared when the warmer weather returned. She had to iron the clothes; my father bought her an electric iron. She or one of us would iron the clothes on the teak dining table. Very often we would accidentally leave the hot iron face flat on the teak table and burn the table; sometimes we would accidentally burn the clothes that we were ironing; we were never beaten for this, as our errors were caused because of our lack of experience and also because we were lending a helping hand.

For most of the year, she had to light a coal fire in the dining (living) room. My father bought her a gas lighter, which was temporarily connected to the gas cooker by a long rubber tube while the fire was being lit. Sometimes we would accidentally stand on the rubber tubing and the gas lighter would go out. This was dangerous, as in those days household gas was toxic, because it contained carbon monoxide. It took a long time for her to discover a coalscuttle. In the evening she would force me to go out and bring back a shovel full of coal to place on top of the dying fire. Often it was freezing cold outside and I would refuse to do this task; she would beat me for being disobedient. My father had a 'brilliant' idea of saving on his coal bill by reducing the size of the fireplace. He inserted two fire-retardant 'bricks' along the sides of the fireplace so that it would become smaller. We had no central heating and as a result of his actions, the house was like an icebox; it was freezing cold. Sometimes visitors would come into our living room and would not take their overcoats off because they were 'freezing cold'.

In the late 1940's and the early 1950's there was a lot of industrial unrest in the country. Almost every week, some workers would go on strike. The papers would react to the strikers by saying that whereas the male workers were on strike, their wives were not and that the wives usually had a longer working week than their husbands. Additionally the wives did not receive wages for their housework. This reporting influenced my mother and she went on strike at home. She would not do any housework; she just sat down, repeating, "I'm on strike. I'm on strike" My father didn't say anything; he simply got on with the housework when he got home. He fed the children and washed and put the smaller children to bed. This procedure continued for about a week until my mother decided that she was no longer on strike and resumed her housework. She had made her point and never went on strike again. She did not have time to bring the smaller children up properly, but she found time to beat them. Homework was out of the question, Helen, Zee and I, together with the

cat would huddle round the fire to keep warm in the winter months and as there were eight of us in the house, there were too many distractions in this small room for us to do any meaningful homework. Thus my education went into steady decline for a number of years.

Stan worked as a gas fitters' mate for a few years. Colin decided that he wanted to serve in the Royal Air Force (RAF). He went with my father to see the recruiting officer. The recruiting officer was very impressed with Colin's qualifications; after all, he had obtained an excellent Junior Cambridge. He asked Colin if he would like to train as an officer cadet. My father turned this offer down and said "A boy needs a trade these days". Thus, Colin joined as a boy entrant, training to be a radar mechanic and stayed with the RAF for about 11 years. Stan was disillusioned with his life as a gas fitters' mate and additionally, his girlfriend had jilted him, so he too signed up for the RAF for 5 years as a Radar Mechanic. Colin joined '90-Group' and was then transferred to 'Bomber Command'. Stan joined 'Fighter Command'. From accounts of their lives in the RAF, that they delivered to us on their return visits to our home, they both enjoyed themselves, as they were practically professional sportsmen for most of their served time. Stan played hockey for the RAF in Aden and West Germany; a photograph of him in his hockey gear is shown in Fig. 5.2.



Fig. 5.2 Stan in the RAF.

In addition, Stan swam and played soccer for Fighter Command. Colin was also a good athlete; he won the Victor Ludorum for 90-Group. He also boxed for 90-Group and Bomber Command; he often sparred with the famous RAF boxer, namely Johnny Maloney. He was well fed by the Air force, but this caused him to box in a higher weight. He was not happy about this and gave up boxing, much to the disgust of his superior 'officers'. To punish him, they put him on 'Latrine duties' despite the fact that he was a highly skilled radar mechanic. Thus, when the two older boys joined the RAF, there was more room in the house for the rest of us.

At Chatham Tech, I could not do any homework because of the appalling conditions at home. My mother was struggling to keep her nose above water and my father was spending most of his spare time doing these meticulous calculations in trying to back a winner at horseracing; he was not very successful. At school itself, I worked hard; I was especially good at mathematics, partly because I had done it all before in India. I had to wait for the rest of the class to catch up with me. In fact during my 3 years at Chatham Tech, the only new things that I learnt in mathematics were: solving quadratic and simultaneous equations, together with expanding determinants and solving problems in elementary trigonometry, plus the mensuration of circles and conic sections. The tutors in Chemistry and Biology were good but the one in Physics was appalling. The teaching of art and the humanities was good, but I did not get on particularly well with the history teacher. The woodwork teacher just bellowed at us and frightened us. There were two in metalwork; one was pleasant but the other was not. I loved Physical Exercise (PE) and I was particularly fond of the PE instructor. He was my favourite. I was on the school gymnastics' team. I played hockey and cricket for the under-fifteens and later for the First Eleven. I played right inner in hockey and was pretty good at it. In cricket, I was only just good enough to make the First Team. I did not like playing soccer because my knees hurt when I kicked the football; I may have been suffering from housemaid's knee due to the excessive kneeling I did on those wooden planks at the Jesuit boarding school.

When I was 13 years old and had just listened to a BBC broadcast on the facts of life, I became very self-conscious of what my parents had to do to produce me; this may have been worsened by the fact that I was a very religious child and was repeatedly told by my mother that the genital regions were 'dirty'. Another young Catholic boy of the same age as me knew this and to shock me he said "The sperm of your father must be black, because you're black" I gasped for breath when he said this, but before I could take another breath, he delivered a double whammy, by adding, "The vagina of your mother must be black because you are black" I was very upset by this onslaught and it took me several months to get over it; I did not tell anybody until I reached adulthood. One must remember that if an uneducated Indian wants to badly insult another Indian, he does this by referring to the genitals of the other's parents; this is the worst form of insult that an uneducated Indian can deliver to his fellow citizen. The Catholic boy must have known this and as he was a local lad 'all his life', his father must have told him to insult me in such a manner.

I started to settle down and mature in my third year at Chatham Tech and began wondering what profession I should follow. My form teacher said to me, "If you work hard and only if you work very hard, you may be able to become something like a carpenter". I burst out laughing at his remark, because I knew that you did not have to work that hard at school to become a carpenter; he was taken aback.

State teachers in those days had very poor expectations of their students, especially as in my case; I was in a school that was not at the top end of state education for children! The headmaster helped us to get jobs; he advised us to try and serve an

apprenticeship at H.M. Dockyard, Chatham. It was good advice, as this apprenticeship opened up many avenues for the apprentice, providing he was prepared to work hard. An Inspector of Shipwrights came to our school to tell us about the entrance exams to the dockyard. He said that, "If you wanted to become a draughtsman, the quickest way into the drawing office was by becoming a shipwright apprentice". I liked the idea of becoming a draughtsman, as this was the respected occupation of my father. I decided there and then that I would seek entry into Chatham Dockyard as a shipwright apprentice. Additionally, the headmaster said to us that if we get a certain number of credits in the forthcoming school leaving examinations, he would give us a certificate saying that we were of matriculation standard. I achieved the required credits but never thought of asking the headmaster to give me the certificate. We were not allowed to sit our school certificates (GCE's) then because the war had just ended and the country was broke. There was not enough money in the kitty to pay for our examination fees. In the Dockyard, there was an Upper School and a Lower School. If you were in the Upper School, you were allowed 2 days and 2 nights per week for academic studies and if you were in the Lower School, you were allowed 1 day and 1 night for academic studies. Thus, the Upper School could lead to you becoming a professional and the lower school could lead you to become a highly skilled artisan. The First year Upper consisted of about 150 apprentices and the First Year Lower consisted of about the same number. Each class in the schools had about 30 apprentices. I took the Upper School examination and passed with flying colours into the top first year class, namely Class 1A.

There was a snag however. I was not born in Britain and I needed security clearance, as the dockyard was part of the Ministry of Defence. My father was asked to name a referee who would give us security clearance. Now at this time my dad had been working in the UK for 3 years and he could have named his current employer. However, the next-door-neighbour informed him incorrectly that he would have to contact his previous employer in India. He did this, but they did not respond, so he wrote to the dockyard authorities and asked them why they had not finally offered me an apprenticeship? They explained that it was not their fault and the delay was caused by the Indians in not responding to their letter requesting security clearance for me. This time the Indians did respond and I started my apprenticeship, albeit about one month late.

While I was waiting to enter the dockyard, the local employment officer wanted to know why I had not started work. To keep me out-of-mischief, my father gave me the job of decorating the exterior of the house. A friend of mine, who was a painter and decorator, gave me a few lessons on this. I burnt off all the old paintwork and then I painted the clean woodwork with a pink primer. I coated the primer with an undercoat and then a gloss. I used two colours for the gloss, a white paint and a bluish paint called 'Eau de Nil'.

Chapter 6 - My Apprenticeship.

My father took me down to work on my first day; it was October 17th 1951. We went to the offices of the Senior Foreman and the Inspector of Shipwrights, who were overall supervisors of shipwright apprentices. Their names were Mr Roche (Senior Foreman) and Mr. Waters (Inspector of Shipwrights). Later I got to know Messrs. Roche & Waters very well; they were very kind men and took their jobs seriously. On one occasion Mr. Roche was questioning me about something I'd done; I remained silent and Roche said to me, "I was your age once". It was an important statement to me, as I realised then that all these 'old people' were my age once upon a time. We had to sign a few documents and then Mr. Waters took us to the Reception Training Centre for shipwright apprentices; it was above the 'Gun House'. The Skip (Head of the that Training Section) welcomed me; his name was Mr Mutch. He had been in India during the war and spoke to me in Hindustani; I replied to him in Hindustani. At 9.00am the siren blew to herald the start of the 20-minute break for breakfast. Mr Mutch took me to the canteen and bought me a slice of cheese on toast. The canteen assistant scooped a large ladle full of hot molten cheese on to a thick slice of toast made from white bread; in general, wholemeal bread was not available then. The meal was delicious and warmed me up for the rest of the day. A siren blew at 9.20am to herald the end of the breakfast break. A siren would blow to herald both the start and end of the breaks, together with the start and end of the working day. Work started at 7.00am and finished at 5.00pm, except for Friday; when work finished at 4.00pm; we were paid once a week, in cash, at Friday lunchtime. My first weekly wage was 27shilling and six pence (about £1-35), but after a few months, I had a rise up to 30 shillings per week (£1-50). When I finished my apprenticeship my salary had risen to £11-00 per week, which was an enormous sum for a 21-year-old single man, staying at home.

A photograph at the 'Coming Out Dinner-Dance' of the shipwright apprentices is shown in Fig. 6.1, with all the apprentices, except for one, together with their lecturers, instructors and managers. Notice that all the apprentices were wearing collars and ties and none of them were 'Teddy boys'.

In Fig. 6.1, I am standing directly behind the Admiral. Mr. Bess, the Principal of the Dockyard College is on his left. To the left of the Principal is Mr. Roche and to his left is Mr. Waters. To the right of the Admiral is Mr. Lemon the Manager of the Constructive Department. Mr. Mutch is 2nd from the right of the picture, in the second row. Mr. Burns, who was a particularly popular instructor, is on the extreme left of the picture, in the first row. Mr. Hallam was in the back row at the extreme left. My friend Jim Turner was on my right and another friend of mine, namely Dick Waltham is on my left; all three of us made it to the 'Fourth Year Upper'.

In general, I received no racial abuse during the years that I served my apprenticeship, although there might have been the odd derogatory remarks about the ability of the Indian and Pakistani cricket teams who happened to be touring England at that time.

This was only of a minor nature and in any case at that time I supported England. On one occasion I informed my tormentor that I supported England; he replied, "You are not allowed to support England as you are not English" My cricketing hero at that time was fiery Freddie Trueman despite the fact that he regularly 'skittled' out the Indian and Pakistani batsmen for only a few runs



Fig. 6.1. Shipwright apprentices and their instructors

During this period there were two incidents that I would like to tell you about. One was when I was inside a cabin of a destroyer having a major refit. I was alone in the cabin with a welder and he said to me, "You are not really a human being. You are the link between man and ape!" He did not intend to be racist or nasty, but was simply expressing his opinion at that time. I was surprised at him saying this, because his trade was classified by the dockyard as being semi-skilled one, whereas mine was classified by the dockyard as being a highly skilled trade. Additionally, I was an Upper School apprentice, which meant that I was effectively a student apprentice, who was singled out for 'management'.

Another incident occurred when I went into a pub called 'The Prince of Wales', near Chatham High Street. I was about 19 years old and a blonde English girl, who was about 18 years old, accompanied me. We did not 'drink' at the time so I ordered a pint of shandy for myself and a glass of Babycham for her. We decided that we would like to sit down at a table and spotted a table for 4, where there were only 2 occupants. I asked the permission of the two people if we could sit at their table and they agreed. The woman was about 25 years old and her male accomplice was about 2 years older. We sat opposite them and after a few minutes, she said to me, "You are on at the Empire aren't you?" I replied 'No' She said, "Oh yes you are; you have forgotten to take off your makeup. You are on the Black and White Minstrel Show." I replied, "No. This is my natural colour" to which she replied, "You have got English lips. Darkies have got thick white lips. You are English!" Her male companion was a bit embarrassed by her outburst and by reassuring her that I was a real 'Darkie', he managed to stifle her conversation. She was not, however, being racist or nasty; she had never seen a dark person before, except on the 'Black and White Minstrel Show' as well as seeing Al Jolson perform on the cinema screen.

As I was in the Upper School, I was allowed to spend two days and two nights at the Dockyard College and as I had done so well in the entrance examinations, I was in the top class of the first year, namely Class 1A-Upper. The practice in each class was to place the top boy at the desk in the front row on the left hand side looking towards the blackboard. The second boy would be placed to the right of him and the third boy to the right of the second boy. Thus, the seating arrangement consisted of a matrix of 5 columns and 6 rows, the boy at the bottom of the class would be sitting in the 6th row at the right hand side facing the blackboard. I was in about the middle. The problem was that because I started some 5 weeks after the rest of the class had started, I had missed all the earlier notes. I asked one of the boys if he would let me borrow his notes, so that I could catch up as far as the notes were concerned; he refused. One must remember that in those days photocopying machines were not readily available. Thus, I was required to build 'tall buildings' on no foundations. Now I knew that at the end of the year, some two-thirds of the intake was failed and this may have been the reason why I couldn't get anyone to let me borrow his notes; we were in competition. I was not too worried about this matter and I did not let any of my superiors know of my predicament. The problem was worsened, because two weeks before Christmas we had a competitive examination in which students were promoted or demoted. I came 59th in the Christmas Examination and was demoted to Class 1C-Upper. Term started again just after Christmas and whereas in Class 1A-Upper, all the boys wanted to learn and were very quiet, quite a few of the boys in Class 1C-Upper knew that they were going to be demoted to the Lower School at the end of the year. Thus, many of them were badly motivated. I had never seen such disruption before with many of the lectures! Naturally, my education suffered, although at the

end of academic year exam, I came 42nd out of 150 Upper School students. Normally, the College would allow about 50 students into the second year, but on this occasion they only let 40 students in. That is I was demoted to Class 2A-Lower, where my education was for one day and one night.

Motivation was poor in Class 2A-Lower as most of the boys knew that their education was going to end at the end of that academic year and that they would leave with no educational qualifications. Thus, it was hard to learn with the disruption going all around you.

Now in the first year of my apprenticeship, I was in nice centrally heated training centres; we had 4 months in each centre. Thus in January 1952, I was sent to the Mast House. In the Mast House, there were two sub-sections; one was the woodwork section, where Mr. Burns was the instructor and the other was the metalwork section, where Mr. Hallam was the instructor; the apprentices spending 4 months in each sub-section. In the woodwork we made a pine toolbox and many of our woodworking tools, including planes to plane wood. In the metalwork section of the Mast House, we made metal spanners, which we later casehardened at the 'Smithy'. However, in September 1952, we were sent to the Boat House, where we were trained to make amongst other things, buoys and boats. I helped to make a 14-foot clinker-built boat in mahogany. The problem with the Boat House was that it had no heating of any sort. Thus, in the winter it was freezing cold. This was worsened, because I used to pedal cycle into work every morning, but as our house was on top of a hill and the dockyard was at sea level, I cycled downhill all the way to work and did not have a chance to warm up. Now the house was freezing cold, so all my clothes were icy cold when I set off, so when I arrived at work, I was still freezing. I then had to take my coat off and put on my brown cotton overalls. This meant that I was 'frozen stiff' until the break for breakfast, when I 'thawed' out. In particular my ears suffered on my downhill journey to the dockyard. I got terrible chilblains on my ears. I said to my father, "What can I do to protect my ears from the ice-cold wind when I cycled downhill?" He saw an advert in the 'Daily Mirror' by 'Headquarters and General Supplies', who were selling ex-stock First World War aircraft pilots' head gear used in the 'First World War'. He said, "I will buy you one of these pilots' caps". I could not wait for the aircraft pilots' headgear to arrive. When it did, I was quite pleased with it. It was a skullcap, made in leather and had two rubber tubes coming out of the ears; presumably these were required for radio contact. These rubber tubes were about one inch in diameter and about 4 inches long. I said to my father, "What shall I do with these rubber tubes which come out of the ear holes?" He said, "Leave them where they are; they will give your ears greater protection!" The next morning I rode downhill again, but as I gained speed the wind whirled about inside the two tubes deafening me completely; it was most unpleasant! I could not hear anything. When I returned that evening, I cut off the two tubes that protruded from the ears of the skullcap with a Stanley knife. After a few weeks of this continuing cold journey to the dockyard and the cold conditions that I worked in, I said to my father, "I cannot stand being so cold first thing in the morning for the rest of my life, so what shall I do?" My father replied, "Get into the drawing office! You will need to continue your studies to achieve this!" That simple sentence was to change my life forever! I was now motivated to pick up my books and study. At the end of the academic year in Class 2A-Lower, I came second and I was promoted to Class 2B-Upper, where once again I was to get two days and two nights per week at the College.

I never missed a day's work, except that once a year in the winter, I would go down with real influenza. In India, none of us ever got real influenza and I had little

resistance to the white man's germs. Every year I would be bed-ridden for about one week and needed another to regain my strength to face manual work. In the first week, I would have a very high temperature and suffer from deliria, but by resting in bed, 'dosed up' with aspirin and water, the fever would gradually subside. On one occasion, I walked to the bathroom; which was about 8 yards from my bed and on returning, I nearly fainted. After the fever subsided I was always left painfully weak and the family doctor advised me to take it very steady and not exert myself too much. The last time that I got real influenza was when I was 20 years old and I have not suffered with it since; I have got used to the white man's germs.

After our year in the Boat House, we were placed on ships and submarines; which were undergoing major refits and as their electric power was off, they were not centrally heated. Thus, whereas the Boat House was cold, this was even colder, particularly on the submarines. These submarines were much smaller than the military submarines of today, thus, things were cramped inside them. Very often, I had to work outside in the dock, where the water was stopped from entering the dry dock by a caisson. When the northeast wind blew through the dry dock, it just cut right through me. It was really cold, but fortunately, I had two days and two nights at the centrally heated college. Thus, I was able to stick it out.

I was not able to study at home, because it was too cramped and cold, but because I was an Upper School Boy the dockyard authorities allowed us to study from 7.00 am to 9.00 am. Obviously the dockyard authorities knew the anti-educational conditions that many of us suffered at home in those days. I took advantage of this privilege and studied as hard as I could during this period. We did not have any luxuries such as study rooms, but we found a quiet un-heated cabin and studied there. When we were on the submarines, there were no such cabins, so we found a shed and studied there. The Second Year Upper was about A-Level standard in Pure Mathematics, Applied Mathematics and Physics. It was during my Second Year Upper, that I got hooked on Structural Analysis. A dockyard lecturer, namely Mr. Bernard P. Lisgarten was taking me for 'Strength of Materials' and when he covered the bending theory of beams, I was so fascinated by the splendour of the theory that I decided there and then that I would like to earn my living as a structural analyst. The dockyard lecturers were the best teachers that ever taught me; the five most outstanding dockyard lecturers who taught me were Messrs Bess (Principal), Crawshaw (Vice-Principal), Ferguson, Lancaster and Lisgarten.. They were all very talented and could have easily held a job down as a university don. In my opinion, the ability of most of the dockyard lecturers was grossly underestimated.

At about this time I took up boxing and I also played hockey for the Old Holcombeians (Ex. Chatham Tech.). I was a little over 5ft. 9ins (1.75 m) tall and I weighed about 10 stone (140 lbs or 63.7 kg) of solid muscle. I was working hard and I was playing hard; the darkie was fighting back! In the Christmas 1953 Upper School Examinations, I was promoted from the 2nd Year Upper-B Class to the 2nd Year Upper-A Class. In the end-of-year Summer Exams, I came 17th out of 52 and I was promoted to the 3rd Upper-A Class; I was on my way up! There was one snag that I experienced in my 2nd Year exams. This was that we were also allowed to take Institution of Mechanical Engineers' (I.Mech.E) Ordinary National Exam. I passed this exam, but the I.Mech.E would not award me an Ordinary National Certificate, because of my poor showing in the First Year Upper Examinations. I did not appeal, despite the fact that they were considering the marks that I obtained in the year before last and not my last year's marks. In those days one did not appeal. I did not even appeal that in my First Year Upper, I missed about half the first term not through my

fault, but the fault of the Indian authorities on the Bengal Nagpur Railway. In the 3rd Year Upper, I came 11th and was promoted to the 4th year Upper. To make the 4th Year Upper was regarded as a great achievement by an apprentice, as in our 4th year Upper only about 24 out of a cohort of 300 apprentices had made it! In the 4th Year Upper, we were placed in the Drawing Office for the whole year; the 4th Year Upper shipwright apprentices had their own room; we were all very happy about this and that we had made it. There were two classes in the 4th Year Upper; they were 4AU and 4BU. I was in 4AU, the top class of the college; many of this class were to go onto university.

To get into university in those days was difficult as only about 2% to 3% of the age group made it to university. In general, you had to have distinctions or credits at A-Level or equivalents to make university in the 1950's. There were a disproportionately large percentage of privately educated boys who made higher education in those days. If your A-levels were not too good, you could take a London External degree at your local technical college, but as this examination was external, the failure rate in the London External was very often over 80%! It was not until I was in the 4th Year Upper that I realised that I was good enough to go to university. A fellow 4th Year Upper student informed me of this. I replied to him, "But my parents cannot afford it". He said, "You can get a means' tested local authority grant if you get accepted for university" and he showed me how to go about it. I applied for a place at university and also for a local authority grant. The local authority made me a conditional offer, but the university turned me down. In those days, UCAS did not exist; you simply applied to the university directly. I had my application to the Department of Naval Architecture at King's College, Newcastle, University of Durham turned down. It is now the University of Newcastle. The university did, however, inform me that if I had improved my position of being 11th, I could re-apply in that particular academic year. I came 5th in my year and was the 'top shipwright' and wrote a letter to the university that summer informing them of my success. Additionally, the Dockyard College advised me to take an examination for the Institution of Naval Architects' (INA) Elgar-Martell Scholarship. I was the outright winner of this scholarship and King's College accepted me for direct entry into the second year of this four-year course. I was not interviewed at Newcastle, but I was interviewed for the scholarship in London and I suspect that the 'Professor of Naval Architecture of King's College' (Professor L.C.Burrill) was on the interview panel. All this time, I kept my application to university, a secret from my parents; they would have simply laughed at me. However, I was under 21 years old and in those days I was still classified as a child and required parental consent. I asked my father to sign various forms and he asked me if it were going to cost him anything to sign those forms. I replied, "No." and he duly signed. I was accepted for university about 2 weeks before term started and when my mother came in from shopping, I informed her that I was going to university. She burst out laughing, but her mood changed when I showed her the letter of acceptance. Her reacting words were, "But you cannot go; we cannot afford it" I then showed her the letter from the INA which stated that I had won this major scholarship, which could wholly finance my higher education at King's College for three years. She leaped with joy and ran to the next-door-neighbour clutching my letter in her hand; the next-door-neighbour's son was an undergraduate at Southampton University. The university's Accommodation Officer informed me that I had been allocated approved lodgings at 1A Melrose Avenue in Monkseaton, Northumberland. Monkseaton is on the Northumberland coast, near Whitley Bay.

Chapter 7 - King's College, Newcastle.

I left Chatham Railway Station with my friend Jim Turner on the Sunday morning before the university term commenced. Jim had just passed the First Year in naval architecture at Newcastle and he had gained entry into the Second Year, the same year that I was due to enter with him. During the first part of our journey we were travelled to Charing Cross. We caught the tube at Charing Cross and changed to the Northern Line, heading for King's Cross Railway Station. We arrived at Newcastle-upon-Tyne late on Sunday evening and had to catch the train to Whitley Bay. There we separated and went our own ways, as my lodgings were in Monkseaton and his were in Whitley Bay. My lodging house was only about 100 yards (100m) from Whitley Bay Railway Station.

Prior to leaving Chatham Dockyard, I spent 4 weeks in the Welding School. The Royal Naval Constructor in charge of me informed that as I was going to university there was no need for me to learn how to weld, but I thought that I would benefit from this so I volunteered for this training. Thus, my working day was from 7.00am to 5.00pm for my last 4 weeks at the Welding School, instead of the much shorter working day I would have had if I stayed on in the Drawing Office. Yes, I did benefit from this welding course. While I was at the Welding School, someone (perhaps from the Drawing Office) let it slip that I was going to university. A young welder heard of this and said to me, "So you are going to university! That's nothing; that welder in the next bay can do fractions!" I wonder whether or not the modern welders can do fractions!

On my first Monday morning at King's I took the train to Jesmond Railway Station and from there, I followed the 'trail' of students to the university. I had never ever seen a university before and when I gazed at the Students' Union Building and the King's College Arches, I vowed that I was going to work hard and pass my examinations to enjoy this palatial place. The splendour of the buildings of King's College was in direct contrast to the Welding School at Chatham Dockyard. Additionally, most of the dockyard employees wore brown overalls, whereas most of the undergraduates in those days wore suits, or sporting jackets or blazers with flannels, together with white shirts and collars and ties. The dress of the undergraduates was very varied compared to the uniformity of dress at Chatham Dockyard. It was altogether a much more colourful scene at King's than at the dockyard.



Fig. 7.1. The Arches.

In the Students' Union Building, the porters addressed me very courteously whereas at the dockyard, a disproportionately large percentage of people just shouted at me; I was not used to such civility. I was somewhat on the brash side in those days and this did not go down with most of the upper middle class students who had been privately educated. Many of these upper middle class people had not come in contact with working class people, except for their servants who were in any case servile to them. I took photographs of 'The Arches' and the 'Student' Union on Oct. 1st, 1956 and these are shown in Figs. 7.1 & 7.2



Fig. 7.2 King's College Students' Union.

On my first Sunday at King's, I travelled in the evening, down from Whitley Bay to Jesmond, as earlier in the week I had joined the Newcastle Division of the Durham University Catholic Society (DUCS). After all, at that time I was a devout Roman Catholic and I wanted to meet other Catholics. I walked into the room, which housed DUCS; there were only two people there. One was a female and the other was a male. As I entered the building, she looked at me and said in a loud voice to her male companion, "Isn't it a pity that they allow this class of person into the university these days?" He replied, "I quite agree" I was hurt and when the priest came in later on and greeted me, I was in no mood to talk to him; I don't think that he was pleased with my moroseness, but he never ever found out about the hostile and abusive reception that I had earlier received. Even though I was only a working class undergraduate, I said to myself, "What is all this to he who was born in a manger?" I also said to myself, "Jesus was only a carpenter and an Asian carpenter at that; he was not a blond haired blue-eyed upper middle class boy, who went to private school in the south of England!" I did not say anything to the two of them; I knew that I could not match either their verbal dexterity or their great skill at saying very hurtful things to inarticulate coloured working class boys. In fact in the three years I was at King's they never spoke to me. On one occasion, I brought some 'Trad' Jazz records with me to DUCS and played them on the gramophone. Most of the other members of DUCS thoroughly enjoyed these records. One of them said to the rude female, "Isn't this music great?" She replied, "I do not like it, because it is negroidal in origin!"

In the next academic year during the first week of term, I was asked by a Methodist to join his society. I replied to him, "Sorry I can't; I am a Catholic" He said to me, "It doesn't matter to me what you are, you can join us!" He was a big red-haired boy with spectacles and his friendliness was in direct contrast to the nastiness of the ice maiden of DUCS. I must admit that the experiences I had with her and that of the young Methodist sowed my first doubts as to whether or not I should practice Catholicism. However, I stayed with DUCS throughout my course at King's.

In those days, the Naval Architecture Course was quite punishing, primarily due to the large number of examinations you had to pass. For example, in the second year of the course (my first year), I had to pass ten 3-hour examinations in the following subjects: Mathematics 3, Mathematics 4, Mathematics 5, Mathematics 6N, Naval Architecture, Shipbuilding, Electrical Engineering, Strength of Materials, Fluid Mechanics and Thermodynamics. In addition, we had to pass coursework's in: Ship Design and countless laboratory classes. We also had a three-hour period in the Electrical Engineering Laboratories on Saturday mornings. We had Wednesday afternoons off to play sport; I played hockey. I also played hockey on Saturday afternoons. Thus, I was very busy and had no time to get homesick. We could not go home at weekends, because Chatham was over 350 miles away and in any case, we couldn't afford the rail fare; our rail fares were not subsidised in those days. I worked hard and I played hard.

I went home at the end of every term, namely at Christmas, Easter and in early July. Chatham Dockyard was very good to me; they employed me as a ship's draughtsman on a wage of about £11- per week during the university vacations. I worked every Christmas and summer vacation but not during Easter. During the Easter vacation I got on with my revision ready for the summer examinations. I felt very rich during this period and gave my mother £2-50 per week during the vacations of my first year. During the second and third years of my vacations, I gave her £3-50 per week; she said that the money I gave her was too much, but I was easily able to afford it. Despite the fact that I did not work during the Easter break, I saved up enough money earlier in the year to pay my mother for my lodgings. The only vacation that I did not go home was the last Easter vacation, when I stayed at Newcastle for all four weeks. During this vacation, I chose to move from the Eustace Percy Hall of Residence into a flat. This turned out to be a mistake as I spent too much time doing housework at the flat instead of concentrating on my studies. It was not any cheaper in any case.

The examinations were held for a fortnight in June; very often you had two 3-hour examinations in one day. If you failed one or two examinations, you could resit these in September, but you had to pay an examination fee to do this. If you failed in September, you were called-up for military service on a pay of 14 shillings (70 p) per week! After military service you could retake the one or two examinations that you failed and if you passed these, you could return to university to complete your degree. If you failed too many examinations, you had to retake the whole year again and you were not allowed to take the honours' degree.

In the 1950's, only about 25% of the intake was invited to take 'Special Honours', the majority of students only getting 'Pass Degrees'. Also, only about 10% of the intake got good honours' degrees (Firsts and Top Seconds), bearing in mind that the intake consisted of only about 2% or 3% of the age group. This compares in direct contrast today, where the intake in England, is about 43% of the age group and everybody takes 'Honours', and 63% of girls and 39% of boys obtain good honours' degrees. Additionally, today some of the difficult subjects such as Strength of Materials and Dynamics are combined together and likewise, other subjects such as Fluid

Mechanics and Thermodynamics are similarly combined to reduce the number of examinations to be taken by engineering students. Also, the 3 hour papers are now reduced to 2 hour papers, making it difficult for the examiner to set complicated questions. I passed into special honours, having a particularly good year in Year 3 (my 2nd year at university). Only 9 students were allowed to take special honours.

In Year 4 (my 3rd year at university), I was elected Captain of the Durham University Boxing Club. Additionally the Secretary of the boxing club was not keeping too well, so I had to take on his responsibilities also. I got a top second and was disappointed that I did not get a first; perhaps my extra-curricular activities with the boxing club cost me a first. Not getting a first was to affect my future working life, because if you got a first, you were exempt national service.

However, I did win the title of University Champion of the British Isles at Light Welterweight. The University Championship was held at Sheffield University. I had problems making the weight and one of the trainers asked me which weight I was fighting at? When I told him, he said, "If I were you I would go home, because Jack Higgins boxes at that weight." He added "Jack Higgins is the Champion of Ireland and he represented Ireland in the Olympics in 1956! Go home lad; you have no chance!" However, I was not frightened. I had trained very hard for this championship; I trained about 6 days a week. I was the fittest that I had ever been in my life. In the semi-final, I met the Liverpool Champion. We sized each other up in the first round, not trading many punches. The referee told us to be more aggressive. In the second round I was much more aggressive, moving forward all the time and I won that round. In the third round I was even more aggressive and he knew he was behind on points. He tried to retrieve the situation by coming forward; this was his mistake, because I caught him on the chin with two left hooks followed by a right cross. He fell to the floor like a sack of potatoes and was completely unconscious for about 5 minutes. I urged my 'second' to assist his 'second' to help him recover. In the other semi-final a boxer called Mawachuku of Loughborough Physical Education College was to meet Higgins. Loughborough produced great sporting giants, like Seb Coe; now Lord Coe! Mawachuku was the most muscular man I have ever seen. When he was stripped to the waist, any movement by him caused his muscles to ripple like waves over his body. He was incredibly fit, but I would have preferred to meet him in the final than Higgins. I had watched Higgins in the quarterfinal and I noticed that he was a prolific left hooker; he 'showed' his left hand a lot. I decided that this was his great strength and also his weakness; if his left hand were nullified, he could be beaten. Thus, I went to see Mawachuku in the dressing room and told him that he can beat Higgins if he held his right hand high to counter Higgin's left hook. Mawachuku did this and beat Higgins on points. I was happier to meet Mawachuku in the final than Higgins. Mawachuku was very fit but he was not as experienced as me. So the bell rang for the first round of the final. Mawachuku came out with his right hand high, the same as he did against Higgins. I hit Mawachuku with three full-blooded right punches to the stomach, because he was holding his right hand high. Normally these blows would have knocked down most boxers, but Mawachuku was no average boxer. It was only after the third blow that Mawachuku winced and stepped backwards. I was much taller than him and a much more experienced boxer and I completely out boxed him in the first two rounds. In the third round I was well ahead of Mawachuku and decided that all I need to do was to keep out of trouble in this round to win the title. I did this and I was declared the unanimous winner of the title! In the next week I had to go to Liverpool University for the Northern Universities Championship. By this time my reputation had spread

in university circles and all the light-welterweights, except for one, decided to avoid me and box in the next division up, namely at welterweight. Thus, I went straight into the final to meet another Liverpool protégé. I was over-confident in the first round and he caught me once or twice. In the second round I chased him around the ring, building up a lot of points and tiring him. In the third I chased him even faster, throwing a continuous barrage of left hooks to his head, non-stop and I dropped him to the floor three times; the referee stopped the fight and declared me the winner on a technical knockout (TKO). Although I had beaten the Liverpool favourite, the Liverpool fans applauded me with much gusto. A couple of months or so later, the local boxing authorities asked me to box the Miners' Champion; his name was Kevin Jones, but it was too close to my finals and I declined. I could not afford training 6 days a week for the fight! It was a pity though, as the fight was scheduled to be broadcast on TV by the BBC. I also boxed for the University Athletic Union (UAU) against the Scottish UAU. I was awarded my full colours for boxing for both King's College and Durham University.

A year earlier I played hockey for King's College 1st eleven and I was awarded my half-colours in hockey for King's College. Additionally, in hockey, I was selected to play for Northumberland County Colts, but the match was snowed off. In October 1958, while I was travelling up north on the old A1 for my finals, I had a serious road accident on my motorbike at the Croxdale crossroads near Durham. I nearly lost my life and spent a few days in hospital, but I was not badly injured. However, I missed the trials for the hockey 1st eleven and I was dropped from the first team. I decided then to concentrate on boxing and leave hockey alone for a year or so. Fig 7.3 shows me in a boxing pose in 1959.

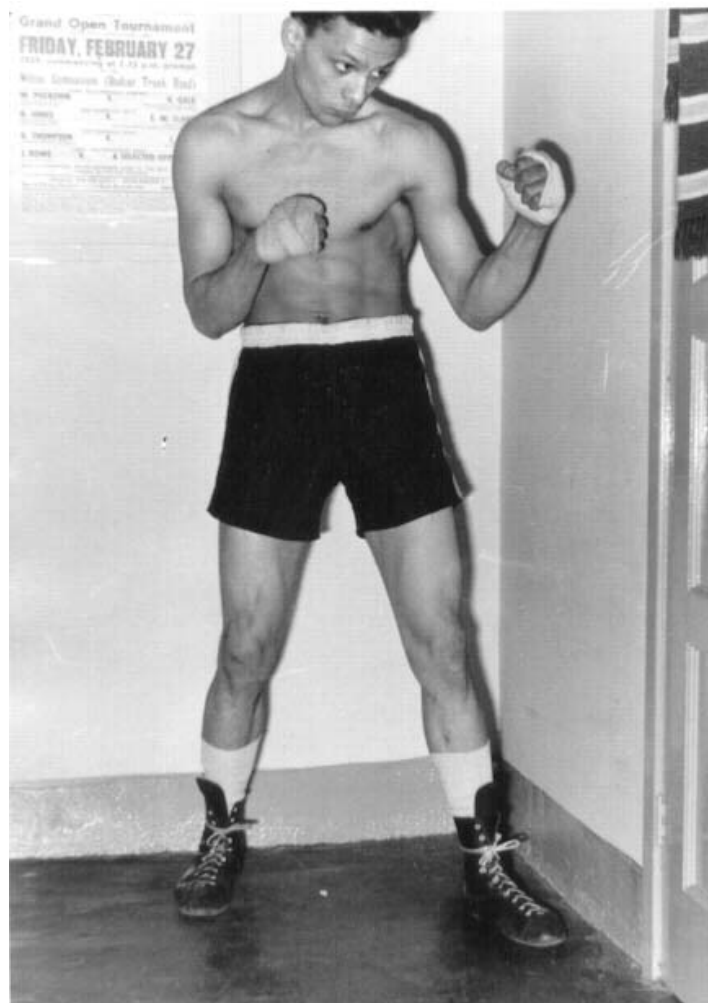


Fig. 7.3 Carl the boxer.

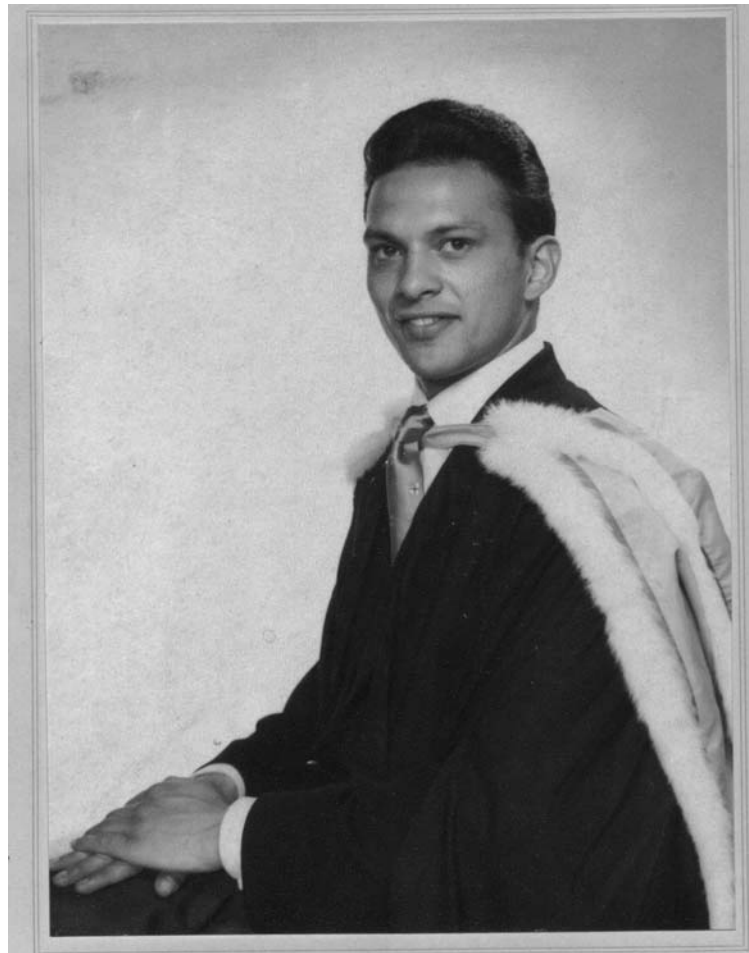
I met Anne, my future wife in October 1958. I had just recovered from my motorbike accident and one Saturday night I went to a college dance. I spotted her across the dance floor; she was unaccompanied. She was dressed in the way that many female arts' undergraduates used to dress in those days. It was not vulgar and definitely not common; it was quite unique. Anne was a stunning beauty. She could have dressed in a sack and she would have still attracted most males. I fell for her on the spot and asked her for a dance. She asked me where I came from; I lied to her and I told her that I came from the Andes' mountains; I think she was quite impressed by me. She had never met an Andes' Indian before. She was born in Darlington, Co. Durham; some 30 miles south of Newcastle and she was working as a clerical assistant at the Ministry of Pensions in Newcastle. She was a clever girl and had passed her 11-plus examinations to attend grammar school, where she left when she was 16 years old. She came from a humble, honest, hard-working family and must have been clever to pass her 11-plus from such a background. Her parents were good English working class people; her father was a telephone operator for the Post Office. Their expectations weren't high. Often such people used to say to me, "Ours is not to reason why? Ours is but to do and die!" We got on very well; I did not see her as much as I would like to, because I was working for my finals and also I was the Captain of the Durham University Boxing Club. We had a lot in common; we liked the same kind of music and our interests included sport. We were both very physically fit at the time; I was a 10 stone (140 lbs or 63.6 kg) boxer of solid muscle. When we jived, we jived very fast and many of the undergraduates would stop to watch us. She played tennis for the Civil Service and she was also a talented amateur actress at one of the local amateur dramatics' club. After about 7 months or so of me courting her, I asked her to marry me and she agreed. Later, but before I asked her to marry me, I confessed to her that I was not an Andes' Indian but an Anglo-Indian; she just smiled that I had fooled her for a while. I wanted to get married and I knew that she was the right girl for me. However, in July 1959, I was due to graduate and thus leave Newcastle.

Fig. 7.4 shows Anne and me, 'just engaged', at the Graduation Ball and Fig. 7.5 shows me as a newly qualified BSc (Hons) graduate.

Fig. 7.4 Anne and me
at the Graduates' Ball
– 03/07/1959



Fig. 7.5. Me on
Graduation Day.
04/07/1959.



As I had not got a first class honours degree, I was liable for compulsory military service, unless I got a suitable job in the country's defence industry, which would give me temporary exemption from national service. I chose the latter form of employment, which meant that I had to stay with my next employer until I was 26 years old. I wanted to be a Stress Analyst, so I applied for jobs in stress analysis in the aircraft industry. I was offered jobs as an aircraft stress analyst at AVRO's in Manchester and also at GEC in Preston, where I would have worked on the 'Lightning P1-B'. I was also offered a job in the south east of England; all the jobs were dependent on me getting a good honours' degree. However, before accepting any of these jobs, I applied to Vickers-Armstrongs (Shipbuilders) Ltd., Barrow-in-Furness to work on nuclear powered submarines. I was offered this job and I started in August 1959. By this time I wanted to get married to Anne and on graduation day, namely 4th July 1959, at the Graduation Ball, we were engaged to be married. Anne was working at the Ministry of Pensions at Newcastle, where she stayed on for a few months before she joined me at Barrow.

To summarise my stay at Newcastle, I was very happy there; it was one of the happiest times of my life. The three years simply flew by. The teaching staff was excellent and they together with my fellow students widened my horizons and expectations in life.

Chapter 8 – Working as a Postgraduate.

In those days Barrow-in-Furness was in northwest Lancashire; today it is in Cumbria. It is very conveniently situated in easy reach of the English Lake District. The only snag with Barrow in those days was there was only one way of leaving town, regardless of whether you went north, south or east. It was worse if you travelled by rail; thus travelling to other destinations from Barrow eventually became boring. Also in those days, it had no supermarkets; the nearest shop that resembled a supermarket was the local Co-op. Small businessmen owned most of the shops and shopping became quite a chore, as on a Saturday morning, you were in and out of the shops all morning. It took a long time to do your weekly shopping. Getting a haircut on a Saturday was also a problem!

However, in 1959 there were not many private motorcars and local transport by bus was good. Additionally, there was virtually no hooliganism, as the police knew everyone in Barrow. There were some good pubs there, but I did not like their local brew of beer. On a Saturday night the pubs would be full and you could almost cut the smoky atmosphere with a knife.

When I first went into a pub and consumed a pint of beer; I enjoyed the beer and asked for, “A pint of the same”. The barmaid said, “You can’t have same lad. You can have similar”, so from then on if I wanted a pint of the same, I always ordered a pint of similar. On one occasion I wanted a half-pint of beer, so I said, “Can I have a half-pint please?” The barmaid said, “Do you mean a glass?” For the remainder of my time at Barrow, when I wanted a half-pint of beer, I ordered a glass!

Before I got security clearance for my employment at Vickers, I worked in the Naval Architect’s Office. After a few weeks here, working on non-defence ships, I joined the Project Design Office to work on nuclear submarines. I was now able to look at the plans of nuclear powered submarines and see how they were designed; the plans fascinated me. The head of the office realised that I had a bent for stress analysis and directed my attention to some scientific papers on research into submarine structures. I soon realised that military future of the western world depended to a large extent on the nuclear powered submarine. Admiral Rickover from the USA had shrunk the PWR reactor (Pressurised Water Reactor), so that it fitted neatly into the pressure hull of a submarine. Figure 8.1 shows the nuclear powered submarine H.M.S. Dreadnought being launched at Barrow-in-Furness. From Fig. 8.1 it can be seen what a good job was done by the Barrovians and the British naval authorities on the design and construction of the Dreadnought. I cannot write too much about the work I did at Vickers for security reasons, but I became a good stress analyst, particularly on pressure vessels. I did, however, design the world’s first boiler barge and the world’s first nuclear facilities barge; I think that they still operate today. I did not do their detail design; a colleague of mine did this when I went to Manchester University to do my PhD.

Just prior to getting married, Anne joined me at Barrow. She had a bed-sitter in Barrow and I was in digs at Walney Island. I paid £5-00 per week for full board. My accommodation was sufficiently close to Vickers to catch the bus to my digs for lunch and return within the hour. My landlord was previously the landlord of the King Alfred Pub on Walney Island. He was a brilliant cook of traditional British food. He would place a beautifully cooked fresh fish on your plate and say to you, “You see that fish there; that were live and wriggling 5 minutes ago! Aye. Aye” On a Sunday, we always had roast pork; he used to say, “I don’t like Yorkshire pudding. I like

Lancashire hot-pot’. I think that he was one of the last remnants of the ‘War of the Roses’.

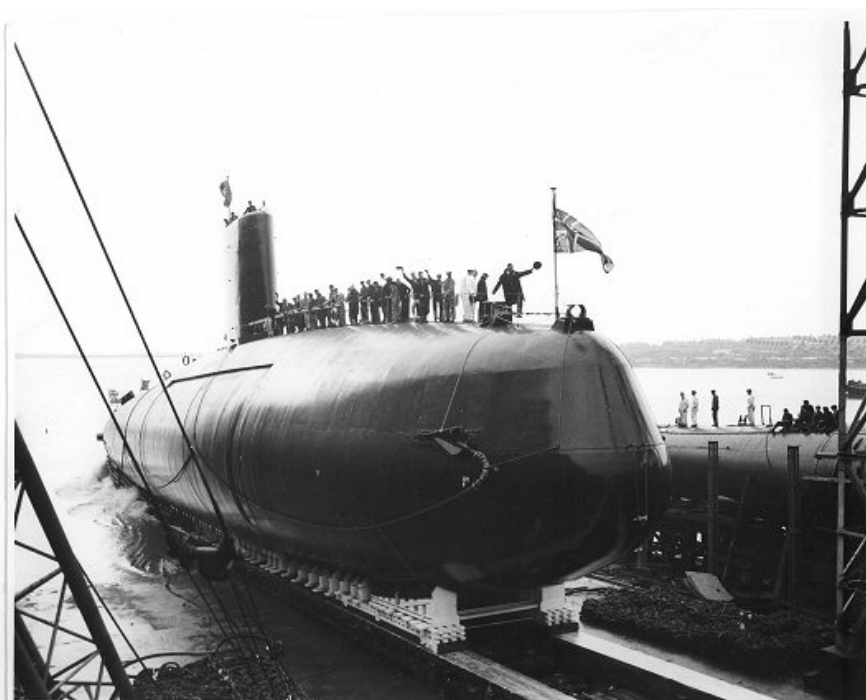


Fig. 8.1 H.M.S.Dreadnought on the launch pad.

Also on a Sunday he would place your food in front of you and say, “Get your chops on that lad! That will make fur round belly like velvet. Aye. Aye.” Walney Island was quite a nice place. It was unspoilt and had a good beach. On one occasion my landlord said to me, “You come from down south don’t you? Aye. I’ve been down to London. Aye. Aye. I was there in 1922. Now I will tell you a tale lad. In London, they’ve got trains, which go underground, Aye; bet you didn’t know that! Aye. Aye.” Another statement he would make to his visiting relatives was, “They all talk funny down south. Aye. Aye”. Other idiosyncrasies of his were, when he referred to Vickers, he called it, ”Vickerszis” and when he referred to the atomic submarine, he called it, “The a-tonic submarine”. Most people in Barrow used to say “Aye” when they meant, “Yes”. After a few years in Barrow, I was saying “Aye” instead of “Yes”. I said “Aye” to my doctor on more than one occasion; he thought that his brown-skinned patient was making fun of him, but I wasn’t. Barrovians were good shipbuilders and in November 1959, I saw the launch of the Oriana by Princess Alexandria. Figs 8.2 & 8.3 show the beautiful ‘Oriana’. It was a fantastic ship and the Barrovians were justifiably proud of their great achievement in designing and building this splendid vessel.



Fig. 8.2 Construction of the ‘Oriana’

Fig. 8.3. The
'Oriana' in Sydney
Harbour.



I got married to Anne in Barrow in January 1960. The Catholic priest would not let us marry in either of our hometowns; Anne's hometown being Darlington, Co. Durham and mine was Chatham, Kent. We did not have much money, as I had a long education, so I borrowed some money from my bank but my Bank Manager was somewhat reluctant to let me borrow the money. Borrowing money wasn't easy in those days. As we had to finance our wedding reception, it was a somewhat quiet affair. Our friends Bill and Jean Horsham let us have our reception at their house. We went for our honeymoon to Penrith in Cumberland's Lake District; we stayed in a hotel for a few days.

As we were Catholics, we did not practice birth control and sure enough, 10 months after our marriage we were blessed with the birth of our baby daughter, namely Nicolette in November at 8.00pm. I took a week off to help my wife, as we had no help from anyone else; we were on our own; we had just started our nuclear family. Nicolette was born at 191 B Abbey Road, Barrow-in-Furness. After a week at home, I went back to work and a different midwife came to visit Anne. Now the colour of my skin was brown and the colour of Anne's skin was white and Nicolette's skin was a very pale shade of brown. The new midwife did not know this, however, so she sent for the doctor, informing the doctor that Nicolette had got jaundice. The doctor sent for the paediatrician, who on seeing me and to our relief, said that this was a false alarm.

Prior to this event, the government announced that the call-up for national service was to end in November 1960; I was 25 years old at that time. I wanted to go back to university and do full-time research into the collapse of submarine pressure hulls, particularly on the use of aluminium alloys for deeper diving vessels. I convinced the Aluminium Development Association (ADA) that the use of a material, which had a higher strength: weight ratio than high-tensile steel would be preferable to using steel. At that time the Americans were designing a deep-diving submarine made in aluminium alloy to dive to 15 000-ft (about 5000 m). The submarine was called the 'Aluminaut'. Edward Wenk, who was to become the Scientific Adviser to President Kennedy, designed it. The ADA agreed to pay for my 6 models of pressure hulls to be constructed in aluminium alloy, namely HE9/WP aluminium alloy.

While I was at Vickers, I took the opportunity to learn how to program a digital computer. At that time, Vickers had not got their own computer, so they hired

Manchester University's Mercury Computer. Before I left King's we asked our professor if we could learn how to program a computer; at that time King's had a Pegasus Computer. Our Professor said to us, "Computers are only of interest to mathematicians; they have no practical application whatsoever". How wrong he was! I asked my immediate superior at Vickers, if I could go on a week's course to Manchester University to learn how to program a computer. He refused me permission, so I bought Manchester University's own publication on how to program in Mercury Autocode. I taught myself how to program, sending my paper tapes by registered post to Manchester University twice a week; the frequency of the post decided how many runs we got per week. Sometimes, if we were lucky, we would get three runs per week. Today of course, you can get a run every 5 minutes, depending on the length and complexity of your program. I took to computer programming like the proverbial duck takes to water. I was lucky that it came to me so easily.

I applied to the Victoria University of Manchester to do my research work there, as I was familiar with their Mercury Computer and the computer language Mercury Autocode that was used at Manchester. Additionally, Manchester was a good research university; they discovered the atom; they invented the digital computer and they had won 20 Nobel Prizes. In engineering, they had invented Reynold's number. The Faculty of Science at Manchester University accepted me to research for an MSc degree, with the option of changing the degree to that of a PhD, if I had made good progress at the end of the first year. Manchester also offered me a scholarship, but it was not enough to finance a married man with a small child. I applied for a post-graduate research scholarship to finance me to the Institution of Structural Engineers. They asked me what other applications my field of study would have and all I could come up with was the containment vessel of a nuclear-powered ship or a submarine. I was young and inexperienced and since those days, I have realised that the work was applicable to many branches of engineering, including, submarines, torpedoes, off-shore drilling rigs, tunnels, immersed tubes, aircraft, rockets, cooling towers, silos, tin-cans, medical equipment, etc., etc. I did not get the scholarship, but if I had this information then it may have been a positive result. One of the interviewers was particularly nasty to me; he asked me about my origins and when I told him that I was an Anglo-Indian who had come to this country because I supported the British; he effectively called me a liar. He asked me what my father did for a living in India. I told him that my father was a Chief Draughtsman. The interviewer insisted that my father was not a Chief Draughtsman but that he was a Bengali babugee, (a letter writer). The term babugee was often used by the British to insult Anglo-Indians. A babu is a Hindu gentleman who could speak a little English. Thank you very much Lord Atlee for what you had done to us! I was very upset at this interview, realising that I was a victim of racial prejudice, but there was nothing you could do about it. All I could do was to lick my wounds and carry on. To my luck, the Managing Director of Vickers, namely, Mr Leonard Redshaw heard that I was seeking financial support for my venture into research. He agreed that Vickers would support me financially. Later Mr. Redshaw deservedly became Sir Leonard Redshaw; he was a great man. Mr. Redshaw agreed that Vickers would very generously top up my Manchester University scholarship, so that I would be earning the same if I had still been working full-time at Vickers. All Vickers wanted from me were the design charts and computer programs required to design submarine pressure hulls. Vickers was very good to me and I was determined to keep my part of the bargain. I could not start my research work immediately, as my daughter had just been born, so I started at

Manchester in January 1961. Prior to entering Manchester University the Head of Civil & Structural Engineering, namely Prof. M.R. Horne, said to me that as I had arranged my own finances and I was well qualified, he could arrange for me to do my PhD at Cambridge. Prof Horne was a Cambridge man, who under Professor Sir John Baker invented the kinematical method in the plastic theory of bending; he had good Cambridge connections. Professor Sir John Baker was later to become Lord Baker. I declined Professor Horne's kind offer, because as I was effectively a coloured working class lad, I believed that I would have been a social misfit at Cambridge. I think the coloured middle classes and the white working classes were acceptable at Cambridge at that time, but I doubt if the Cambridge students would have accepted a coloured working class boy in those days. It was a pity though, because Cambridge was doing some good work on the collapse of thin-walled spherical shells under uniform external pressure. At Manchester, my supervisor was Dr. J.E.Gibson, who was a world authority on the strength of shell roofs. I didn't really need a supervisor, however, because I knew what I wanted to do, as it was my own project and I'd taken it to Manchester.

Chapter 9 – The Victoria University of Manchester.

The headquarters of Manchester University were in Oxford Road, Manchester. I think that the university was built in Victorian times and therefore most of the buildings surrounding the university, at that time, were effectively slums.

Prior to entering Manchester University, I visited the Accommodation Officer; he gave me two addresses where there were flats available for mature married students. One of the flats was in Glossop and the other was near the university, in Ackers Street, Chorlton-on Medlock, near the Holy Name Church. It was only about 100 yards (100 m) from the university. Glossop is a lovely middle class town situated in picturesque surroundings. I decided against the Glossop flat, as it would involve commuting to and fro and I did not have a car. The other flat was on the edge of the slums, but the flat was clean and dry. It had 2 bedrooms, a living room and a kitchen; the bathroom was on the floor below and we had to share it with other mature postgraduate students. These students were from overseas and their behaviour was exemplary. The flat was not centrally heated and the area was scheduled for demolition, where it was planned to expand the university. I decided on the Ackers Street flat; the rent for both flats being the same, namely £3-50 per week. I think that it was planned to build the new library in a few years time in Ackers Street. In its heyday, Ackers Street was well known for accommodation for show business people. Anne was disappointed with the location of the Ackers Street flat, but I told her that it was only a temporary measure. It did have its advantages though, as the Students' Union Building was only 100 yards (100 m) away and the bus routes to 'everywhere' were nearby. Additionally, during term time there were thousands of students wandering around the area and one did not notice the deprivation. The same was not true during vacation time when the undergraduates went home. The area would lose its virility and joviality, as the starkness of deprivation prevailed. Fortunately, however, we were on the edge of the slums. The flat was within walking distance of Manchester City's Football Club and on the bus route to Manchester United's Football Ground. I supported both teams at that time; I would watch 'United' one week and 'City' the next. Both teams were in the old First Division then, now the Premier League. I can still remember Manchester United's forward line; on the left wing was Bobby Charlton, at inside left was Dennis Law, at centre forward was David Heard, at inside right was Albert Quixall and at outside right was Johnny Giles. The goalkeeper was Greg and the two backs were Brennan and Dunne. In the halfback line was the captain, namely Maurice Setters. I can still remember some of the Manchester City's players. On the wings were Wagstaffe and Young and at centre forward was Peter Dobing. Dennis Law was there as a forward for a time as well. In goal was Bert Trautman.

A photograph of Ackers Street is shown in Fig. 9.1. In the picture, you can see the small children of some Irish tinkers playing in the street. Their landlord was a Pakistani and every Saturday, he would come to collect his rent, accompanied by his Alsatian dog. The Irish tinkers were no trouble, but sometimes they would throw out dirty water from one of their side windows. It could have been that their sink would get blocked and before their landlord could attend to it they had to help themselves.

One famous person to drive past our street was Yuri Gagarin the Russian Cosmonaut, who was the first man to go into outer space. I took a picture of him, which is shown in Fig. 9.2.

We were still devout Catholics at that time and every Sunday we would go to the Holy Name Church for mass. We took it in turn to look after Nicolette and Anne would go to an earlier morning mass than me.



Fig. 9.1. Ackers Street, Chorlton-on-Medlock.



Fig. 9.2 Yurri Gagarin in Oxford Road, Manchester

We were not short of cash and I decided that I would like to have some driving lessons. I signed up for a course of about 20 one-hour lessons with the British School of Motoring. I had a driving licence to drive a motorbike, but I decided that I wanted to drive a car. As I had driven a motorbike for thousands of miles I had good road sense and I was safe, but I had problems with changing the gears in the car. This was worsened because I could not practice in anyone else's car as hardly anybody had one in those days. I took my car test after 18 hours of driving and failed on 2 minor faults. One problem that I had was when I was changing gear on moving away from a junction. I would not momentarily steer the car 'perfectly', because I was concentrating on changing the gears too much with one hand, while at the same time I was steering the car with the other hand. The other problem was that when I was driving on a wide main road and there were parked cars in the roadside, I would not bother to get back to the left side of the road between large gaps left by series of parked cars. I was disappointed that I failed my driving test and in a fit of rage I bought a 3-wheeler, namely a Reliant Regal, whose registration number was WNE 3. This 3 wheeler was really a car with 4 seats. You could drive it on a motorcycle licence, if you had the reverse gear blanked off. The Reliant cost £325- and I bought it on a hire purchase agreement. The rate of interest was quite high but it was difficult to get a bank loan for the purchase of a car in 1961. The loan was over a period of 3 years and from being quite well off, I now did not have too much spare cash at the end of the month, but we were not hard up. The body of the Reliant was made in glass fibre; thus, you did not have any corrosion problems with its body. Its top speed was 70 mph. A picture of my Reliant is shown in Fig. 9.3.



Fig. 9.3. My Reliant Regal (Reg. No: WNE 3)

In those days, people did not deride you for driving a Reliant, as many would do today, as very few people could afford to own and drive a car. I drove the Reliant all over the Manchester area, visiting some nice spots in Cheshire on a Sunday afternoon. Also, I played football on Saturdays for the 'PhD Engineers' and my wife and daughter would travel up with me to the playing fields in Fallowfield. I did not need the car for travelling to my workplace, as the building was only about 100 yards (100m) away. Parking, however, was not a problem in those days; there were plenty of parking spaces in the university and its surroundings.

We managed to find a babysitter for our Saturday evening excursions; her name was Mrs. Doyle. She was probably in her mid-forties at that time. She had 2 girls and a boy; her husband worked as a coal miner. They were a lovely family and she was especially pleasant. They lived next door to the Students' Union Building, so on a Saturday evening, we would take Nicolette to her house and leave Nicolette with Mrs. Doyle for about 4 hours. We would go to the Students' Union, where we would pay an entrance fee that allowed us to go to all the dance rooms in the building. They often had five different dance bands in the union building. In the main hall, they had fairly traditional dancing and on the top floor they had 'smoochy' and romantic music. The building was 5 storeys high and at that time it was one of the biggest student union buildings in the country. Prior, to taking part in dancing, the postgraduate engineers would meet together in one of the many bars for a 'drink'. After a few drinks, we would go to the main hall and dance and jive for a while. Sometimes they would go to another dance room in the building to sample a different type of music, maybe Latin American or 'trad' jazz. Obviously, several bands played in the building every Saturday night. Towards the end of the evening we would go to the appropriate floor to sample some of the romantic 'smoochy' music. On one occasion they had 3 top jazz bands playing in the main dance hall; they were: Chris Barber, Humphrey Littleton and Ken Collyer. That evening was a most memorable evening. Rock and Roll was popular too at that time and we often danced to some of the well-known rock and roll numbers. The 'purists' who liked trad jazz, however, frowned upon rock and roll. Hypocritically, I made out that I was one of them at that time, despite the fact that I liked rock and roll music. I was very slim and fit in those days and Anne was an excellent jiver. On many occasions, other students would stop and watch us showing off our jiving skills. The 'Twist' made headlines at that time too, but the older jivers preferred jiving to doing the 'Twist'.

Sometimes after a session at the students' union, a group of us (postgraduate research engineers) would take a walk along the Oxford Road to eat at the 'Taj Mahal' Indian restaurant. At that time it was the best Indian restaurant in Manchester, although the 'Bombay' Indian restaurant was a special favourite of the students. At the 'Taj Mahal', we could only afford vegetable curry and we always ate it; it was the cheapest meal on the menu. We ate our meals with much relish. If we had not eaten that night, Mrs. Doyle would serve us up a free meal of egg and bacon; she was such a lovely woman. At lunchtime, the postgraduate engineers would go to the 'Bombay' where we could get a 3-course meal for about 3 shillings (15 pence), but we never consumed alcohol during working hours. Sometimes after we had eaten our 3-course meal, we would eat another 3-course meal, and on one occasion we each ate three 3-course meals; the waiter was disgusted with us. Naturally, I put on weight from a slim 10 stoner (140 lbs or 63.6 kg) to a bloated 12 stoner (168 lbs or 76.4 kg).

We did not have a TV, and all we had for entertainment was a transistor radio. In the evenings, after the baby went to sleep, Anne would read a novel; she belonged to the World Books' book club. I would read a research paper or a postgraduate book. My working day was from 10.00am to 10.00pm, every day, except for the weekends. I would have about 5 weeks holiday per year, one week at Christmas, one week at Easter and three weeks in the summer. We could not afford a proper holiday, so we usually visited Anne's or my parents' homes and stayed with them. My car came in handy on those occasions.

In September 1961, I took my car test for the second time, in my Reliant. I had the blanking plate removed the previous day, so that it was now classified as a car. I practised reversing all that evening, with a colleague who had already passed his test; he was my passenger. Needless to say I passed easily as I was quite an accomplished driver by then. Prior to taking my car test for the second time, I had travelled to Chatham and back in my Reliant, via the M1 motorway, on a motorcycle licence as my 3-wheeled vehicle was classified as a motorcycle. After passing my car test, I began regretting buying a 3-wheeler, I wished that I had been more patient and bought a 4-wheeler. I lived with this regret until 1965, when I replaced my reliable little Reliant for a 4-wheeled Ford Anglia.

During the first few months at Manchester, we experienced a problem with our baby. Now we were a nuclear family; we had no relations living near us. We could not get any help from relatives. My family lived in the south east of England, in Chatham and my wife's family lived in Darlington, in the north east of England. We lived in the north west of England and the main trunk roads were not as good or as plentiful as they are now. Thus, travel between far-away towns and cities were slow. If I left Manchester for Chatham at 9.00 am I would not reach my destination until about 9.00pm on that day.

Anne used to take the baby to the 'clinic' once a week for a check-up and for the usual children's inoculations and for general advice. On one occasion one of the workers at the clinic said that the baby was overweight and we had to cut out one of her feeds. We did this, but it caused her to wake up about 5 times a night, every night. We were told it was wind and that we had to give her some 'Gripe Water' in a feeding bottle filled with boiled water. We did not have a refrigerator, so every time the baby woke up, we had to boil a kettle of water and make the mixture. Only when the mixture was cool, could we feed her with it. The baby would then go to sleep for about an hour and wake up crying and the procedure repeated again; very often this process was carried out about 5 times per night. We could not work out what was wrong, nor could the clinic. I said to Anne, "Go and see the doctor and ask him what the trouble was" The doctor simply replied, "I have got 4 children and we have had no problems with them" He made no attempt to find out what we were doing wrong. Every night, the baby would wake up about 5 times a night and despite Anne asking for help from the clinic, they did not know what we were doing wrong. After about 4 months of this, the clinic gave my wife a booklet on "Why Babies Cry at Night", written by a Professor of Baby Care from Leeds University and they said that I had to read the booklet and find out why the baby was crying at night. I read the booklet with great eagerness, every word sinking in. On finishing the booklet I knew what we were doing wrong; we were not giving the baby enough feeds. So I bought a special bottle warmer, where the bottle was electrically heated by surrounding water. That night before we retired and after the baby was put to sleep, we made another feed which was kept in the bottle warmer surrounded by cool water. When she woke up that night, we warmed the bottle full of milk in the bottle warmer and fed the baby.

After her feed she slept soundly throughout the night and until the early morning. However, we were not used to such tranquillity and kept thinking that something was wrong with the baby. We kept waking up and looking at her frequently throughout the night to see if there was anything wrong with her. There was nothing wrong with her of course; the baby was a normal healthy one. We slept better the next night and even better the next night. We had solved our problem, which was caused in the first place by the clinic's bad advice on wrongfully telling us to cut out one feed per day. Our main error of judgement at that time was due to us firmly believing in conventional medical advice. Today, Nicolette is a very slim person, so obviously we did not overfeed her at all. The nuclear family is a tough family to raise, particularly for the wife and mother. I advise anyone who cares to read this book, "Try to raise an extended family if you can, in preference to raising a nuclear family". It may not always be possible, as in our case there was not a university in Darlington or Chatham at that time. Mind you, these days many people raise single-parent families and that must be a monumental task to get right. It must also be realised that near that period in the years between the births of our babies, many limbless 'Thalidomide' babies were born, so we must be thankful to 'him above' that we managed to avoid that medical catastrophe.

At Manchester, I was shown to my desk. It was on the ground floor, in a square room with a window and I shared the room with 3 other postgraduate research students. One of the postgraduate students was an Iraqi; his name was Kamal. Another was an Egyptian named Wagih. A third researcher was an Englishman named John; he had got a first in civil and structural engineering at Manchester a few months earlier. Both Kamal and Wagih were a few years older than me but John was a few years younger; I was 25 years old at that time. The others had started 3 months earlier than me, because I delayed my start until January 1961. We were all in the same position, namely we were accepted to research for an MSc degree, with the option to change to a PhD if we had made satisfactory progress at the end of the first year. The first thing the other 'postgrads' said to me was, "Do not ask the Professor to change your application to a PhD or you will embarrass him and he will probably reject you on the spot! After you have submitted your interim report at the end of the first year, you must wait for him to invite you to change your application to a PhD" Most of the postgraduate research students were not invited to change their application to a PhD; instead they were told to 'write up' their work for an MSc. Kamal's work was on the plastic collapse of frameworks. Kamal was married to a Scot's graduate; they had 2 children. Wagih's work was in concrete technology; he was unmarried. John's work was on shell roofs; he was unmarried.

All four of us made good progress and at the end of the year we submitted reports; we were all good at mathematics. Additionally, Kamal, John and I were good computer programmers, a skill that many of the university dons had not acquired at that time. All four of us were invited by Professor Horne to transfer our research degree applications to ones for a degree leading to a PhD.

I spent much of my first year designing the pressure tank I needed to test my structural models; the University did not have this facility when I joined. Additionally, nobody else was working in this field at Manchester at that time. I also wrote some computer programs, which enabled me to design my models so that they would collapse the way they were required to. Photographs of my 6 aluminium alloy models, together with my test tank are shown in Figs. 9.4 to 9.7. Models 1 to 6 were machined by Vickers-Armstrongs (Engineers) Ltd. of Barrow-in-Furness, but their manufacturing costs were paid for by The Aluminium Development Association. The

test Tank was designed by me and manufactured for and paid for by Manchester University.

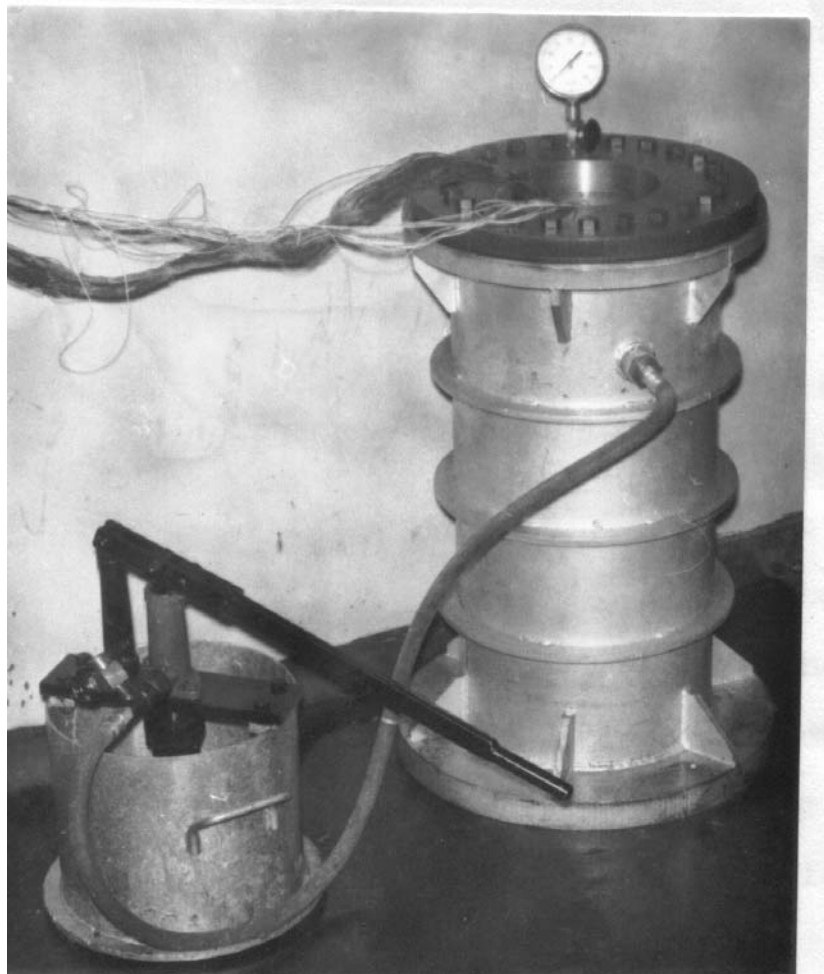


Fig. 9.4 Models 1,2 & 3.



Fig. 9.5 Models 4 to 6.

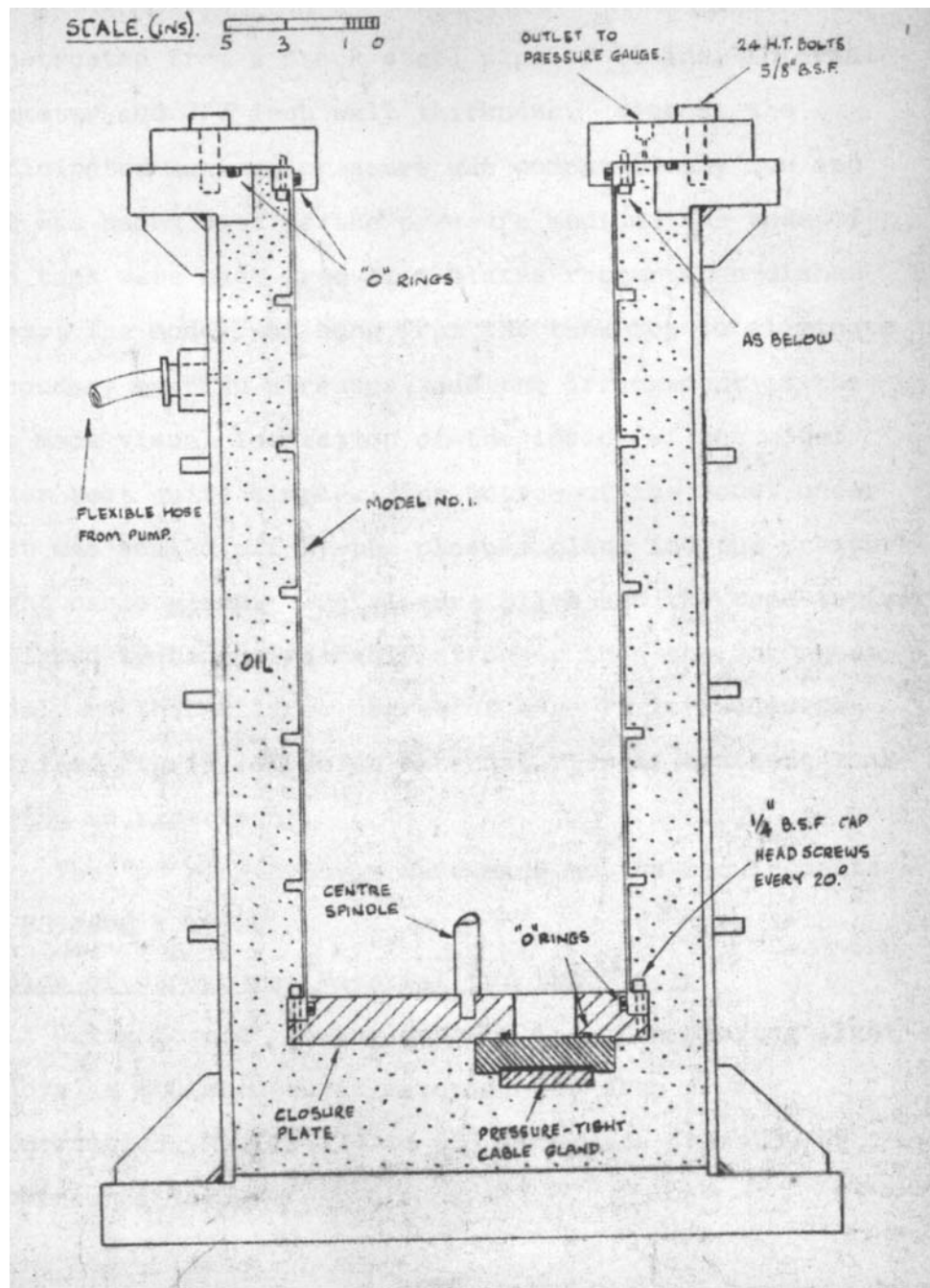
Fig. 9.6 The Test Tank and Hydraulic Pump.



Prior to testing Models 1 to 6, a simpler unstiffened steel model, namely Model No.7 was paid for by Vickers-Armstrongs (Shipbuilders) Ltd., and manufactured by Vickers-Armstrongs (Engineers) Ltd.

Models 1 to 3 were intended to collapse by the shell buckling between adjacent frames (shell instability) under uniform external pressure. Collapse by this mode is most undesirable, as the collapse load is usually only a small fraction of that which would cause the vessel to rupture under uniform internal pressure. Thus, a study of this mode was essential. I strain-gauged all the models with electrical resistance strain gauges; the connecting wires can be seen in Fig. 9.6. I stuck down about 200 electrical resistance strain gauges in all and only one strain gauge malfunctioned. The experiments went to plan and the three models collapsed through shell instability, as planned and as shown in Fig. 9.8. Now what do we mean by structural instability or buckling? To demonstrate buckling, I suggest that you pick up a plastic ruler and try to pull the ruler apart in tension. Do not twist or bend it, simply pull it outwards in its axial direction. The reader will not be able to damage the ruler providing the ruler is pulled outwards in axial tension. If, however, the reader places the ruler horizontally between his/her hands and pushes his/her hands inwards so that the ruler is in axial compression, the ruler will bend due to the phenomenon known as buckling, despite the fact that the ruler has not been loaded laterally. Thus, this simple experiment demonstrates that if a slender structure is subjected to axial compression, the resistance to collapse of the slender structure is very small when compared to the

same slender structure being subjected to axial tension. In the case of a submarine at the bottom of the Mariana's Trench, which is the deepest part of our oceans and where the depth of water is 7.16 miles (11.52 km), the pressure due to the water will be about 7.5 tons per sq inch (1158 bar). That is, the pressure will be equivalent to the weights of tens of thousands of big lorries (trucks) acting on every square inch of the submarine's pressure hull surface. Additionally, this pressure is external and therefore subjects the relatively slender submarine pressure hull to compressive forces.



F.ig. 9.7. Drawing of the Test Tank with Model No. 3.



Fig. 9.8 Collapsed Models 1,2 & 3 (shell instability)

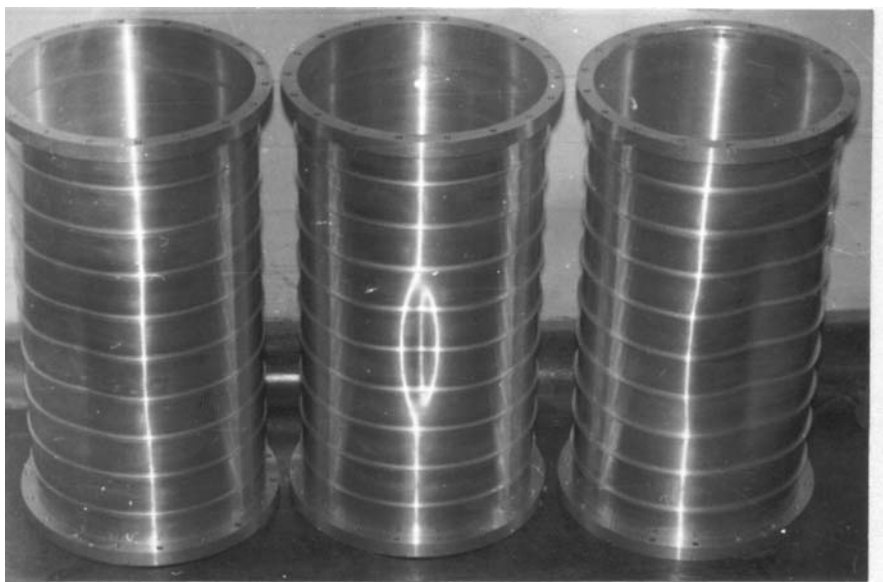


Fig. 9.9 Collapsed Models 4,5 & 6 (general instability).

Fig 9.8 shows that Models 1 to 3 collapsed by the shell buckling between adjacent frames. From this figure it can be seen that the buckling took place around the

circumference. This is because the circumferential stress is the largest stress. Failure by this mode is undesirable as the structure is inefficient if failure takes place by this mode. Thus, structural designers usually design the vessel so that failure by this mode is eliminated and the way to remove this mode of failure is to stiffen the circular cylindrical pressure hull with many ring-stiffeners spaced fairly close together, as shown in Fig. 9.5. If, however, the ring-stiffeners are not strong enough, the entire ring-shell combination can buckle bodily, as shown in Fig. 9.9; this mode of failure is known as general instability; it was essential to study this mode of failure as well. Another method of collapse is known as axisymmetric deformation, where the circumference of the vessel stays circular under imploding collapse, as shown in Fig. 9.10. Axisymmetric collapse is a more desirable mode of collapse than shell instability and general instability, as the latter are more difficult to predict theoretically.



Fig. 9.10. Axisymmetric Collapse.

Prior to collapsing my models, I invented a pressure-tight cable gland, which can be seen on the bottom of Model No.3 in Fig. 9.7 and also in Figs. 9.11 & 9.12. The purpose of the gland was to enable the electrical resistance strain gauge wires to be brought from the pressure raising liquid to the atmosphere outside, where the strain gauge equipment resided. The pressure raising liquid was a hydraulic oil as this obviated the necessity of waterproofing the strain gauges if water had been used to raise the external pressure. The gland was based on using several single core wire cables, which pierced a rubber disc as shown in Fig. 9.12. After this was done, the disc holding the rubber disc was screwed tightly into the recess holding the rubber disc. This caused the rubber disc to try and expand and to squeeze each single core wire cable, thereby making each cable watertight. Further tightening of the steel disc into the recess, caused the rubber disc to harden and grip the single core wire cables even harder. The gland worked superbly and I was able to do my testing. Later, the university patented a similar gland but I did not get anything for it. The purpose of my work therefore, was to study the present series of vessels, together with the experimental and theoretical studies of other researchers and to provide a theory that was more precise and reliable than those of the past. This was achieved by

December 1962, in two years instead of the expected 'norm' of three years of study for a PhD.

So in December 1962, I left Manchester and went back to Barrow to work at Vickers-Armstrongs (Shipbuilders) Ltd., as Deputy-Chief of the Project Design Office and also to write my PhD thesis. I wrote my PhD thesis in about 3 months, but a snag occurred.

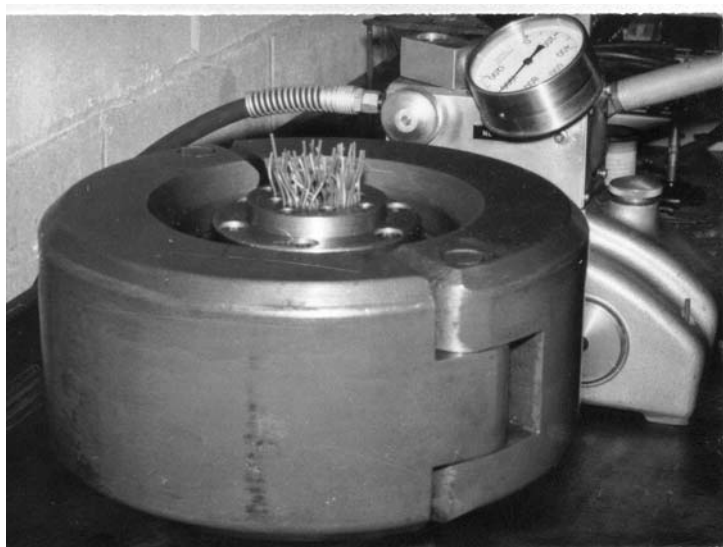


Fig. 9.11. Cable gland undergoing trials.

This was, whereas Prof. Horne and Dr. Gibson had approved my return to Barrow to write my thesis; Prof. Horne had forgotten to seek permission from the university. The university had only found out that I had left when I informed them in writing of my new address. The university said that I might be disqualified for leaving too early without seeking permission and also that I was required to pay the additional third years' tuition fees of £78-, despite the fact that I had finished in two years. I paid the fees immediately and Professor Horne appealed to the university authorities that I should be allowed to 'do' my PhD in two years, in retrospect, instead of the normal three years duration. The university authorities agreed and returned my third year's tuition fees. I submitted immediately and passed my viva in September 1963; at my first attempt and with no corrections to my thesis. My internal examiner was Professor Horne and my external examiner Professor Chilver of University College, London (UCL). Professor Chilver was later to become Lord Chilver of Cranfield. Professor Chilver was very impressed with my thesis and offered me a Lectureship at UCL on the basis of it and on the quality of my viva. I politely declined his kind offer, as I neither wanted to become a London commuter nor did I wish to bring my children up in London; I was a 'small town' man. Graduation day was on December 13th, 1963; Kamal graduated with his PhD on the same day. Wagih and John had graduated 5 months earlier. After graduation, Kamal became a postdoctoral research fellow at Manchester University, until he gained his senior doctorate, namely a DSc. After gaining his DSc, he became a professor at Aston University, Birmingham and later, he became a professor and Head of Department at the University of Cardiff. Wagih went back to Egypt, where he eventually became a senior professor. John

emigrated to Canada, where his first appointment was that of an Assistant Professor; he has since become a professor in Canada.

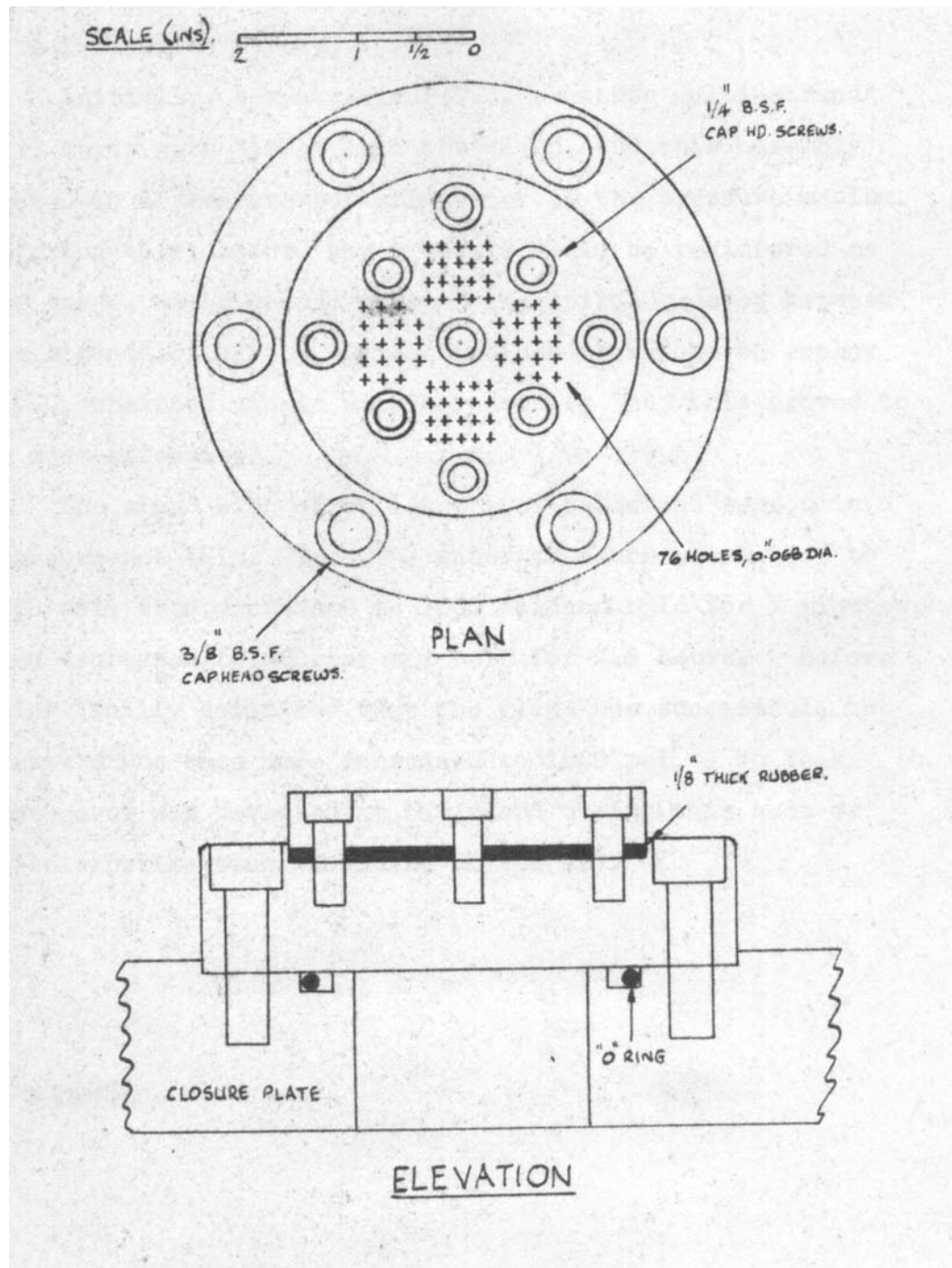


Fig. 9.12. Drawing of my cable gland.

Chapter 10 – Back to Barrow.

When we left Manchester and went back to Barrow, we resided at Station Bungalow, Rampside, Barrow-in-Furness. Rampside was a delightful little seaside village a few miles from Barrow and about 150 yards from Roa Island. Our bungalow was originally Rampside Railway Station, which had been converted to a residence. It had two bedrooms, one of which was formerly the ticket office. Our living room was formerly the waiting room. The bathroom was small and had a three-quarter sized bathtub. The problem was that the 1962/1963 winter was very cold throughout. Additionally, heavy snowfall had fallen just after we arrived and this remained frozen for several months. The living room was long and narrow and it did not have a fireplace, so we had to heat the room with an electric fire, with a long extension lead. Fig. 10.1 shows a photograph of Station bungalow.



Fig. 10.1 Station Bungalow, Rampside.

In January 1963, we invested in our first television set; we had not realised what we had been missing during the previous two years. There was only one small shop in the village, which was more-or-less next-door. We could buy most regular items of food there, but if we required unusual items or buy clothes or shoes or see a doctor or visit the childcare clinic, we had to travel into Barrow. My wife could not drive at the time, so she travelled into Barrow by bus. The bus service was good.

I had to travel to work every day; I travelled with the aid of my three-wheeler. The road was a narrow country lane and it was covered in thick snow from December 1962 to April 1963. A particular problem that I had with my three-wheeler was that there were two tracks in the snow on which the four wheelers travelled quite happily. My back wheels fitted into these tracks very well, but my front wheel bumped along in the thick and partially frozen snow between these two tracks. The Reliant never let me down, however, but on some occasions I had to bump start my car with the help of my pregnant wife. On one occasion, I was driving along this lane when I noticed that a Royal Mail van had parked on the road on the opposite side and its right wheels occupied one of the tracks in the snow. I was frightened to brake in case I skidded, so

I decided to drive to the left of the road to avoid the van. This caused my car to swerve and I had to apply my brakes. The result was that my car spun round and round in the road, until it eventually came to a halt while facing in the opposite direction that I was travelling. Fortunately, my car missed the van, stayed on the road and did not touch anything else. There were no other vehicles on the road. It was a narrow escape, especially as we did not have seat belts back then.

As there was no gas in the house and the long living room had no coal fireplace and it was a long and cold winter, I had to have the electric fire on most of the day. The result of this was that at the end of that quarter, I received a huge electricity bill. Additionally, the university requested me to pay a bill of about £78- for my tuition fees for the third year, which I had duly done and I could not afford to pay my electricity bill. I was 'broke', so I explained the situation to my boss and asked him if Vickers would give me a small loan for a short time. Vickers agreed, but fortunately for me, Manchester University agreed that I can do my PhD in two years instead of three years, in retrospect and refunded me the £78- tuition fees that I had paid them earlier. I was lucky and since then I have never to get into that predicament again. We often visited the Lake District, especially Lake Windermere. Even in the 1962-'63 winter we regularly visited Lakeside on Lake Windermere. Figs. 10.2 & 10.3 show the frozen lake. We noticed that many of the locals were ice-skating on Lake Windermere, so I decided to walk across the lake from Lakeside. An elderly gentleman asked me if he could walk across with me; I agreed and both of us walked to the opposite bank and then we returned.



Fig. 10.2. Anne and Nicolette on frozen Lake Windermere – March 1963.



Fig. 10.3. Frozen Lake Windermere – March 1963.

During the summer months our relatives often visited us. Figs 10.4 and 10.5 show my parents and my family. Fig 10.5, which was taken in July 1964, shows my Dad was wearing his winter clothes, including his trilby. He always dressed like this throughout the year, except that in the winter he also wore his long Johns and thermal vest. Even when we went to Margate for the day at the height of summer, he would dress up. He would say, “You always judge a man by the clothes he is wearing”. One summer, Brian, Zee and her two small children visited us. We went to Lakeside and decided that we would hire a small motorboat. When we set off, I was at the rear end controlling the rudder and Zee was at the front end. We decided that we should change places and we stood up to do so. At the same time, one of the ships was driving past and its bow waves nearly capsized ‘us’, as we were parallel to this vessel. My naval architectural education came in handy, as I realised we had lifted the centre of gravity of the boat by both of us standing up, so I immediately sat down and Zee followed suit. The boat rolled to and fro, but fortunately it did not capsize. We were lucky as the consequences of a capsized boat with four small children who could not swim, would have been disastrous. I decided to stay at the rear of the boat and steer it. When the ships went past, I turned the boat so it pointed in the direction of the oncoming bow waves. Figs 10.4 and 10.5 show the two ships that travelled to and from Lakeside on Lake Windermere; one was called the ‘Teal’ and the other the ‘Swift’.



Fig 10.4. My Mum and Dad and my family at Lakeside.



Fig 10.5. My Dad at Lakeside – July 1964.

When I went back to Vickers, they made me a Deputy Chief of the Project Design Office and the Head of Stress Analysis. I had a small team, namely 2 stress analysts and ‘half’ a draughtsman. They were good workers. The draughtsman was in his

sixties. One of my stress analysts was in his mid-twenties and the other in his forties; I was in my late twenties. Our job was to stress anything that came our way within the Company. Most of our problems were on the methane carrier, namely the 'Methane Princess'; its sister ship the 'Methane Progress' was begun about 6 months after the 'Princess' was started. The 'Progress' was being built at Belfast. These methane carriers were the first to be built in the world and as our vessel was being built 6 months ahead of the 'Progress'; we met most of the snags and were required to solve them before the 'Progress' had to face them. This procedure enabled the 'Progress' to be built quicker than the 'Princess'. One of the problems was that these vessels carried liquid methane at a temperature of -263°F or -164°C . The methane was not refrigerated, but the tanks containing it were insulated with very thick layers of Balsa wood. The methane was allowed to boil and the resulting gas was used to assist in the propulsion of the vessel. The vessel had nine tanks and they were made of aluminium alloy. Each tank was built separately on land and when it was completed, it was launched and towed down to where the empty hull of the Methane Princess was docked. I was involved in designing a complicated lifting device, which raised these giant tanks on to dry land near the vessel. When ready, each tank was then lifted by this device into the hull of the 'empty' vessel. I designed the structure of this lifting device using 'hand calculations' as the relevant computer software to design these structures was not available then. At the time there was a minor row between myself and another group in the precise design of this lifting device. However, the senior staff agreed with me that my design was much safer than the other design and they informed the 'yard' that they had to build the lifting device according to my design.

On the morning when the first tank was going to be lifted, I received a phone call from the 'yard' that the lift was going to take place at 10.00am that morning and I was invited to witness this. A colleague of mine overheard my conversation and agreed to accompany me to witness the first lift. We arrived at the scene at about 9.30am and saw that the tank was being prepared for the final stages of the procedure. Sure enough, at precisely 10.00am the giant crane came into action and started to lift the tank out of the water. I was not too concerned at this stage. The crane's arm rotated in the arc of a circle and the tank was lifted to above dry land. The crane then stopped and the head of the sailor gang, who was out of harm's way, blew a whistle. Suddenly, and from out of 'nowhere' appeared the 20-strong sailor gang and they stood under the huge tank that was swinging above. My heart sank right down to my shoes and I started to worry whether or not I had got my calculations right. Why had I got into a row with the rival designers? If I had not got the calculations right, the lifting device might have collapsed and the entire sailor gang would have been wiped out and the tabloid press would have made mincemeat out of me, the so-called 'foreign' naval architect. About twenty women would have become young widows and about 40 children would have become orphans. At this stage my colleague said to me, "Carl I wouldn't like to be in your shoes now, if your lifting device broke!" It was at that moment that I matured; I realised from then that I would hold the lives and safety of many people in my hands for the rest of my working career. The sailor gang then worked under this mighty structure, laying out a wooden frame on which the tank was to rest, when it was eventually brought down to terra firma. Finally the sailor gang had completed their work and moved away from the giant tank, which was gently swinging in the light breeze. The tank was lowered safely to its berth and all was well. My calculations were correct; I had got it right. The lifting device was used successfully for lifting all the remaining tanks and probably for all the tanks for the

‘Methane Progress’, which was being built at Belfast. The ship was taken into service in 1964 and was scrapped in 1998. Thus, Vickers had made a good job of it as it lasted for 34 years. Pictures of the ‘Princess’ are shown in Figs. 10.6 & 10.7, where it can be seen what a good job the designers and builders had made of this beautiful vessel.



Fig. 10.6. Launch of the ‘Methane Princess’

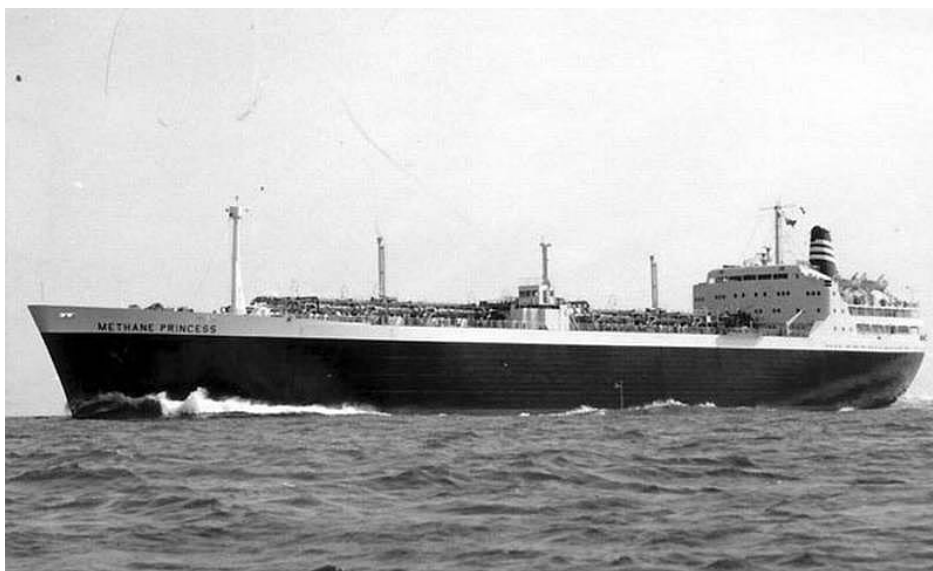


Fig. 10.7. The ‘Methane Princess’ at sea.



Fig. 10.8. Our 'nuclear' family – Lake District, Summer 1964.

As summer of 1963 approached we were required to find new accommodation, as our landlord wanted to refurbish Station Bungalow for his daughter, who was about to get married. We moved to 46 Hibbert Road, Barrow-in-Furness and shortly after we moved, we were blessed with the birth of our son Jonathan, who was born at 8.00am in June 1963. Our nuclear family was now complete and Fig. 10.8 shows our family, somewhere in the Lake District in 1964. Notice, even though I was not on duty, I was wearing a collar and tie.

Hibbert Road was near the Barrow Railway Station and when we first moved there, we could not sleep due to the noise of shunting trains at night. However, after a couple of weeks or so, we got used to the banging and clanging and had no problems sleeping. My wife took the children to the Child Care Clinic in Barrow, but this time we did not take any advice on feeding Jonathan. When, he cried, we gave him his bottle and we had very few sleepless nights with him. Just after the summer of 1963, we heard that our landlord and his wife had returned from Malta, where they had planned to emigrate. However, they found Malta too hot and the landlady was not in good health, so they returned to Barrow. They wanted their house back so we moved once again, this time to Farm Street in Barrow. On this occasion we had a three-bed roomed semi-detached house with a little garden.

Anne regularly went shopping with Nicolette and Jonathan in Barrow. Nicolette was a toddler, so she could walk, but Jonathan had to be pushed around in his pram. Most of the shops were small, so you could not take a pram into the shop, but you usually left your baby in the pram outside the shop. On one occasion, she left Jonathan outside the shop in the pram and went into the shop with Nicolette. When she did her shopping in that shop, she came out but clean forgot that she had left Jonathan sitting in the pram. She continued her shopping trip, minus Jonathan, until she suddenly

remembered that she had left him outside the shop. She immediately returned to the scene to find that Jonathan was still sitting there, quite happy and unperturbed. That was Barrow for you; it was quite safe in those days.

Vickers was pleased with me and I got a few pay rises, but I missed the research facilities of a typical British university; I missed the smell of the laboratories. I longed to get back to a British university.

Also, I saw some graphs of the decline of the British shipbuilding industry in a shipbuilding journal and I was somewhat alarmed. I predicted that the British shipbuilding industry would collapse when I was about 55 years old; this age was no age to change my profession. It turned out that my predictions were more or less correct, as the British shipbuilding industry did collapse round about 1990. By 1964, I was a reasonably experienced stress analyst, so I thought that I would seek employment in either a mechanical engineering or a civil and structural engineering department at a university. The only snag was that I would have been paid less at the bottom of the Lecturer scale at a university than what I was being paid at Vickers. This was not, however, true at the large colleges of technology, which were seeking university status at that time. Vickers were paying me £1500 p.a.; in the universities the bottom of the Lecturer scale was about £1300 p.a., but at the large colleges of technology, the bottom of the Lecturer scale was £1670 p.a. and they were due for a pay rise. I concluded that if I went to a large college of technology, not only would I get paid more, but as it expanded rapidly, my promotion would be much quicker than at a traditional university. Additionally, I had 2 degrees from top universities; both Newcastle and Manchester were later to become members of the famous 'Russell Group' Today the Russell Group consists of the top 19 research universities in the country. The snag was that I did not have any teaching experience, apart from delivering a solitary 3-hour lecture on "Ships' ventilation" to HNC students in naval architecture at Barrow Technical College. Mind you, I did enjoy delivering this lecture.

I applied to Chelmsford College of Technology; they rejected because I did not have any teaching experience. I applied to Rutherford College of Technology, Newcastle-upon-Tyne; they rejected me for similar reasons. Rutherford College of Technology is now known as Northumbria University. The Principal at Rutherford was particularly nasty towards me. He said sarcastically to me, "You got your PhD in December 1963, does this mean that you had to rewrite your PhD thesis?" and he started laughing aloud with derision. I replied "No. I started my PhD in January 1961 and therefore it was normal to finish it in December 1963". He also asked me why I did not want to teach naval architecture? I replied that I thought that the British shipbuilding industry was likely to collapse and because of this there were less prospects in naval architecture than in mechanical engineering. He disagreed with me and so to did a Newcastle shipbuilding representative who was on the interview panel; time proved them both to be wrong. Despite the setbacks, I decided to improve my interview technique, as these colleges put so much emphasis on the interview. At that time my interview technique was poor, as I had great difficulty in interviewing well in the cringing atmosphere of an interview. I then applied to Constantine College of Technology, Middlesbrough. The Principal there was a really nice person and so too was the Head of Department of Civil and Structural Engineering; the Principal's name was Dr. Houghton and the Head's name was Mr. Nicholson. My interview technique had improved, since my trips to Chelmsford and Newcastle; the Principal was pleased that I did my PhD in two years instead of the normal three years. He made a big issue of this in a positive manner at the interview. The interview panel offered me a full

Lectureship in Civil and Structural Engineering and they said that the local authority would probably give me a 100% mortgage as I had spent so long getting educated in a manner that was useful to my prospective employment with them. Constantine College of Technology is now known as Teesside University. I handed my notice in to Vickers; they were surprised at my move. I applied to the local authority at Middlesbro for a 100% mortgage and they very kindly granted me this. Vickers returned my contribution to their pension fund, which amounted to just over £100. In those days, pension rights were not transferable; you just lost your pension rights if you ended your employment with a private company; I lost 5 years of pension rights.

Chapter 11 – Teesside University.

My wife and I travelled to Middlesbro and visited an estate agent. We told him that we would like to buy a semi-detached house in a good area; he took us to Acklam. He drove us around and after looking at a few properties, we decided on buying 2 Cornsay Close, Acklam; the cost of the house was £3050-. The property was fairly new and was in good condition, but was badly decorated; we did not let the latter fact deter us from buying the property. It may have put off other people and this was why it was a good buy. The house was centrally heated and had a brick-built garage. It had both a front and a rear garden. The rear garden was quite long and backed on to a girl's school. Views of the house are shown in Figs. 11.1 to 11.3.



Fig 11.1 Front view of the house.



Fig 11.2 Rear view of the house.



Fig. 11.3. Rear garden of the house.

The estate agent was a bit concerned that we'd applied for a 100% mortgage, as these were very rare in those days. However, everything worked out fine and the house became ours. I think that my mortgage was about £24- per month; I paid the mortgage at the Town Hall in person at the end of every month. I could have afforded a better house but I was cautious, as I was about to completely change my profession. I was not sure whether I was going to like it or not.

Officially, I started work at Middlesbro on the 1st of September 1964 and duly reported to the College. They told me that term didn't start for about a fortnight and to go home and have a holiday. We took the opportunity of painting the outside of the house and it looked a lot smarter than it was. I could not prepare any of my lecture notes, because I did not have a timetable or any syllabi. This was because the Department didn't know how many classes they would run until after they had enrolled the students. When term started, the other lecturers spent the first week enrolling students and as I now had my timetable together with the appropriate syllabi, I started preparing my lectures. My first class was an ONC – S3 evening class in 'Applied Mechanics'. I prepared about three lectures in advance, however, during my first lecture, which lasted for three hours, I delivered all three lectures in the duration of a single period. This was because I was very nervous; the students sensed this. They started asking silly questions, despite the fact that they were mature students. Later I was to discover that all these students had failed their S3 examination before, some as many as eight times and they were a hotchpotch collection of previous failures from all round the surrounding area. They were being given their last chance to pass the S3 examination. In those days it must be emphasised that the S3 examination was an external examination and the college had nothing to do with setting it or the marking of it. Although these students were of mature age, many of them were emotionally immature. Most were older than me and they resented a younger brown skinned man teaching them. So I had a problem with them and was not happy. I wondered whether or not I would last to the end of term in

December? I decided to grit my teeth and to carry on and after a few weeks I had their respect; I was not beaten.

In contrast to this I had no problems with the first year students, who were studying the same syllabus as the S3's, on the College Diploma. These students were full-timers and they started about a fortnight after the S3's. They were about 10 years younger than me. Before I met this class, I was advised by the experienced lecturers to, "Start the class as you mean to finish it!" so I did this. The College Diploma students were better motivated than the part-time S3's and although they were younger they were more emotionally mature. I also taught the same subjects to a day-release ONC class, namely the O2's; they too were better motivated than the S3's and easier to discipline. I was pleased to see the end of term in December 1964 and I knew by then that I was well suited to this profession; I even had the S3's under control. I was particularly glad of the December break as I could get on with my preparation.

One particular problem was that there were no photocopying facilities at that time. To produce multiple copies of a handout, one had to use a Banda machine. To create your Banda stencil for the machine, you had to write on the Banda sheet, pressing very hard so that the back of the Banda sheet, under your pen 'line' would be suitably impregnated with a purple coloured coating of the semi-solid print from the Banda 'carbon'. You then had to rip the back off your stencil and place it into the Banda machine, ensuring that you had enough copying paper and that the Banda machine was suitably filled with the appropriate chemical. Rotating the handle of the Banda machine drum would produce multiple copies of one sheet. The process had to be repeated for the next master copy and so on and so forth. Additionally, you could only make about 300 copies per master copy before your stencil lost its powers to produce more copies. Thus, the other lecturers were reluctant to let you borrow their stencil because of its short life. This meant that if you were a new lecturer you had to produce all your tutorial sheets, together with any tests and laboratories you intended to hold. As a result, I was working almost continually during the first year; I had 14-hours/week 'class contact'.

Usually, I only had about 20 minutes for my lunch hour as I was preparing something for the afternoon. On one occasion, I only just managed to prepare my tutorial sheet before the afternoon session. I went straight into the classroom with my tutorial sheets. As I had just produced them on the Banda machine they smelt of solvent. I distributed the tutorial sheets to the students and one of them remarked that I had been drinking; I had not. I had not got the time to go to a bar. I ignored the remark because I was young and inexperienced, however, the student told a lecturer who was a teetotaler that I had been drinking. The lecturer attacked me verbally and when I pleaded innocence, he did not believe me. The student's remark got back to the Head and he gave me a most disapproving look. I was a young lecturer then and I was very vulnerable and I vowed then that I would never ever drink on duty. At the end of the academic year, I was very successful with both my externally examined O2 and S3 students. For the former I had a pass rate of about 84% and for the latter a pass rate of about 80%.

The academic year ended in early July 1965 and we got two months' salaries, one month being in advance for August. We had about a 9-week break and we decided to redecorate our house. When this was complete, our house was transformed from the shabbiest house in the Close to the smartest one. We were the only young couple in the Close and the neighbours were very pleased that we (the young couple) had transformed our house. I did a bit of gardening, as the soil was 'beautiful'. We

planted a selection of flowering plants together with a vegetable patch at the bottom of the garden. I bought a hand-driven lawn mower and I kept the lawns tidy.

As the summer vacation ended, I decided that I had the necessary teaching experience to apply for a senior lectureship. In October, such a post became vacant at Hatfield College of Technology; I applied for it and I was short-listed. I was preparing myself for the journey and the resulting interview, when a colleague informed me that a vacancy had arisen at the Portsmouth College of Technology for a senior lectureship in stress analysis. I thought that Portsmouth would be a better place to go to than Hatfield, as Portsmouth had the best success rate for the BSc London External degree examinations of all the colleges in the country. I immediately wrote to Hatfield informing them that I was no longer interested in their vacant post and at the same time, I applied to Portsmouth. I was short-listed for Portsmouth, the interview being in November 1965. I could only get unpaid leave from the Constantine College of Technology, so I decided to travel by the overnight 'sleeper' train down to London; this meant that I only had to take one day's unpaid leave. When I got to Portsmouth, I discovered that there were three other well-qualified candidates for the post. One was a former full-professor from Canada and one was a gentleman who was quite famous for inventing and patenting a kind of slide rule that could be used in two-dimensional experimental strain analysis. We were interviewed on the top floor of Mercantile House by the Principal, Vice-Principal, the Head of the Department of Mechanical Engineering and the Registrar. The Principal was Dr. Davey. The Vice-Principal was Dr. Parker and the Head of Department was Mr. Rees. All the four interviewers were fair; they asked me a number of different questions including technical ones. My interview was going well until Dr. Davey said to me, "Have you heard of Davey?" I replied, "Yes" to which Dr. Davey asked, "What is he famous for?" I replied, "For inventing the safety lamp used by miners", to which Mr. Rees said, "No! No! No! Not that Davey, this is THEE Davey". Dr. Davey continued, "Haven't you heard of Davey the tribologist?" I replied truthfully, "No." He then said, "Perhaps it is because that you are a solids' man?" To which I replied, "Yes". I realised then that Dr. Davey was an eminent tribologist and he was referring to himself and I should have taken the trouble of knowing something about the Principal of the college I was hoping to join. However, the World Wide Web had not been invented then! I said to myself, "You have blown it Ross!" However, Dr. Davey was bigger than that and he forgave me for not having heard of him before. The interview panel were impressed by three of the four candidates and instead of appointing one senior lecturer; they appointed three senior lecturers in stress analysis including me. Portsmouth did things in a big way in those days!

I was due to take up my appointment in April 1966 on a salary of £2000-. This salary meant that as far as income was concerned, I was now among the top 5% of earners in the country. In fact, the top end of the next grade, namely the principal lecturer grade, earned £2700- per annum; this was the same salary as an average medical doctor. For a number of years after my appointment we enjoyed these high incomes, partly because we were linked to the schoolteachers. The schoolteachers' salary was the same as an Assistant Grade 'A' lecturer and the next grade up from this was the Assistant Grade 'B', followed by the Lecturer grade. There were two more grades before the senior Head of Departments' Grade; these were in ascending order of merit: Senior Lecturer and Principal Lecturer. In fact these latter two grades often earned more than junior Heads of Department. However, after I had been in the post for a few years, the colleges' union decided to break away from the teachers' union and the salary linking to them, as the colleges' union thought that the colleges would

do better with pay rises than the schoolteachers would do. This proved to be a serious mistake, as the teachers had more bargaining power and got larger rises than the college lecturers for very many years. Today, the average university professor earns about £25,000- per annum less than the average Head Teacher! Additionally, the university lecturers' pay is now only just in the top 25% (first quartile) of the country's earners. Today, this loss in the race for earning power has affected the value of my relatively modest pension and there is no way to redress it now.

Chapter 12 - University of Portsmouth.

Portsmouth is the only island city in Britain. It is the home of Nelson's flagship the 'Victory' and Henry VIII's ship the 'Mary Rose'. It is also the home of one of Britain's earlier wrought iron ships the 'Warrior'. It has a number of maritime museums, including a submarine museum and several miles of coastland, together with good shopping centres. Thus, as it has a university and a coastline, it is quite a desirable city for an academic.

I joined Portsmouth in April 1966; the college was not a university at the time, but was seeking university status. Thus, it was recruiting top calibre staff on high salaries. When I reported for work on the first morning, the head of Department, namely Mr. Rees said to me, "If I have any trouble from you, you will be out! Out! Out!" I said to myself, "Good God, have I jumped from the frying pan into the fire?" Mr. Rees added, "I will not require you to lecture this term. I would like you to research and produce some published papers". He said this in the presence of the Deputy Head of Department (Mr. Jack Beanland) and asked Mr. Beanland to show me to my room. This was in far contrast to Constantine College of Technology, where I had to share a desk in the departmental staff room. I had my own room and I was free to research for 6 whole months on full pay! I was a lucky man! The college also had its own Elliot 803 digital computer, which I was encouraged to use. The programming language for this computer was ALGOL. My first two tasks were to learn how to program in ALGOL and to master matrix algebra. Most engineers were not familiar with matrix algebra at that time; in fact we asked the Professor of Applied Mathematics, of Kings if he could teach us this skill. The Professor's reply to us was, "Matrices are not of any interest to engineers; they are only of interest to mathematicians". How wrong was this great man, who was made an FRS for his work in applied mathematics. Some of the students at Kings had noted from published papers that computers and matrices were being used for structural analysis and this was why they asked the Professor such a question. I wonder how that generation of academic geniuses coped with computers and numerical methods when they became popular a decade later.

I bought a brand new house in Crookhorn Lane, Purbrook, Portsmouth (Figs. 12.1 & 12.2). When I went to see the house, the agent said that its cost was £5,500-. I 'ummed and arred' a bit and to my surprise he said that on that day the selling price of the house had been reduced to £5,000-. I said to him, "I will buy this house". He said, "How much deposit are you going to put down?" Now, in the case of selling the Middlesbro house, we did not use Estate Agents; we simply advertised the house in the local press for £3,750- and we sold it in the first week, so we had made a profit of £700-. Thus, we were able to put down a deposit of 10% and the agent was pleased. So we moved into our Crookhorn Lane house in April 1st, 1966. It was a detached brick-built house with three bedrooms. It had a large 'L' shaped lounge diner, together with a kitchen and a bathroom. It was partially centrally heated through the circulation of hot air produced by the burning of household gas. One of the first things we did was to update the heating system to a conventional fully gas centrally heated system. The three bedrooms were quite large and the house had front and rear gardens. One of the things that I found attractive about the house was that the local authority intended to move our college to the land opposite us. However, the Portsmouth Chamber of Commerce objected to this proposal and instead of building the college opposite us, the Portsmouth City Council built a large 'council estate' opposite. The effect of this was to devalue our property but there were no means of

claiming compensation. We just had to grin and bear it. However, the council estate was not to be started for about 9 years, so we had the advantage of having green and pleasant fields opposite us for another 9 years. A local company, which produced milk, used to graze their milking cows in the fields opposite. It was very pleasant for many years. The soil was quite good, but to save time on gardening, I planted quite a lot of shrubs along the edges of the back garden. We were not allowed to plant a hedge in our front garden, so I planted two silver birch trees to give us some privacy. I also planted some rose bushes in the front garden and these thrived very well for many years.

Fig. 12.1 Our Crookhorn Lane house – Front view.



Fig. 12.2 Our Crookhorn Lane house – Rear view



My first 6 months at Portsmouth were sheer heaven; Mr. Rees allowed me to do full-time research on a senior lecturer's salary, with no other duties whatsoever. I produced a theory for general instability of ring-stiffened circular cylinders under uniform external pressure (Fig. 9.9), which allowed the ring stiffeners to be of unequal size and to have irregular frame spacing. Also, the ring stiffeners could be both on the internal and external surfaces of the vessel at the same time. I also worked on the axisymmetric deformation (Fig. 9.10) of similar vessels. Up to now, both general instability and axisymmetric deformation theories were for circular cylinders to be stiffened by constant strength ring stiffeners spaced at uniform distances apart and all the stiffeners had to be either on the internal surface or on the external surface of the vessel. In practice such uniformity was seldom encountered. Thus, I had made quite an advance by producing these two theories, together with the necessary computer programs, which were required to solve the required mathematics. The theory for the axisymmetric deformation was particularly difficult and had not been solved before! I submitted the two papers to the Royal Institution of Naval Architects and they were both published in their transactions. In those days you had to get permission from your head of Department before you published anything and Mr. Rees was well pleased with my efforts.

The new academic year started in September 1966. Mr. Rees was keen that I continue with my research and he only gave me 6 hours/week of class contact. This light teaching load did not stress me, but I wanted to be the 'perfect' lecturer on every occasion; I was going to put the world right, like so many other teachers before me. I delivered my lectures with great gusto, trying to highly motivate my students. In those days we were running the following courses: BSc (London External), Dip. Tech., HND and HNC. In my first academic year at Portsmouth, I taught on all four courses. As I was teaching at a much higher level than I had done at Teesside, I had to prepare my tutorials, etc., on the dreaded Banda machine, with all its limitations. In those days we used foolscap size paper and problems were to occur in producing our tutorials, etc., in the near future when we were to change from foolscap to A4 sized paper. A4 sized paper was shorter and slightly wider than foolscap.

While I was putting enormous efforts into my lecturing, I was burning both ends of the candle by carrying out complicated mathematical theories in my research, in between lecturing periods. I worked day and night and also at weekends. I ate research, I drank research, I slept research, I dreamt research and I breathed research. I did not let a moment go without thinking about research.

The self-appointed load took its toll in July 1967, at the start of the summer vacation, when quite unexpectedly I suffered from an acute nervous breakdown. Now not a lot of people, including some psychiatrists know exactly what it is actually like to suffer from such a breakdown. When you have an acute nervous breakdown, you dream while you are awake. Now you know how realistic a dream can be, but when you awake, you realise that it is a dream and very often you say to yourself, "Thank God that was only a dream. But in the case of a nervous breakdown, you are already awake and you cannot distinguish between your dreams and reality. In my case, I hallucinated that the tabloid press were after me for some adverse publicity and they nicknamed me the 'Black Sassenach', which is Scots for a black Englishman. I hallucinated that the press was interested in everything that I was saying and that they had been spying on me throughout my adulthood. I believed that I had made the headlines in the tabloids in an infamous way. I was scared and thought that press were after me and that they had been publishing things about me and my family and

friends. I could actually see the headlines. Now, I had a gas pipe vent going through my bedroom and I thought that the press had placed a microphone on a wire lead into this pipe vent before I occupied my Crookhorn Lane House and that the microphone was bed high. I convinced Anne and some of my friends of my plight and most of them believed me that the press were after me. It was not until I told them that Prime Minister Harold Wilson had phoned me that they realised I was ill. I really believed that Mr. Wilson had phoned me. Anne was very distressed; she went to see the Doctor about me and Mr. Rees wrote to my Doctor. I thought wrongly that Anne was suffering from a nervous breakdown, when in fact it was I. The illness then started to take another form, I started to have grandiose hallucinations; I believed that the press awarded me compensation for what they had done to me and that I was now a rich man. I think that at this stage I was at my most dangerous point as I could easily have given away all my money. Incidentally, I was not dangerous to anyone and I was not violent. In fact, the bulk of people suffering from mental illness are not violent people. If they are, it is probably because they are hallucinating that their lives are under threat. Eventually, I went to see the Doctor; I said to him that if I told him of my recent experiences, he would say that I have gone mad. His reply was, "We do not call anyone mad these days, but you are suffering from an acute nervous breakdown". He asked a Psychiatrist to visit me; he was a young man of much ability. He told Anne to give me two tablets of Melleril per day; one in the morning and the other in the evening. He told her that when I got better, I would be a really 'nice chap'. Anne was only 27 years old and I was nearly 32.

I took the Melleril; it made me very drowsy and made me dream quite a lot during sleep. Sometimes, I had difficulty in distinguishing between real dreams and imaginary dreams, but the Melleril had the advantage that it confined me to bed; I was not a danger to anyone or myself. I didn't go to the hospital, nor did I receive electric shock treatment. I kept taking the Melleril and it quietened me down. The Psychiatrist was concerned that I was still hallucinating and asked me to come to the hospital; I refused. After about three weeks, I woke up one morning and realised that I had suffered from an acute nervous breakdown. I said to Anne, "So that's what it is like having a nervous breakdown", she replied, "Yes". It took me about three weeks to get over the worst of the breakdown; the Melleril was a wonder drug, but its side effect was to stop the production of seminal fluid. I got better every day and regularly took a stroll with the kids down to the local park. My body was getting used to the Melleril and I was gaining both physical and mental strength; soon I could drive into work. I could not deal with the mathematics, which had pushed me over the edge, for many months. Of course all this happened during the summer vacation and most of my colleagues were not aware of what happened to me, although Messrs. Rees and Beanland took a close interest in my progress. Jack. Beanland in fact visited me when I was better and Mr. Rees was very kind to me throughout. During this period, one of my papers was accepted for publication by the Royal Institution of Naval Architects (RINA), except that the RINA wanted better drawings. I was not fit to do these and informed Jack Beanland. Jack very kindly gave my paper to the College draughtsman who promptly carried out the necessary drawings and posted them to the RINA; the paper was published a few months later.

So what caused the nervous breakdown? Obviously I was vulnerable. I think it was caused partly by the savage verbal and physical abuse I suffered at the hands of my mother when I was a small child and partly by the fact that I suffered racial discrimination because I was an Anglo-Indian and partly due to overwork. The problem was that at that time, neither the Indians nor the British would accept an

Anglo-Indian. In the case of the Indians, one can sympathise with their views, because when there was civil unrest in India, the Anglo-Indians would help the British to put these down. Also, the Anglo-Indians had a different culture to the Indians, together with a different religion and they spoke a different language. In the case of the British, their indifference to the Anglo-Indians was less forgivable, as the Anglo-Indians had the same culture as the British and they had the same religions and they were educated in the same language as the British. In defence of the British indifference to the Anglo-Indians, the Attlee government had carried out an injunction on the British press to prevent the British press from publishing anything on the Anglo-Indian problem, so how could the British know that the Anglo-Indians were their kith and kin. After all, the Anglo-Indians were a product of colonialism. If colonialism had not taken place, I would not have been born. Also, my beautiful children and grandchildren would not have been born. I would not have met my lovely wife and the thousands of nice people that I have met.

The emphasis on working too hard, together with not playing too hard also, tipped me over the edge. In the past, I had played a lot of sports, especially in boxing and hockey and this is probably why I had not cracked earlier. So who has an acute nervous breakdown? All sorts of people can have a nervous breakdown, including geniuses. A well-known mathematician, who was the holder of a Nobel Laureate for his work got an acute nervous breakdown. A film has been made about this genius; it is called "A Beautiful Mind"; I advise all the readers of this book to view this film. I think that this great man still suffers a little with this disease; I do not suffer from it anymore. Professor Sir Isaac Newton also had a nervous breakdown; he was one of the best scientists that the world has ever produced. His illness may have persuaded him to give up his professorship (the Lucasian Chair of Mathematics) at Cambridge University and take up the job of being the head of the British Royal Mint. According to a book written by Paul Strathern on "Einstein and Relativity", Einstein had a nervous breakdown when he was about 16 years old; see page 14 of this book!

The new academic year started in September 1967; I informed the Psychiatrist and he decided to change my prescription to another drug. The tablet worked fine during the day, but in the evenings when it lost some of its concentration in my body, I felt uneasy and restless; I also dreamt a lot. I informed the Psychiatrist and he changed my prescription to two smaller doses of the same drug in spansule form, one to be taken in the morning and the other in the evening. The spansules spread the release of the drug more slowly into my body than did the tablets; they made me feel normal. When I first got ill, I knew something was amiss, but I could not work out what was wrong, so I took up smoking cigarettes. Anne also tried to take up smoking cigarettes, but fortunately for her she could not get on with this habit.

My first class after my illness was a post-HNC class in "Ship Structures", which because it was a part-time class, started in mid-September, some two weeks before the full-time classes started. I could not cope with teaching these post-HNC students and had to walkout after the first half-hour; I was very distressed. A colleague of mine took over from me for the remainder of that class and for the next meeting of that class, which was during the following week. I think that I was suffering due to the change of drug, but within a couple of weeks I was getting used to the new drug and in early October 1967, when the full-timers started I was eager to get back. I managed all my classes from that day onwards; the illness was never to return and today, even though I am over 71 years in age, I am still teaching university students. I still work very hard, but the difference is that when I feel stressed, I ease off. Additionally, since those days, I take an active role in sports. I think that the

previous paragraphs show that you can make a complete recovery if you suffer from an acute nervous breakdown, but you must correct the error of your ways.

During the first year after my illness, I had a constant 'dull' feeling in my head; I asked the psychiatrist how long would it take for this feeling to go away and he said, "About a year". During this year, I decided to teach myself the theory of the finite element method; this method is one of the most powerful mathematical methods in engineering science, especially for solid mechanics; it is not an easy method to learn from a paper. Prior to getting ill, I had learnt the matrix displacement method, upon which the finite element method is based. After work, I would take it steady and consult a paper on this topic; there were no books written on the finite element method at that time. After finishing the paper, there were a few questions, which had remained unanswered, so I went to visit an eminent mathematician on this topic at Southampton University. I only needed to spend an hour with him to sort out my problems with this topic and after this session, I felt sufficiently confident to write my own computer programs on this subject. By 1969 the University had invested in a much more powerful computer, namely the ICL 4100. With this computer, you could program in the computer languages ALGOL, FORTRAN and COBOL. It was a much more powerful computer than the Elliot 803. Additionally, you used cards instead of paper tape. Thus, if you needed to insert more lines of code, you just typed each line of code on a separate card and inserted the cards in the appropriate place in the deck of cards that contained the program.

Sure enough, the psychiatrist was right, because in August 1968, the dullness in my head left me. I was back to normal and the first thing that I did was to give up smoking. I gradually decreased the number of cigarettes that I smoked per day from 20 to 1, over a period of about a month and then I gave up smoking forever. Sometimes, I would dream that I started smoking again, but when I awoke, I was always relieved that it was only a dream.

When the academic year ended in July 1968, Jack Beanland made a jocular remark to me; he said, "I hope that it does not happen again. Remember, you took ill about this time last year!" It did not happen again and probably never will! The Psychiatrist was pleased with my progress; he said that I had made a remarkable recovery and that my determination to get better played a large part in my recovery. The Darkie was down; yes its true, he was down. He was down, but he was not out and now he was fighting back!

One can make a complete recovery from an acute nervous breakdown, if one changes their lifestyle. For example, in my forties, I played badminton; at one time I played at three badminton clubs. In my fifties I became a long-distance runner; I ran many half-marathons. I joined the 'Portsmouth Joggers'; this was one of the best clubs that I have ever joined. The runners varied from slim young athletes to middle-aged and overweight plodders like me. Also, some of the runners had disabilities; all were welcome. One person that I would like to play tribute to is Dave Byng; his enthusiasm made me conquer many 'heights', one of which was the Pigeon House Lane; without stopping! He encouraged me to run many half-marathons and 10 k's (6.2 miles); he even trained Anne to run the London Marathon in 1991, a distance of 26 miles-385 yards (42.2 km), in a time of about 4hr-50 mins; she was 51 years old at the time! Figs 12.3 & 12.4 show some pictures of the Portsmouth Joggers' after some races.

Fig. 12.3 Me, Nicolette & Anne, (L to R) 26/07/1987
—‘Marwell 10 k’
(6.2 miles).



Fig. 12.4 Portsmouth Joggers at Bruges, Belgium, Front Row from R to L – Me, Anne, Dave Byng, Wendy Byng, Marilyn, Phil (Our volunteer Tea Lady) & Maureen Jones. 22-06-1992

Today, I play English Bowls, both in the summer and in the winter. I belong to the Havant Indoor Bowling Club and the Cowplain Bowling Club. At this point in my book, I must pay an enormous tribute to Anne; without her support I may not have

been able to make a success of my life. Fig 12.5 shows Anne and me winning one of the Cowplain Bowling Club titles and Fig. 12.6 shows ‘Me in action’.

Fig. 12.5 Anne & Carl--’Champs’
Summer 2005.



Fig. 12.6 Carl the bowler -- Summer 2005

Unknown to me the Royal Corps of Naval Constructors were holding a conference on submarines in Malta in 1970. They wanted a speaker from our college to deliver a

lecture on 'Submarine Structures'. Obviously they wanted me, because I was the only one at the college who had worked on submarine structures; all the other 'structural engineering' lecturers were from the aircraft industry, including Rees and had never had anything to do with submarine structures. Unfortunately, however, there was only one telephone in the Department and this was in Rees' secretary's office, so she passed the message on to Rees. Rees decided that he would go and asked me to write a paper on the topic. As I didn't know this conference was on, I could not understand why Rees was so interested in my work. Anyhow, I wrote the paper and handed it over to him; he called me to his office and repeatedly questioned me about my work, so that he could prepare himself to deliver the lecture. Unfortunately, Rees died in the summer vacation of 1969. However, a fluids' lecturer in the Department got to know about this conference and unknown to me delivered the lecture. The fluids' lecturer knew very little about submarine structures and apologetically informed me of what he had done after the event.

One incident that stands out in my mind during the Rees era was as follows. It appears that a senior member of staff from another section wanted a specialist technician to do a job for him; the specialist technician was in Rees' department. The senior member of staff approached the technician directly and explained what he wanted. Unfortunately the technician was conducting a laboratory class at the time and could not deal with it immediately, so he requested the senior member of staff to see him later. The senior member of staff was upset by the technician's action and reported the matter to Rees. Rees was furious with the technician and called a staff meeting immediately after the classes had finished for that day; it was a 'three line whip'! The academic staff did not know why Rees had called this urgent meeting, but all attended, without protest; we sat in silence, waiting to listen to Rees. Rees walked into the lecture theatre and made for the podium. He looked at us sternly and said, "Gentlemen. I will not have it! If the Principal tells you to jump, you will jump! If I tell you to jump, you will jump. If any Head of Department tells you to jump, you will jump and quick! Willy nilly!" Rees then went on to berate us in a tirade of words that would have matched the verbal dexterity of any orator for about half an hour. We all listened in complete silence. That was Rees. He was too good to be a Head of Department.

Before Rees passed away, he provided me with a test tank that I had designed to withstand a pressure of 3000 psi (208 bar)! The design of the tank was similar to that shown in Figs. 9.6 and 9.7. It was a small tank and its cost was £300-, but Rees could always get you the money you required to do your experimental work. Portsmouth always did things in a big way in those days! There was always money around. Before he died, Rees said to me, "Dr. Ross; I hope that you will use this tank and that it will not gather dust in some dark corner of your laboratory". I certainly have made extensive use of this pressure vessel; even today we are using it for studying the strength and vibration of novel model submarine pressure hulls. Mr. Denzil Rees was a great loss to the university; he sacrificed his life for the good of the university; he died at 46 years of age! The university has acknowledged his great contribution by naming one of the students' halls of residence after him, namely 'Rees Hall'. Rees was a very articulate and charismatic character; you either liked him or you hated him. He could talk the hind legs off a donkey. I liked him and he liked me because I was a hard worker who produced the goods. Shortly after he died, I was attending a faculty dinner for the dons; we were talking about Rees and how he would be organising things in heaven, when I stood up and toasted the memory of Denzil Rees. I raised my glass high and said, "To the Archangel Denzil Rees! For surely, he will

be doing great things up there". The whole table stood up and chanted in unison, "Denzil Rees".

About this time, I was doing some theoretical and experimental work on the general instability of ring-stiffened circular cylinders under external pressure (Fig. 9.9); I was using my new tank and the departmental workshop had manufactured three model submarine pressure hulls for me. I had written a computer program in ALGOL for the Elliot 803 computer to carry out this analysis. As I was operating the program myself, I did not bother to output the input; this later proved to be a mistake as you cannot be sure what data you have inputted. A final year undergraduate was working for me together with an experimental officer. I handed over the paper computer tape to the student and told him to run the program for the three vessels. However, on reading the results, I noticed that the student had not output the input. I told him to do this, but he didn't. I reminded him again and again to output the input but he did not; instead he took it as an insult that I did not trust him. Eventually after we experimentally tested the vessels, I forgot that he had not output the input. That is we did not know what data he had fed in. Comparisons between experiment and theory were excellent and we thought that we had made a major breakthrough; we offered a paper to be published in the Transactions of the RINA and it was accepted. In the meantime the student had graduated and commenced work in industry. After the student had left and the galley proofs of the paper had arrived on my desk, I suggested to the experimental officer to check the student's data input. To my surprise, the experimental officer found that the student had input the diameters of the vessels instead of their radii and the ingenious interpretations that I had made of our results were complete rubbish. I immediately informed the RINA of the blunder and requested them to withdraw the paper, which they duly did. One must remember that in those days word processors did not exist and the paper had to be set by compositors into metal plates; it was a very laborious and expensive process. I decided that the only way we could save face with the RINA was to make another thinner model, but this time in high-tensile steel. Rees had died and Jack Beanland was the Acting Head of Department. Beanland agreed and the model was carefully machined in the workshop. We tested it and ran our computer program, but this time the program paper tape was modified to print out the data input. We achieved what we were looking for and the modified paper was published in the transactions of the RINA.

Just after this incident the Department's first Readership post was offered. Three of us, including myself were short-listed for this post. All three of us were already Principal Lecturers with the same salary as that of a Reader, but the holder of the post of Reader could spend more time concentrating on research. Thus, for researchers, it was a much sort after post. I did not get the job and many of my colleagues blamed my withdrawn paper for my failure to get the readership.

About his time a vacancy occurred at Southampton University for a Lectureship in Ship Structures. I applied for this post and was short-listed together with another candidate. I went for the interview and was the first of the two candidates to be interviewed. Before the interview started one of the interview panel said to me, "You are a Durham graduate, but we contacted Durham University and they haven't heard of you". I pointed out to them that whereas I was a Durham graduate, I graduated at the Newcastle Division of Durham University, which had broken away from Durham University and which now called itself Newcastle University. I added that my records were kept at Newcastle and not at Durham. He then said, "That's alright, but Manchester haven't heard of you either". I said to him, "Did you contact the University of Manchester Institute of Science & Technology (UMIST)?" He replied,

“Yes”. I then informed him that I had no connection with UMIST and that I had graduated at the Victoria University of Manchester. He then said, “But your degree was in engineering”, to which I replied, “Yes, but Manchester has two departments of engineering, which are completely separate” I added to the Professor, who was a fluid’s man, that, “You have heard of Reynold’s Number? Where do you think that Reynold’s number was invented? It was invented at the Victoria University of Manchester and not at UMIST!” This was not the way for an interview to start, but I gritted my teeth and soldiered on, and despite the apparent slur that I had just suffered, the interview went well, but the other candidate got the job. Later I was to discover that the other candidate was a ‘friend’ of the Prof’s and that a few years earlier, the Professor had attended his wedding! Southampton must have changed their opinion of me since, because long after that interview, they asked me to referee the suitability of an eminent person for the award of an earned higher doctorate! I have no regrets in not getting the job at Southampton because I have been happy at Portsmouth.

A new Head of Department had arrived to replace Rees; he was to stay for 15 years. I did not get on very well with this head as he often gave me the responsibility to carry out a task but not the authority to do so. Additionally, if things went wrong as a result of his sub-ordinates carrying out his instructions, he effectively ordered his sub-ordinates to carry the can. For example, I always took the final year honours’ class in “Continuum Mechanics” and a colleague of mine always took the final year “Continuum Mechanics” class at ordinary degree level. One year the Head of Department suggested that I swap classes with my colleague, so that I took this subject at ordinary degree level and my colleague took this subject at honours’ level. Now the problem was that my colleague was not familiar with “Continuum Mechanics” at final year honours’ level and as a result of this, the final year honours paper in “Continuum Mechanics” that he set was of a lower standard than the final years ordinary degree level that I set. The Head of Department ordered me to lower the level of my paper, so that it was not of a higher standard than its counterpart at final year honours’ level. I did so reluctantly, as it meant that I had to rewrite the whole 3-hour paper, together with its model solutions. Anyhow, I lowered the level of my paper in a positive manner and without malice. However, when the exam results came out the final year honours students in “Continuum Mechanics” had a ‘normal’ average and my final year Ordinary students averaged over 75%. At the examinations’ board, I was criticised by the external examiner for setting a too easy paper and my Head of Department kept silent and made me take the blame for this. This was in stark contrast to Rees who said to me, “If a chill wind blows, I am not afraid to face it” If Rees gave you an order and as a result of you carrying out his instructions, things went wrong, Rees would quite happily carry the can. From then on until I retired, I took the final year honours topic in “Continuum Mechanics”. The head had his good points, however, and he was not a nasty type of person and he was a very good engineer.

The Department had grown to about 55 academic staff and one would have thought that such a large department could afford another Reader. However, the Readers had formed a college research committee, which passed a resolution that there could only be one Reader per department. This rule was to stay in place for about 10 years, when the polytechnic passed a resolution that professors could now be elected. Our Departmental Reader was now appointed to the post of Professor and the post of Reader became vacant. I applied for this post and became the Reader in Applied

Mechanics. I was only the second Reader to be appointed in the Department's history.

During this period of 10 or more years I was the most prolific publisher of Journal papers in the department. Some of my papers were experimental and some theoretical and to help me to realise the latter, I used the Polytechnic's new computer, namely the ICL 2960. This computer cost about £800,000- and it needed a large team of highly skilled technicians to operate it. I also published 7 booklets with DATA (The Draughtsmen and Allied Technicians Association), later to become TASS (The Technical And Supervisory Staff Association). One of these books, namely "Matrix Algebra for Engineer and Technicians" became a 'best seller'. For my first booklet, I received a fee of £50-, but for subsequent books, I received a fee of £400- per book. This was quite good, because at that time a 'two-up two-down' terraced house in Portsmouth cost about £1200-. In 1981, I published my first book on 'Computer Programs for Skeletal Structures'; it sold out. In 1982, I published my second and in 1984, I published my third; they too sold out. To date, I have published 20 books and 9 booklets and the vast majority have sold out.

In 1987, I published three of my major works, two were on inventions and a third was on the vibration of thin-walled domes under external water pressure. In this last paper, I had first identified a problem in 1975. I argued that if a rubber band is put in tension, its bending stiffness increases and so to does the magnitudes of its resonant frequencies. Similarly, if a violin string is made tighter, the magnitudes of its resonant frequencies increase, because it is in tension and increasing tension would make its bending stiffness increase. I further stated that the opposite would happen to a submarine pressure hull as it dives deeper and deeper into the water. I argued that as the submarine pressure hull dived further into the water, the external pressure acting on the hull would increase. This would cause the compressive stresses in the hull to increase, causing the circumferential bending stiffness to decrease. The result of this would cause the resonant frequencies of the hull to decrease and the shape of the circumferential vibration mode happens to become similar to the buckling mode shapes (See Fig. 9.8). The result of this interaction between vibration and buckling can cause the pressure hull to collapse at a pressure much lower than that predicted by traditional buckling theory. I theoretically proved my view in 1975, but it took me twelve years after this to obtain the full proof; it was a long job, but we had the lead on this topic!

One of my proudest achievements at Portsmouth has not been in science or technology but in the way I dealt with a problem that a Chinese Malay student had. This student came to see me one winter's evening. He knocked on my office door and said, "Sir, can I see you?" I had just put on my jacket and I was about to leave my office, so I said to him, "What do you want to see me about?" He replied, "I can't sleep", so I said to him, "Why don't you go and see your doctor?" He said, "I have seen my doctor" to which I replied, "What has he done about it?" The student said, "He has given me some sleeping tablets" and I questioned him, "How do they affect you?" The student said, "Now I sleep during the lecture, but I can't sleep at night" I knew then that the student thought he was going 'mad', so I took my jacket off and I invited him in. I realised that he was very disturbed, so I decided to reassure him that he was not going 'mad'. I related to him that many eminent people, including Sir Winston Churchill and Margaret Thatcher only took a few hours sleep per night and that they held down very demanding jobs. I then questioned him of how he conducted his life in the evening. He told me that during weekdays, he did his college work from 9.00pm to midnight and then he would retire to bed. I realised that this was his

problem, so I told him to do his college work from 7.00pm to 10.00pm and then to go for a jog along the Southsea promenade for about an hour or so. I said to him, "After you have completed this jog, take a shower and make sure that the shower water flows down the back of your head; this will relax you. After this, do not look at your books again that evening; just go to bed. When you have gone to bed, don't count sheep! Think of beautiful things, including pretty girls!" The student visited me again a week later and he said, "Sir, you have cured me!" The student was truly grateful. He had come from a distant land with a different culture and he had no father figure, except for me to turn to; this I consider to be one of my greatest educational achievements!

I helped many other students who had personal difficulties. Often I would just listen to their problems, without suggesting a solution and very often this enabled them to put their problems into context and cope with the situation.

When Anne had left grammar school at the age of 16 years in 1956, she left with 4 'O' levels. She decided that she needed the fifth 'O' level to further her career; she obtained this 'O' level in geography in 1969 via a correspondence course. She then decided that she would like to become a schoolteacher and applied to the Portsmouth College of Education; they said that she needed to pass an 'A' level, so in 1969 she enrolled for an 'A' level in art at the local technical college. She passed this in 1970 and once again applied to do a teacher's training course. This time the college said that she needed a second 'A' level, so she enrolled for another 'A' level in History in 1970 at the same local technical college. She passed her 'A' level in history in 1971, together with an RSA in arithmetic. She then trained full-time for three years from 1971 to become a junior schoolteacher; she graduated with an external teacher's certificate from Southampton University in 1974. This was a remarkable achievement, as she did this without the help of any of our relatives, as none of them lived nearby. In September 1974 she started working as a junior schoolteacher and our standard of living rose very rapidly and we moved into a bigger house in 1976. Our two children were now going to senior school and we had taken 'root' in the Portsmouth area.

Chapter 13 – My Inventions.

My research work is my hobby and I get paid for it! In this chapter I will describe some of this work carried out by me over a very long period, as this work is very important to me. If you do not like science, you can skip this chapter! Understanding the remaining two chapters is not dependant on reading this chapter.

I made great strides in my research into submarine structures. I enjoyed good health and I worked very hard on this and during the earlier years, this research included new mathematical theories that were more reliable. Up to this period, my research was largely mathematical, with me producing a large number of mathematical theories for various problems in structures. I was a theoretician. However, after I was about 40, my ability with mathematically innovative theories started to dwindle. Mathematical researchers often experience the best of their mathematical innovations before 40 years of age. I began to lose the cradle marks of my education and this resulted in me switching my research from a mathematical one to one involving my inventions and conceptual designs; some of which are now described. In 1987, I invented the circular corrugated pressure hull and with mathematical models, together with my own computer programs, I showed that these vessels were structurally more efficient than conventional ring-stiffened pressure hulls. A typical vessel is shown in Fig. 13.1. I got the idea from a corrugated Nissen hut and the Anderson Air Raid Shelter of the 2nd World War.

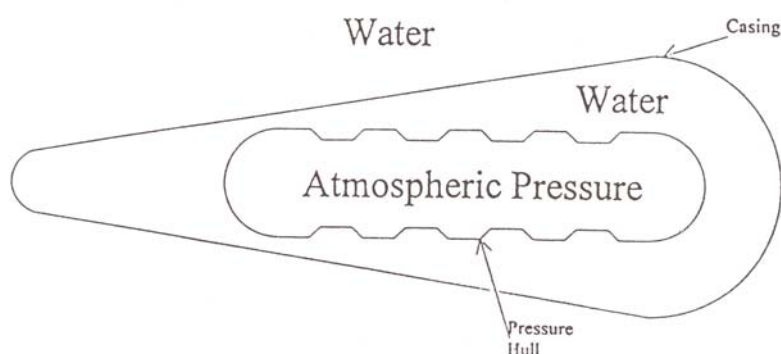


Fig. 13.1. My Corrugated Pressure Hull.

In my paper, I argued that because submarine pressure hulls tend to buckle about their circumferences (Fig. 9.8), ring-stiffeners are usually used to avoid this mode of failure (Fig. 9.5). Similarly if a circular cylindrical vessel is corrugated as shown in Fig. 13.1, it can resist shell instability because the circular cylindrical sections can act in a similar manner to the flanges of a rolled steel joist (RSJ) in bending. If you represent the cross-section of an RSJ as the figure 'I', then the vertical plate of the 'I' is called the web and the two horizontal plates at the top and bottom of the 'I' are called the flanges. This is why an RSJ is sometimes called an 'I' beam. Now in the case of the RSJ, its web contributes only a little to bending resistance and this is why the web is

thin. In contrast, the flanges contribute the most to resist bending and this is why they are wide and thick. In the above figure, the circular conical shell elements can be said to act as webs and the circular cylindrical elements as flanges. I tried to get the paper published in this country but failed to do so. I decided that the reviewers of the paper here did not have the imagination to understand the concept, so I sent the paper to the topmost ship research journal in the world, namely “The Journal of Ship Research” in the USA, who published it without alterations. The Americans loved my paper and were full of praise for my contribution.

However, the doubters still attacked me; they said that the vessel will buckle like a concertina or a bellows due to the axial pressure, but I was not a fool, I knew this could happen if the half-cone angles were too large. The half-cone angle is the angle that a horizontally lying cone makes with its horizontal axis; see Fig. 13.2.

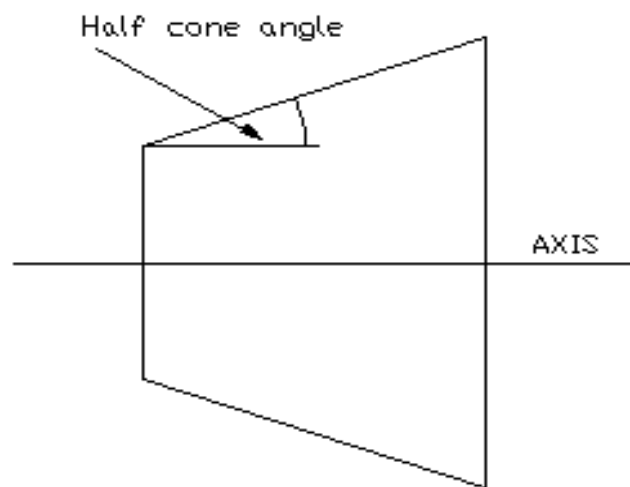


Fig. 13.2 Horizontally lying cone.

In my paper of 1987, I realised that for the full-scale vessels I used for demonstration purposes, the half-cone angle must not be greater than about 26° . I knew that if the half-cone angles were larger than this, the pressure vessel could collapse like a concertina or a bellows; in any case my computer program ‘told’ me that.

I was wondering how I could silence the doubters and one morning my wife asked me to feed the cat. I opened the tin can and as I was scooping the cat’s food out, I noticed that the tin can was corrugated. My eyes lit up and later that morning I took the empty tin can to our Metrology Laboratory, where I asked the technician to measure the half-cone angle; the technician found that the angle was about 12° ; I knew then that I could prove my theory. Fig. 13.3 proves that if the half-cone angle is not large, the vessel does not collapse like a concertina, but collapses through general instability.

To show that this was not a fluke, I tested several more corrugated vessels, as shown in Figs. 13.4 and 13.5; all these vessels collapsed by general instability or axisymmetric deformation and not through bellows’ buckling.



Fig. 13.3. Collapsed Corrugated Vessel – MBS 1.

Fig. 13.4. Corrugated
Vessels –
Before Collapse



Fig.13.5. Corrugated
Vessels –
After Collapse.



The doubters still came back; this time they said, “Alright, you have proven that the vessels will collapse through general instability and not through bellows’ buckling, but how are you going to make these vessels?” This time I replied by presenting the mode of construction shown in Figs. 13.6 & 13.7. The design came to me from an idea by Smith of the Naval Construction Research Establishment (NCRE) of Dunfermline. The doubters were now silenced! You can see from Figs. 13.6 & 13.7 that the vessel can be constructed by several truncated circular conical shell elements, joined together in series. The approach of building the submarine in sections and joining them up appears to have been adopted in the recent building of the ‘USS Texas’, a state of the art American submarine. As the philosophy in the building of this submarine was to build it from the ‘Outside-In’ rather than the traditional method of ‘Inside-Out’, the submarine can be more easily updated with future technological advances; this can be done by simply removing and then updating a section of the submarine, prior to replacing the section or even lengthening it.

My view about the corrugated pressure hull is not that it will replace the ring-stiffened pressure hull, but that it will complement it. It is extremely unlikely that the former will replace the latter, because the latter has proved popular since the 19th century when it was invented by John Holland; an Irish-American schoolmaster, see Figs. 13.8 & 13.9. Vickers of Barrow-in-Furness built this vessel in about 1900. The ring-stiffened pressure hull has been used very successfully throughout the 20th century and no doubt will prove popular for many years yet. In certain cases, such as for tunnels, under-soil tubes, silos and immersed tubes, the corrugated vessel may prove to be superior.

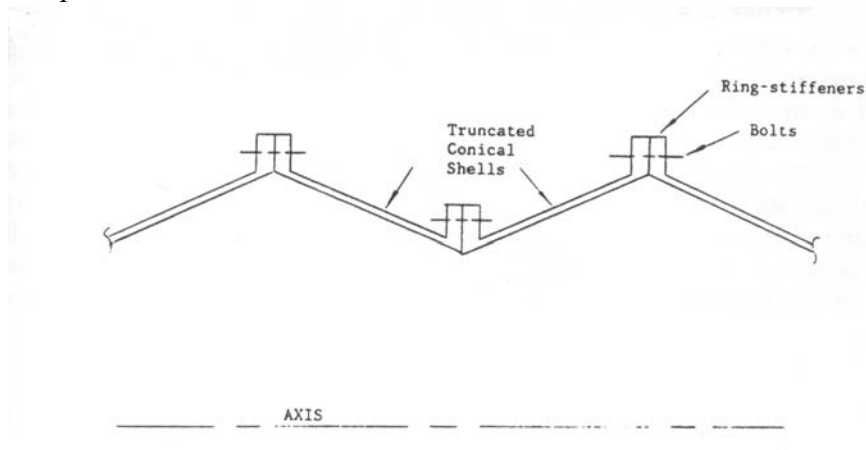


Fig. 13.6. A truncated ring-stiffened corrugated pressure hull.

Fig. 13.7 A Ring-Stiffened Corrugated Pressure Hull.

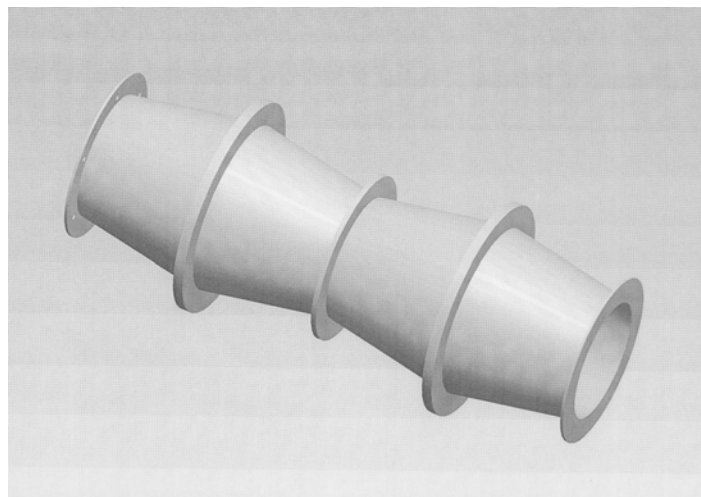




Fig. 13.8. The 'Holland' submarine; built at Barrow, about 1900.



Fig. 13.9. Inside the 'Holland'

Another problem that bothered me for years was the conventional end dome caps used for submarine pressure hulls, as shown in Fig. 13.10.

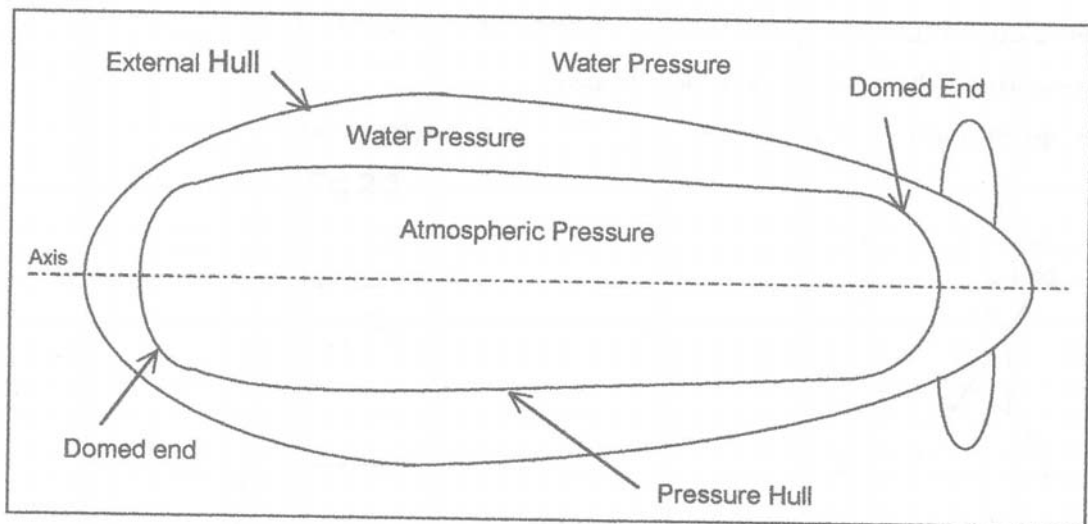


Fig. 13.10. Dome ends of a submarine pressure hull.

The problem is that if the dome end is in the form of a flat obloid form, it can buckle with its nose denting inwards as shown in Fig. 13.11. If it is in the form of a tall prolate dome, it can fail through shell instability, as shown in Fig. 13.12; hemispherical domes buckle in a similar manner to tall proloidal domes, as shown in Fig. 13.13.



Fig. 13.11. Buckling of an oblate hemi-ellipsoidal dome.



Fig. 13.12. Buckling of a prolate hemi-ellipsoidal dome.



Fig. 13.13. Buckling of an hemispherical dome.

The trouble with conventional dome ends is that they are doubly-curved and it is difficult to construct large versions of them very precisely. The problem is worsened because if they have slight geometrical imperfections their ability to sustain external pressure is considerably lowered, so how can we get over this? Fig. 13.14 shows how I think we can get over the problem of constructing large domes very precisely and not at an enormous cost. In Fig. 13.14, the dome ends are made concave to the effects of external pressure, whereas in the case of conventional dome ends, the dome ends are convex to the effects of external pressure. I got the idea from a beverage can.

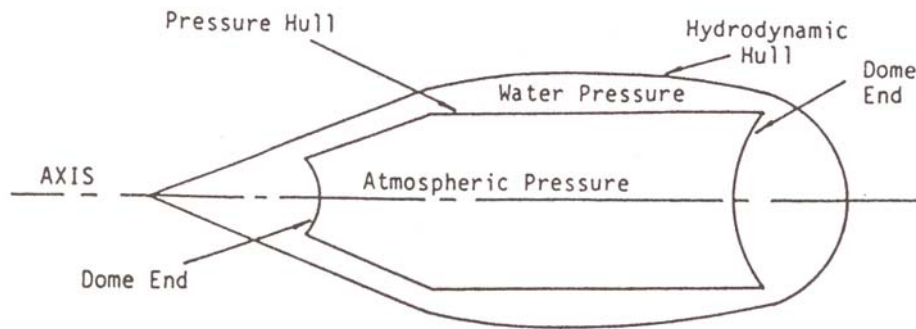


Fig. 13.14. Submarine pressure hull, with inverted Dome ends.

In the case of the dome ends of Fig. 13.14, under external pressure, these vessels will be in a state of tension and therefore they are unlikely to buckle, as shown in Figs. 13.11 to 13.13. I nicknamed the conventional dome a dome cap and the dome of Fig. 13.14 a dome cup. Additionally, the dome cups need not be made as precisely as conventional dome caps, because as the external pressure increases the initial out-of-circularity of the dome cups decreases and the dome cups will become more circular, rather like a balloon being blown up. This is in contrast to the conventional dome cap; where an increase in external pressure will make the initial out-of-circularity grow with the increase in pressure. Eventually the out-of-circularity becomes so large that failure takes place at a much-reduced pressure than that for an initially perfect vessel. Theoretical and experimental studies by me on dome caps and dome cups showed that the latter were structurally more efficient than the former, especially if the wall thickness were increased at the joint between the dome cup and the circular cylinder. Other researchers have stated that the Achilles's heel of the dome cup is its joint with the circular cylinder, but I think that this can be overcome by welding a thick insert ring at this joint.

In 1987, I applied for a professorship at Portsmouth, but I was rejected, despite the fact that at that time I had published 6 successful books. I don't think that it was racial; I think that it was political. The principal lecturers were very angry at my rejection and they informed the Principal of the Polytechnic of their dismay. The interview panel ridiculed my corrugated pressure hull despite the fact that none of them were qualified to judge it. At that time, I had not done the work on the experimental collapse of corrugated vessels shown in Figs. 13.3 to 13.7. Had this work been done at the time of the application, the result may have been different. They also said that I had not organised an International Scientific Conference, but most of the other professorial appointees had not done so either. In any case it was very difficult for a polytechnic lecturer to organise an international scientific conference as polytechnics were effectively teaching universities. I think they thought that if they had made me a professor, I might have wanted to apply for a senior post within the university, but I was not interested in joining the senior

management. I was only interested in becoming a professor so that I could continue my teaching and research, which I enjoyed. I loved being at the ‘chalk face’ and joining in with the experimental research in the laboratories; I was not afraid of rolling up my sleeves and operating the hand-operated pressure pump. My right hand is responsible for imploding to destruction, hundreds of pressure vessels!

My morale was very low when I was rejected for the professorship, so I sought early retirement in 1987; the authorities rejected this. Throughout the next year, my morale remained very low and in 1988, I once again applied for early retirement; on this occasion it was granted. I was only 52 years at the time and I needed to work part-time to enjoy the same standard of living as I had when I was working full-time. The Department tried to replace me but they failed and asked me to come back to teach part-time. Additionally, I applied to the Mechanical Engineering Department of the University of Surrey for a part-time lecturing post and I was successful. Thus, I had a pension and two part-time jobs. Additionally, I did not have to pay National Insurance contributions on my pension and I did not have to pay superannuation on my pension or my two part-time jobs; I was much better off financially than I had ever been. I held the job at Surrey for 5 years and at the age of 71 years I am still working part-time at the University of Portsmouth. On some occasions, I would deliver a lecture at Surrey in the morning and I would then drive down to Portsmouth to deliver exactly the same lecture in the afternoon. I was happy and my morale was raised. Also, I was publishing at an even faster rate, because I was able to do more research at Portsmouth as a part-timer than I was previously able to do as a full-time Reader. As a Reader I sometimes attended 5 meetings per week; now I was hardly attending a meeting a month.

I was happy and in 1992, I was awarded an earned DSc by the CNAAB in London. Fig.13.15 shows a photograph of HRH Princess Anne awarding me my DSc. I was the only person in the polytechnic to have gained an earned CNAAB DSc and as the CNAAB was being disbanded that year, because the polytechnics were becoming universities, I am the only person in the history of Portsmouth to have received an earned CNAAB DSc. The earned CNAAB DSc was particularly difficult to get because you submitted cold; there was no old boy network operating. My submission had to be approved by three reviewers, unknown to me and their affirmative decision had to be unanimous.

Shortly after, the polytechnic became a university and they were embarrassed that they had the holder of an earned DSc working for them as a part-time lecturer, so they invited me to apply for a professorship. This time I had fulfilled one of their previously unfulfilled requirements, namely that I should have helped organise an International Conference. In fact, I had helped to organise two International conferences, one in the USA and one in France. Additionally, I was on the Editorial Board of a number of International conferences. I was made the Professor of Structural Dynamics in 1993 and I delivered my inaugural lecture on 1st December 1994. The title of my inaugural lecture was “The Silent Submarine”; it is published on my website (<http://www.mech.port.ac.uk/CTFR/index.html>).

Fig. 13.16 shows me with the Pro-Vice-Chancellor, namely Malcolm McVicar just prior to delivering my Inaugural lecture; about 100 people attended.

stress in a circular cylinder is about twice the value of its longitudinal stress and in any case, submarine pressure hulls tend to collapse around their circumferences. Harris tried to patent the invention with a well-known company in the Newcastle area but he was unsuccessful. We argued that if the tubes were filled with a liquid or gas and the tubes were subjected to internal pressure, the tubes would swell outwards, pushing the submarine pressure hull outwards. This would somewhat negate the effects of external water pressure on the hull of the submarine, which would push the submarine pressure hull inwards and the submarine pressure hull could thus be made intelligent. The tubes could be filled with oxygen and hydrogen or methanol, so that a fuel cell could be used to produce electricity. The fuel cell makes a negligible noise, thus we have created a silent monster of the deep. Additionally, as the fuel cell converts the oxygen and hydrogen into electrons and water, we do not have to discharge the remnants of the spent fuel. We tested our idea both experimentally and theoretically and found that it worked. I understand that the tube-stiffened pressure hull has now 'gone classified'.

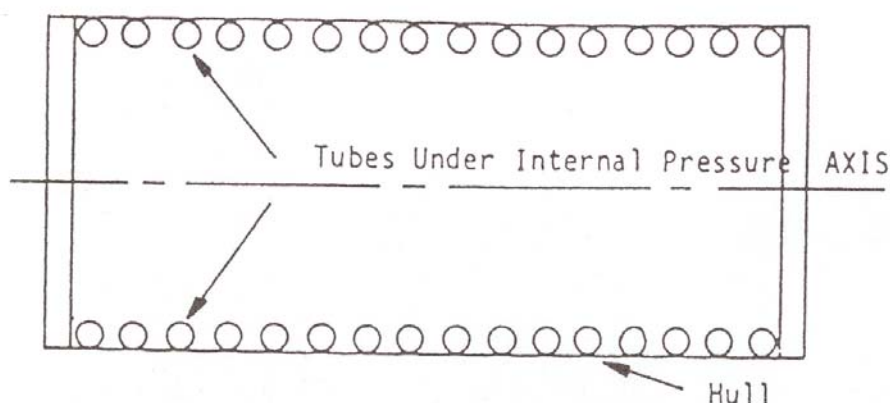


Fig. 13.17. Tube-stiffened pressure hull.

I used the tin can to help me invent the corrugated pressure hull, so now I thought that I would use hi-tech to reinvent the tin can. I realised that if I increased the half-cone angle of tin cans I could make them stronger and thus reduce the thicknesses of their curved surfaces. I realised that in the USA alone that they consume about 300 million beverage cans per day and that in Western Europe they consume about 250 million tin cans per day. Thus, if you could decrease the wall thicknesses of tin cans, you could make large savings in their manufacture. Also, it would be an environmentally friendly invention. Hence, I thoroughly analysed the four tin cans shown in Fig. 13.18 and I found that I could make substantial savings on their wall thicknesses as shown in Table 13.1.

Table 13.1 New half-cone angles & wall thicknesses for redesigned tin cans.

Model	Half-cone angles (degrees)		Wall thicknesses (mm)		% reduction in thickness
	OLD	NEW	OLD	NEW	
CA	11.0	43.55	0.35	0.15	57.1
DF	14.83	38.35	0.14	0.10	28.6
MBS	12.78	39.89	0.24	0.14	41.7
MBL	13.61	44.30	0.27	0.14	48.1

In designing these tin cans I plotted the variation of the uniform external buckling pressures for each vessel against the variation in half-cone angle for that vessel. When I got the optimum half-cone angle for each vessel, I reduced the wall thickness of each 'new' tin can until it had 'exactly' the same buckling strength as the 'old' tin can. From Table 13.1, it can be seen that the savings in wall thickness of the largest can, namely CA was as high as 57.1%! I carried out this work in 1994, on my home computer and with the aid of my own mathematical theories and computer software, but despite this I handed over my paper to my university to see if they could patent it. They failed to patent it, so in 1995, I offered the paper for publication; it was published in 1996. The French and the Canadians have shown an interest in my published paper.

Now according to Omega Research Associates, of Pittsburgh, Pennsylvania, they estimate that in the near future about 32 billion food cans will be consumed per annum, worldwide. Thus, if we can save one penny (2 USA cents) per food can, we will save about £320 million per year!



Fig. 13.18 Collapsed tin cans from left to right – CA, DF, MBS & MBL.

Another brainwave I had was to design a robot submarine to explore Europa's oceans for extraterrestrial life. About the year 2000, I was watching a TV program about outer space, when I heard that one of the moons of the planet Jupiter, namely Europa,

had a lot of water on it. Whereas, our Earth's oceans have a maximum depth of about 7.16 miles (11.52 km), Europa's oceans have a maximum depth of about 60 miles (96.5 km). The mid-day temperature on Europa is some -225°F (130 K) and as a result of this, Europa is covered with a coating of water ice, which has a maximum thickness of about 6 miles (10 km). Additionally, scientists believe that Jupiter's massive pull on Europa causes a tide of about 100 ft (30.48 m) under its icy crust and this causes friction in Europa's submerged waters, which in turn keeps most of Europa's oceans in a liquid form. Additionally, if Europa has hydrothermal vents in its oceans' 'bottoms', it is possible that Europa may have extraterrestrial life in its oceans near these hydrothermal vents, just like the hydrothermal vents in our oceans. I decided then that I would design a robot submarine to explore Europa's oceans.

I announced my intention to design this submarine at an international conference in Vienna in 2001 and in 2004, I submitted my paper to a top international journal for publication; it was rejected by this journal, because my paper did not meet the philosophy of this journal. Undaunted by this, I submitted my paper to another top international journal, who rejected my paper for the same reason. In July 2005, I was advised by a senior professor from the University of Bristol to submit my paper to the Journal of Aerospace Engineering, which I promptly did. This too was a top international journal, but in this case it was effectively the natural home for my paper. The paper was accepted and published in July 2007. Much interest has been shown on the publication of this paper.

My research on this submarine showed that it should be constructed in a metal matrix or a ceramic composite, as at present, only these materials would give my robot submarine sufficient reserve buoyancy, so that after it dives down it could be raised again when it is required to. The problem is that, as a submarine dives deeper and deeper into the water, the external water pressure increases, so that the wall thickness has to be increased to resist this massive load. Eventually, the wall thickness of the submarine becomes so large, that if the vessel is made in a metal, it becomes so heavy that it will sink like a stone to the very bottom of the ocean and not be able to rise again. My design is shown in Fig.13.19, where it can be seen that several thrusters help to control it. It is a hover submarine

Figure 13.19. My robot submarine for Europa's oceans.



Chapter 14 – Energy Reserves and Global warming – The Future.

For the next 20 years or so, I worked hard and I enjoyed good health. I got interested in exploiting the very deep oceans, up to 7.16 miles (11.52 km) deep. I realised that large submarines could only dive to a depth of about 400 m (1312 ft), but that the oceans were some 29 times deeper than this. I knew that the deep oceans held a lot of wealth in them, including precious metals, minerals and stones, together with large quantities of both oil and gas. TV reports state that the deep-sea gold seams are much richer than the gold seams on dry land! I also realised that the problems that the world was having with dwindling energy resources and global warming could be solved if we harness the vastness of the oceans. Below, I briefly describe some of the work that I have done and am doing involving the deep oceans. No mathematics is used in this description of my current and future work.

In 1997, Dickens et al wrote a paper in 'Nature' on "Direct measurement of in situ quantities in a large gas-hydrate reservoir". Dickens et al found that there were large quantities of frozen methane hydrate lying some 2 miles or more beneath the oceans' bottoms. Dickens estimated that there was about 10,000 billion tonnes of this previously unknown deep-sea methane. That is, the quantity of this deep-sea methane was some two times more than the mass of all fossil fuels on dry land and shallow waters; in other words the mass of this methane hydrate is twice as much as the combined mass of coal, oil and methane on land and shallow waters. Now the methane that lies in the Earth's crust on land and shallow waters has been produced by biological decay, but the deep-sea methane has been produced by a completely different method. This deep-sea methane has been produced by bacterial action under very large water pressures and it is still being produced today. If this methane is divided amongst all mankind, then each and every one of us on Earth will get a quantity of methane with a mass of 1670- tonnes. The value of a mass of methane of 1670 tonnes, based on today's domestic prices of gas will be worth about \$1,000,000- per person on Earth! The problem is how do you extract this frozen methane hydrate which is below the very deep oceans' floors? Conventional drilling rigs are not suitable. At the time that Dickens et al published their paper, my former student, namely Geoff Laffoley-Lane and I were working on the conceptual design of an underwater drilling rig. This rig was designed to operate at a depth of water of about 5000 metres (about 3 miles). At this depth some 65% of the oceans' bottoms can be reached. We were pleased that our underwater drilling rig had found a use and we published a paper in 1998 (see Figs. 14.1 to 14.3).

So why did we make the main pressure hull in the form of a doughnut or toroid, when most submarine pressure hulls are of circular cylindrical form? Now the main reasons why most submarine pressure hulls are in the form of a circular cylinder are:

- A circular cylinder is good shape to resist uniform pressure.
- A circular cylinder has a good hydrodynamic form.
- A circular cylinder can give the designer the required space, by allowing the designer to make the vessel longer, unlike a spherical shell.
- A circular cylinder is easy to dock, better than (say) a spherical vessel of the same volume.

Disadvantages of using a circular cylinder are:

- A circular cylinder has two ends and if crewmembers are required to travel from one end of the submarine to the other, congestion may occur.

- A circular cylinder has poor resistance to hydrostatic stability and as a result can roll a lot.
- It will be difficult to drill through the seabed, while residing in a circular cylinder, as the vessel may get stuck in the mud.

In the case of my underwater drilling rig, it is not travelling very fast, so a good hydrodynamic form is not important and by making the pressure hull in the shape of a doughnut or toroid, we achieve many of the advantages of using a circular cylinder for a pressure hull without the three disadvantages mentioned above. Thus, the vessel of Fig. 14.1 can make a good working platform.

Because the external water pressure at this depth was about 500 bar, the pressure hull of the rig could not be made in a metal. This was because, as the rig's design depth was required to be made deeper and deeper, the water pressure increased and it was necessary to increase the wall thickness of the hull. Eventually, the wall thickness of the hull would become so thick, that if it were made in metal, it would have no reserve buoyancy and it would sink like a stone to the very bottom of the ocean and could not be raised up again. Thus, the pressure hull had to be made from a material, which had a higher strength: weight ratio than a metal such as high-tensile steel. Suitable materials were Glass Fibre Reinforced Plastic (GFRP) or Carbon Fibre Reinforced Plastic (CFRP). The cost of GFRP is about 1/3 rd the cost of CFRP, but the latter is a superior construction material to the former. Using one of these composites as a structural material, it was possible to design the vessel to dive to even greater depths with reserve buoyancy, including as deep as the Mariana's Trench, which is some 11.52 km (7.16 miles) deep. Construction of the rig would not be easy.

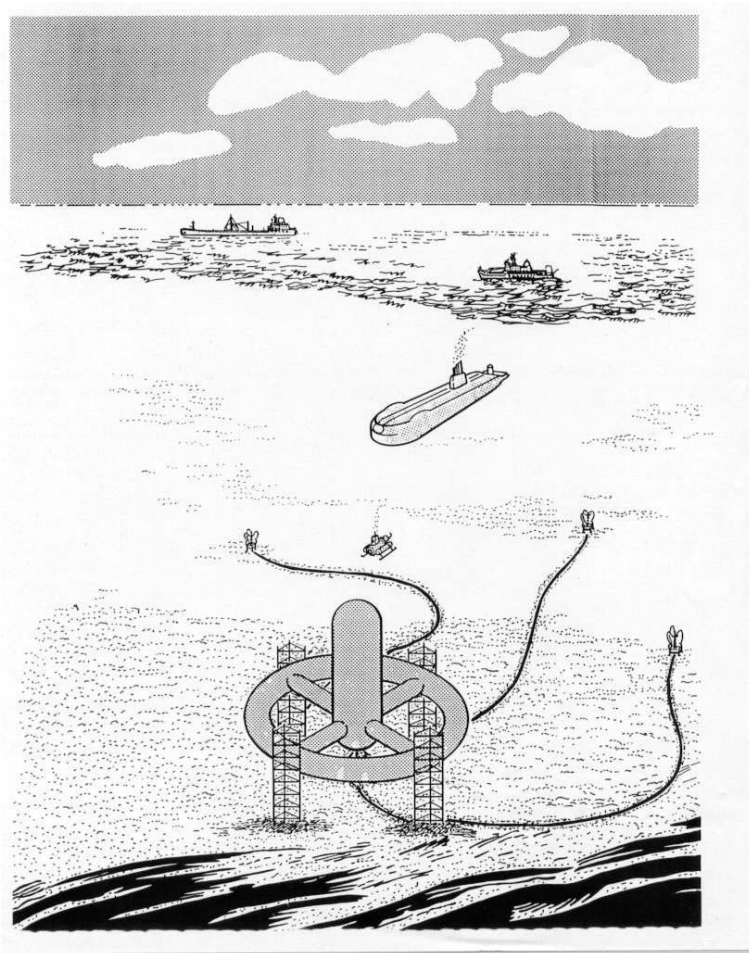


Fig. 14.1. Underwater Drilling Rig.

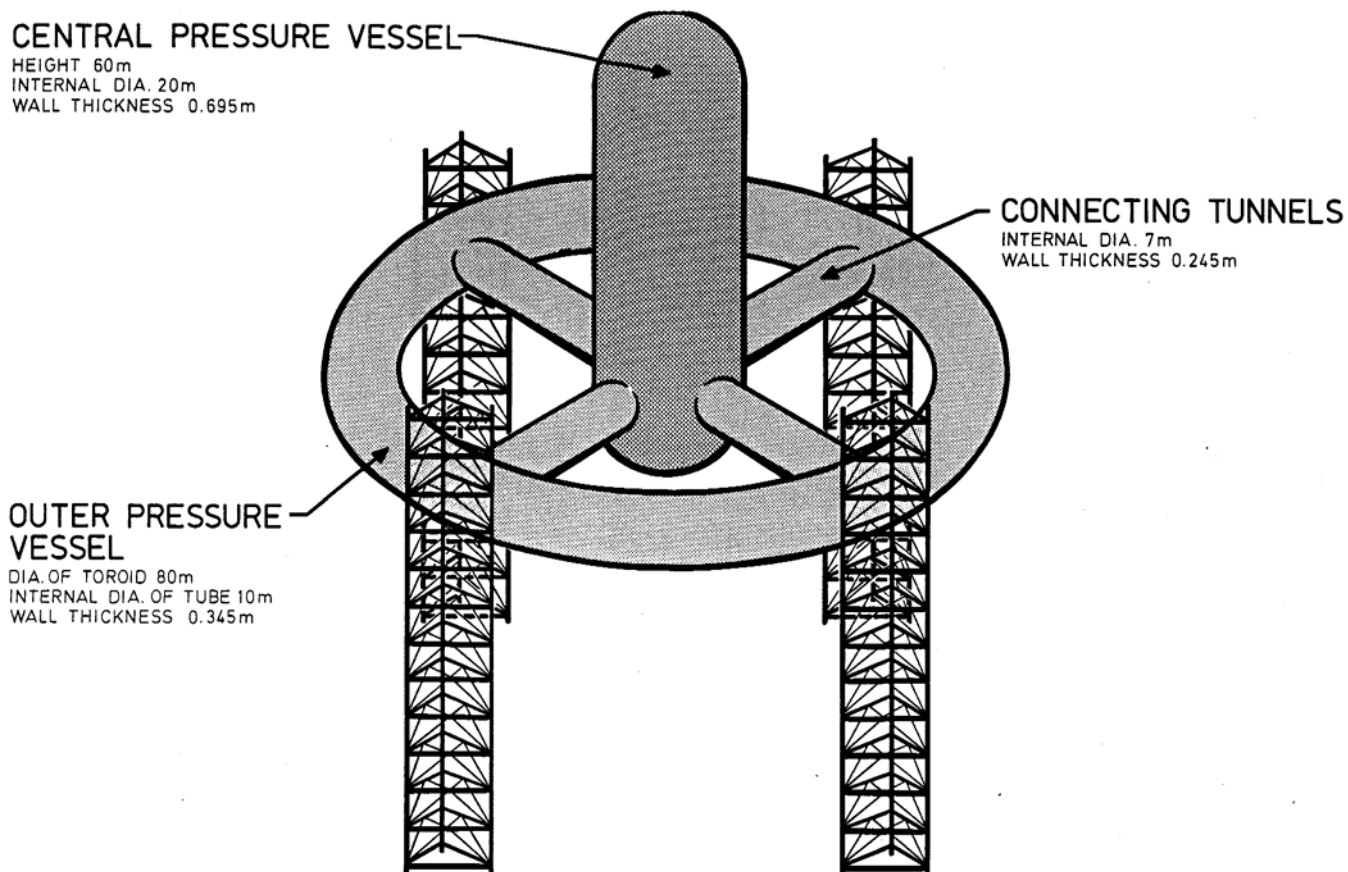


Fig. 14.2. Dimensions of the Rig.

The underwater drilling rig is intended to be manned by about 60 personnel and our published paper goes into much detail on how to keep the rig in a habitable condition, suitable for man's survival and well being. The rig is designed to be powered by a Pressurised Water Nuclear Reactor (PWR), with a power rating of about 25 MW. Conditions in the Rig should be much better than in most nuclear powered submarines, as most personnel will have their own cabins, which have air-conditioning under local control. Personnel can be moved off and on to the rig with the aid of mini hover submarines. These hover submarines are controlled by water jet

propulsion so that they could hover above the rig prior to mating together with their respective hatch openings. Similarly, nuclear powered submarine tankers can take the mined fuel off the rig; these too will have to be hovering submarines. The media showed much interest in the rig and the design got 2 pages coverage in the “Daily Telegraph” and also in Britain’s leading Mechanical Engineering publication.

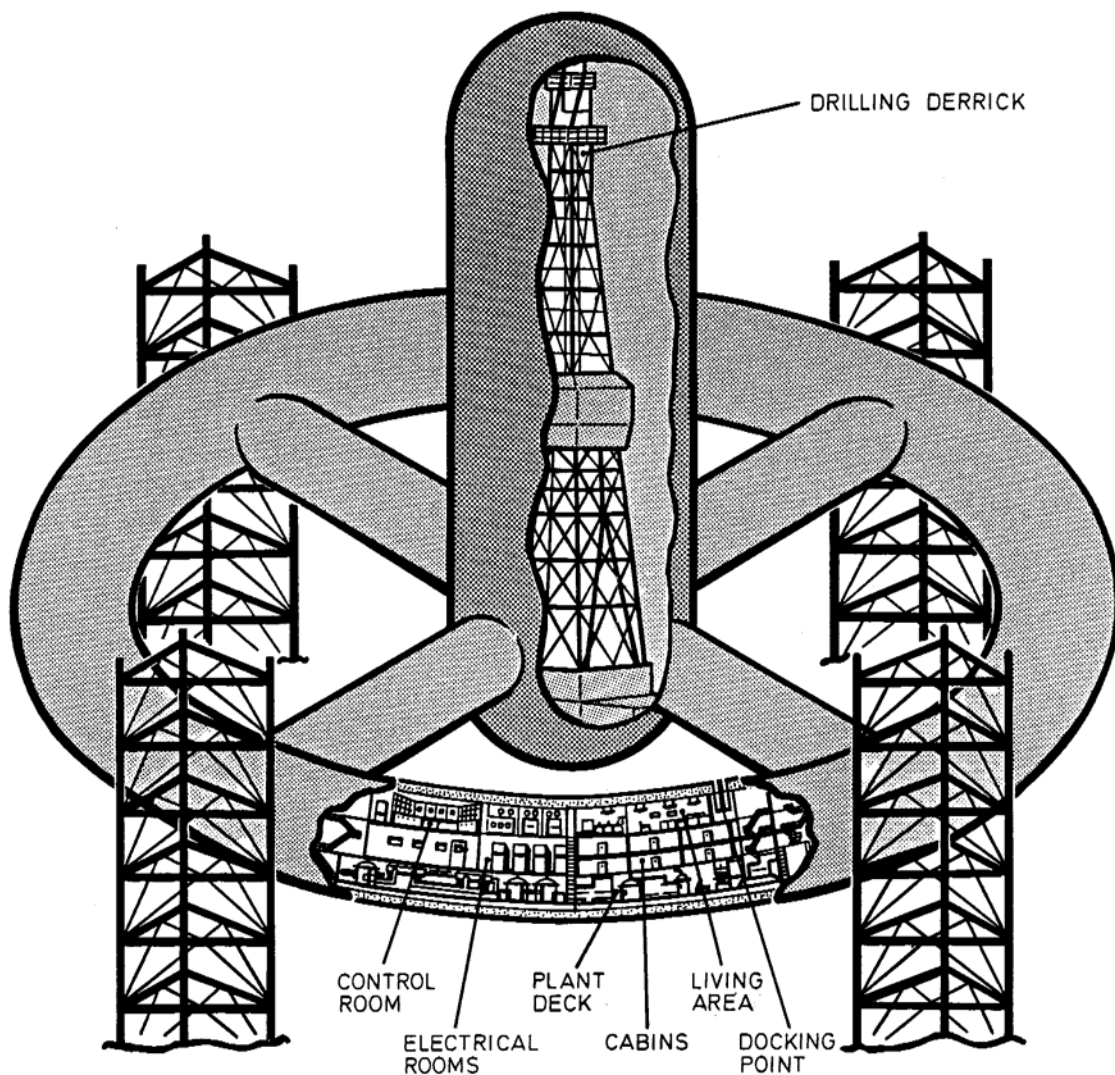


Fig. 14.3 Layout of the Rig.

Currently, the ‘oil’ companies do not know how to retrieve this deep-sea frozen methane, so how can we collect this frozen methane hydrate? The method that I propose is based on Figure 14.4, where the symbols m.b.s.f represent metres below sea floor. Fig. 14.4 shows a section through the Blake Ridge, which is off the coast of South Carolina. From this figure, it can be seen that the first 200m or so below the sea floor, the soil does not contain appreciable quantities of methane. For the next 250 m or so lies frozen methane hydrate and for some 350 m below the frozen methane hydrate, lies trapped methane gas. The methane hydrate is frozen because of the very high water pressure and low temperatures at this point. One must remember that the boiling and freezing point of liquids do not depend on the temperature alone. They also depend on the pressure that the liquid is subjected to. Thus, if the pressure is raised the boiling and freezing points of the liquid are also raised. Similarly, if the pressure is lowered the boiling and freezing points are also lowered. This is why we cannot make a good cup of tea at the top of Mount Everest, because at this height, the boiling point of water is about 72°C. The water cannot reach 100°C, because the atmospheric pressure at the top of Mount Everest is only 0.34 bars (about 1/3 rd of the atmospheric pressure at sea level). Thus, my argument is if we drill through the ridge, as shown in Fig. 14.4 and suck the methane gas out from the bottom reservoir, we will lower the pressure in the bottom reservoir. This will cause the frozen methane hydrate in the middle reservoir to evaporate, because it is in a vacuum and flow into the bottom reservoir, where it can be sucked out. The process can then be repeated until all the frozen methane hydrate is removed. Care, however must be taken to avoid a tsunami.

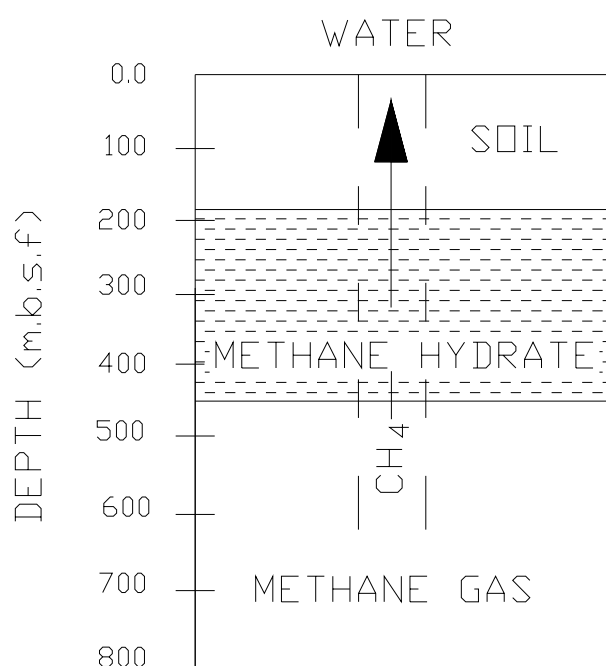


Fig. 14.4. Methane removal.

The good news about burning methane is that it is a cleaner fossil fuel than oil or coal, but the bad news about burning 10,000 billion tonnes of methane is that it will produce 27,600 billion tonnes of carbon dioxide.

Some scientists say that the deep-sea methane should be left where it is, but if the west plays on a level playing field and leaves the methane, the emerging countries are extremely unlikely to follow suit. Now we are not going to burn all this deep-sea methane at once. In fact if the average person on Earth burns 2 tonnes of methane per year for all of his/her energy needs, we shall have enough deep-sea methane to last us for about 800 years. Thus, we need not rush into getting our energy needs through nuclear power and all its hazards. I am not against using nuclear power, because I believe that the resulting nuclear waste can be removed from our planet by launching it into space towards the Sun.

In my opinion, mankind will almost certainly burn this deep-sea methane, so we might as well get used to it and deal with the consequences of burning it. One way of dealing with the burning of all this methane is to trap the resulting carbon dioxide and either treat it or bury it at sea. We must remember that the freezing point of carbon dioxide at normal pressures is some 104°C higher than that of methane, so if the methane remained frozen and stable for millions of years, the carbon dioxide will also remain frozen and stable for millions of years. One method that we could use is to drill into the seabed and replace the now extracted methane with carbon dioxide, as

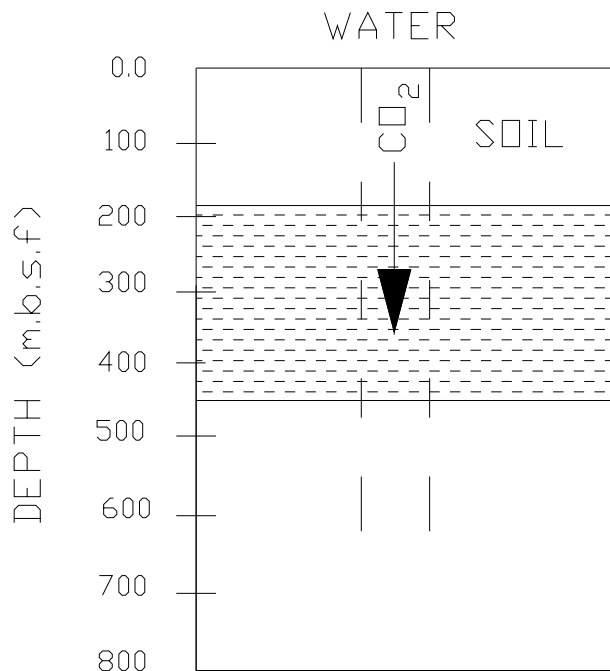


Fig. 14.5. Injection of carbon-dioxide into the ocean's bottom.

shown in Fig. 14.5 In this case, it must be remembered that the density of frozen carbon dioxide is about 1.56 times the density of water. Thus, there is no reason why the frozen carbon dioxide will not remain in place in the Earth's crust beneath the Ocean's bottoms. If this process is too expensive, then another cheaper method can be used to dispose of the frozen carbon dioxide. Scientists believe that carbon dioxide will freeze and sink at a depth of more than 3,600 m below the water surface, so it may be possible for the submarine type structure that I have depicted in Figs, 14.1 to 14.3 to pump the carbon dioxide overboard at a suitable depth.

Yet another still cheaper method of disposing of the unwanted carbon dioxide is to freeze it in the form of torpedo shaped blocks of dry ice and throw these overboard as shown in Fig. 14.6. This was suggested by Murray et al in their paper on "Permanent storage of carbon dioxide in the marine environment: the solid CO₂ penetrator", Proc. Int. Conf. On "Greenhouse Gases: mitigation options", 22-25 August, 1995, London, UK, Pergamon. As the frozen carbon dioxide has a density of 1.56 times that of water it will sink and remain frozen once it reaches the appropriate depth of water of more than 3,600 m. It is true that some of this frozen carbon dioxide will evaporate before it reaches a depth of water of 3,600 m, but if the dry ice torpedoes were made sufficiently cold before being thrown overboard, this unwanted evaporation can be kept to a minimum.

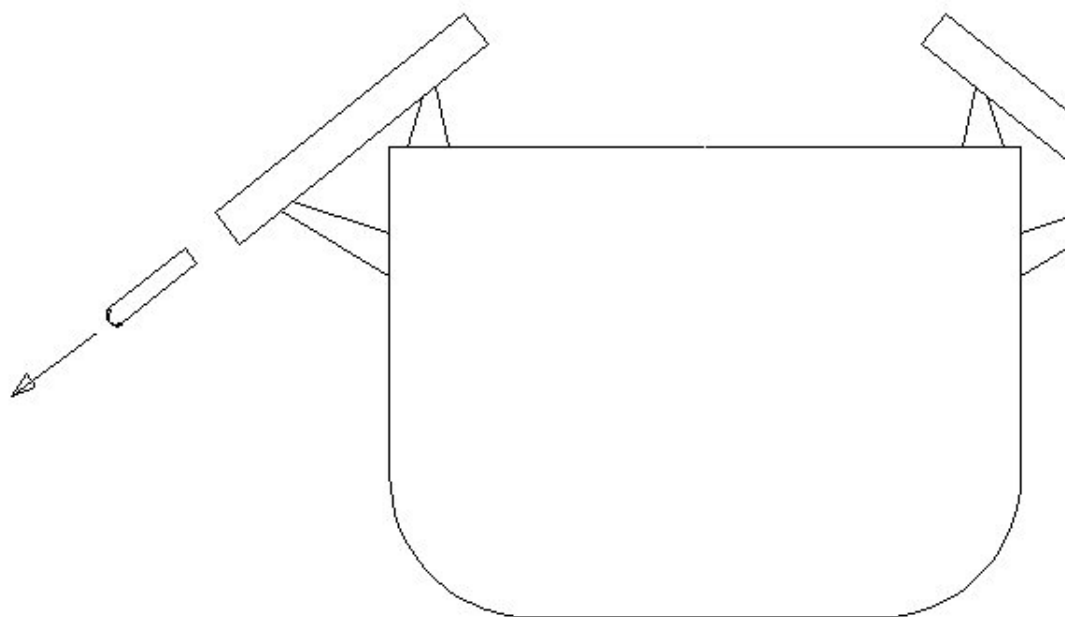


Fig. 14.6. Disposal of torpedoes made from dry ice from a ship.

So how can we trap the carbon dioxide emissions? We can redesign our industrial chimneys, so instead of belching large quantities of carbon dioxide high into the sky, the carbon dioxide emissions can be diverted into underground chambers where they can be collected ready for disposal. In the case of motor vehicles, we can build tube and tunnel motorways, connecting nearby cities alongside conventional motorways,

where to encourage travel by the tube motorways, we can levy a carbon tax on conventional motorways. A typical north/south tube motorway is shown in Figs. 14.7 & 14.8. The unwanted carbon dioxide can be trapped and either treated in situ or transported for burial at sea.

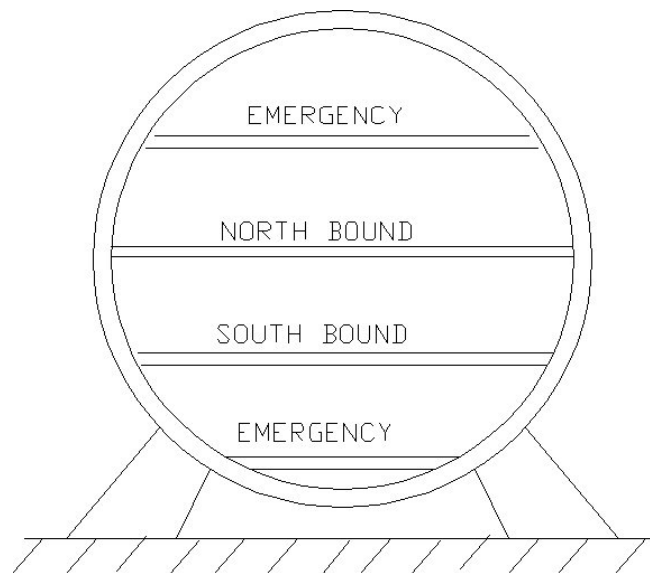


Fig. 14.7. North/south tube motorway.

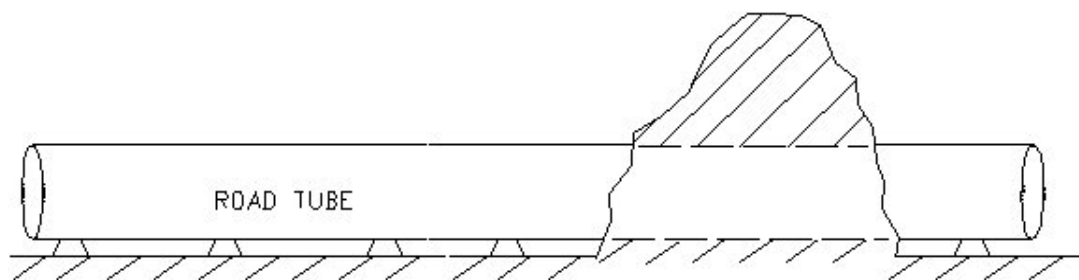


Fig. 14.8. Tube/tunnel motorway.

The cost of a conventional motorway is about \$50 million / mile (1.609 km), so I would reckon that a tube motorway would cost about \$100 million / mile (1.609 km). Costs of construction of the tube motorway can be decreased if the tubes are built in pre-fabricated sections in a 'factory', and later joined together in series. Advantages of the tube motorway would be that it is weatherproof and it would be preferable to travel in, in poor conditions and is less likely to be damaged by the weather. Additionally, it can be insulated against noise and that is a much-required feature

when the motorway passes near residential accommodation. A variation of the tube motorway is the double-decker highway shown in Fig. 14.9. In this case, use is made of an existing highway, where the second deck is simply built above the bottom deck; thus increasing the number of roads without requiring additional land to achieve this. In this case, I suggest that the two decks are covered, so that the exhaust gases from the vehicles can be trapped and then extracted and treated accordingly. Most of the covering could be in the form of a plastic, such as a transparent polycarbonate.

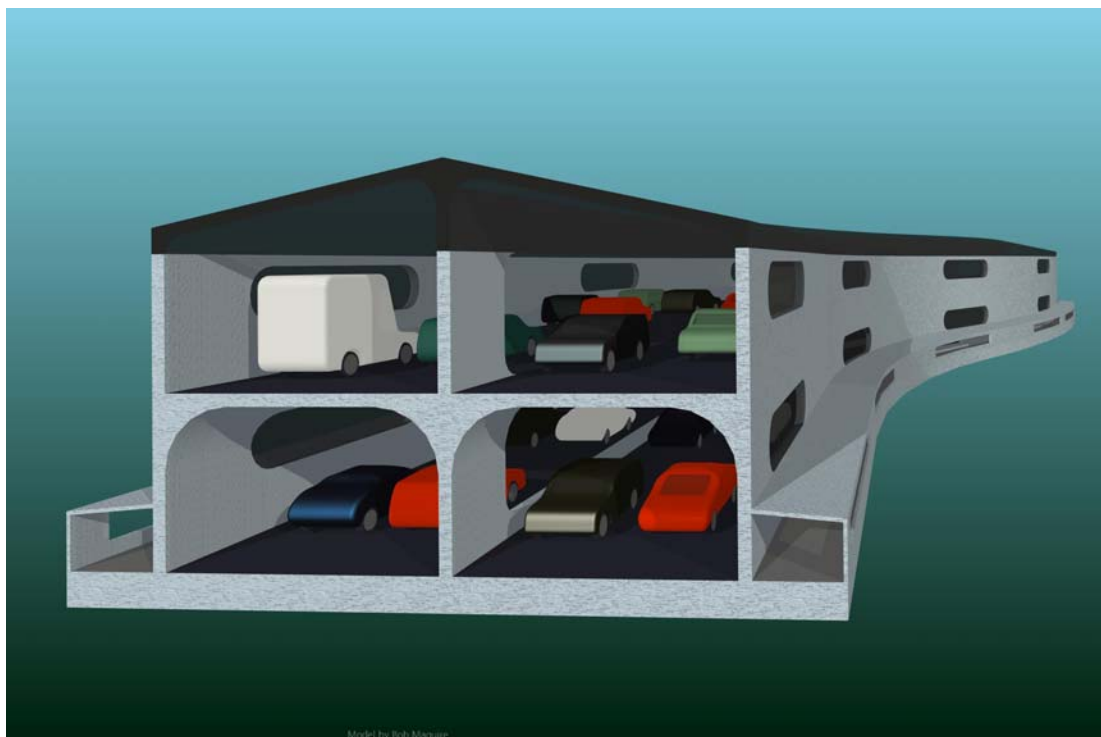


Fig. 14.9 A double-decker highway.

Another method of dealing with the carbon dioxide emissions from automobiles is to modify exhausts so that the emerging carbon dioxide could be treated with a suitable chemical such as soda lime, or potassium super-oxide or lithium hydroxide, or some other chemical that is yet to be invented. In the case of soda lime, if carbon dioxide is blown through it, it simply changes these chemicals to two harmless substances, namely calcium carbonate and water, where the former is often used to relieve common indigestion.

We cannot ignore greenhouse gas emissions, especially if the burning of 10,000 billion tonnes of methane will emit 27,600 billion tonnes of carbon dioxide. To put this last figure into context, its magnitude is some 110,000 times the maximum annually agreed proposed emissions for Britain at 'Kyoto '. The Arctic ice cap is melting. Now if the floating Arctic ice pack melts it will not cause a significant rise in sea levels because according to Archimedes' Principle, the floating ice pack displaces its own mass of water. If, however, some of the Arctic's Ice Mountains on land melt, it will be a very different kettle of fish. For example, Greenland has an ice mountain on it, which is some 700,000 square miles (1.81 million sq. km) in area and is about one mile thick (1.609 km). If this melts, then the sea levels of the world's oceans will rise by about 22ft (6.7 m). This will cause major flooding in many large cities, including London and New York. If the Antarctic's ice mountains melt, the

flooding will be much worse. The sea levels will rise by about 260 ft (80 m), but fortunately the Antarctic's summer temperature is some 26°C lower than the Arctic's summer temperature, so that the warming of the Antarctic is less of a problem. According to Professor James Lovelock in his book on "The revenge of Gaia", if global warming continues, then by the turn of the century the temperature in the tropical regions will rise by about 5°C and the temperature in the temperate zones will rise by about 8°C; this will cause much of the green and pleasant land on Earth to turn to desert resulting in widespread starvation. Additionally, according to marine biologists, large increases in the temperature of the oceans will cause the plankton to die with disastrous consequences for ocean life and mankind. If the deep-sea methane is not removed and the seas warm up, it is possible that the methane hydrate will evaporate and catch alight. For example if the methane in the Blake Ridge catches alight and burns at the rate that the USA consumed methane in 1996, then the methane fire may last for about 105 years!

Another way to collect the carbon dioxide is to collect dissolved carbon dioxide from the oceans and then bury it deep beneath the oceans' floors, where it will remain stable as a hydrate. The oceans naturally absorb some 50% of the carbon dioxide in the Earth's atmosphere and this tends to make the oceans more acidic. This carbon dioxide turns into carbonates when it dissolves in the sea. Thus, nuclear powered surface ships can be used to collect the dissolved carbon dioxide and then freeze it into blocks of dry ice torpedoes and then toss these overboard, as suggested above. If the carbon dioxide is not removed from the seawater, the oceans will become too acidic and the plankton could die. This will break the oceans' food chain, causing havoc to marine life. Methane consists of one part carbon and 4 parts hydrogen, so another method of reducing carbon dioxide emissions is to separate the hydrogen from the carbon in the methane through chemical means and run engines, including aero and ship engines, together with the fuel cell, using the hydrogen. The output of burning hydrogen or using it in a fuel cell is water, which is pretty harmless. If hydrogen is used to power aero and ship engines, then we will be able to avoid the resulting carbon footprints that are normally associated with those engines. Thus, if we want to have the same standard of living as we have now, some of the ideas that I have discussed in this chapter must be given further consideration. Whereas the planting of trees can help slow global warming, recent research informs us that trees and plants give off methane and as a greenhouse gas, methane is about twenty-two times worse than carbon dioxide. Another method of eliminating the carbon dioxide from the atmosphere is to change its form to harmless substances with the aid of man-made 'chemical' trees; I first suggested this procedure in the 1970's to my colleagues of that era, but they berated me. Today, a German scientist has successfully produced such an artefact. I have discussed some of my ideas on collecting energy and also on saving the planet from global warming. There is, however, another use for the deep sea and this is in defence. I have done a lot of work on this and here are some of my ideas on how to exploit the deep oceans for military defence.

Currently, a large submarine can only dive to a depth of about 400 m (1312 ft), but the oceans are up to 7.16 miles (11.52 km) deep, thus, it is my belief that the depth of the oceans for defence purposes is not being fully exploited. Fig. 14.10 shows a drawing of a deep-sea underwater missile launcher that I have designed and published.

This vessel is designed to operate at depths of about 5000m (about 3 miles), which covers about 65% of the oceans' bottoms. The internal cross-sectional diameter of the toroid (doughnut shape) is about 10m. The pressure hull is made of a composite and

because of this the vessel has reserve buoyancy and can operate at this great depth. Personnel can be moved to and from this vessel with the aid of mini and larger hover submarines. The advantages of adopting this rocket launcher are:

- Radar does not work underwater.
- Heat-seeking missiles do not work underwater.

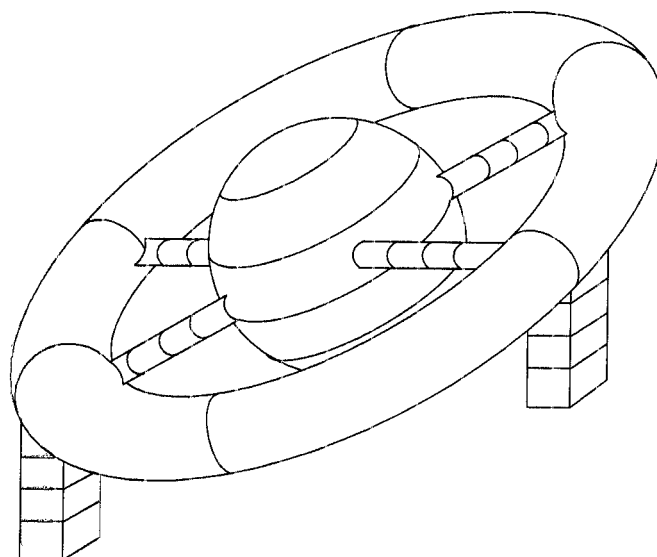


Fig. 14.10. Underwater missile launcher.

- As satellite spy cameras can only 'see' to a depth of about 700 m, they will be ineffective at this depth.
- Sonar will not be very effective, because if the vessel were made in (say) GFRP 'S' glass, it will have sound absorption coefficient as good as that of the material used for making acoustic tiles. It must also be remembered that the wall of this pressure hull may be about 50 times thicker than that of an acoustic tile, so the hull will absorb most sonar emissions.
- Torpedoes cannot operate at these great depths because their hulls will crush at depths of less than 700m.
- The surface area of the Earth covered by water is some 3 times larger than the Earth's land area, therefore an underwater star wars' system should prove more satisfactory than a surface star wars' system.

The vessel can also be used as a storage vessel to supply friendly submarines, so that the latter need not return to 'land' base. Remember Pearl Harbor! The missile hulls will have to be made from very high-strength composites such as metal matrix and ceramic composites, as weight is of a high premium for missile hulls. If an enemy building is required to be taken out, this can be achieved from 7.16 miles (11.52 km) underwater, by typing in the postcode of the building into the missile's internal computer prior to launching the missile. Since I invented this rocket launcher, I have invented two other deep-sea vehicles, which have reserve buoyancy and can operate up to depths of 7.16 miles (11.52 km). In this published paper, I have argued that an underwater star wars' system is superior to a surface wars' system, as the latter can be attacked via heat-seeking missiles with the aid of radar and/or satellite spy cameras, while the former cannot. Additionally, the surface area of the Earth covered by water

is about three times larger than the Earth's land area, so that in the case of the former, there will be more room to hide. In any case, my underwater space station will cost only about £2 billion, whereas, a space station in outer space will cost about £53 billion!

On reading my above interests in military machines, readers may be tempted to call me a warmonger, but I am not. At heart, I am a pacifist, but in reality I am a pragmatist. I was born under the 'star' of Libra; maybe this is why I am a pragmatist! One must remember that besides the countries that have nuclear bombs, currently, there are a further 35 countries that are capable of making 'the bomb', many of them being politically unstable! The number of countries that will be able to make nuclear weapons will continue to grow in time.

I will now report on some of the great engineering feats that may possibly take place in the far distant future; these may occur because of man's requirement for more space. The current population of the world is about 6.5 billion people, but researchers believe that by 2050, the world's population will increase to a staggering 9 billion! How are we going to feed and house such a large and growing population? A possible future solution to some of these problems is based on the map of Fig. 14.11.

If we scrutinise this map, we notice that the 'outlets' for the Mediterranean and the Red Seas are quite small. The 'outlet' for the Mediterranean Sea is called the *Strait of Gibraltar* and the 'outlet' for the Red Sea is called the *Bab el Mandeb*. Now the width of *Strait of Gibraltar* varies from 8 miles (12.9 km) to 27 miles (43 km) and it is 36 miles (58 km) long; its mean depth is 350 m (1148 ft). Similarly, the narrowest width of the *Bab el Mandeb* is about 17 miles (27 km) with an average depth of 490 m (1608 ft). Thus, in the far distant future it should be possible to 'block off' these narrow water 'outlets' and 'drain' both the Mediterranean Sea and the Red Sea. This will give us more land to house our growing populations. Figures 14.12 and 14.13 show aerial pictures of these areas.



Figure 14.11 Map of Southern Europe and North Africa.



Figure 14.12 The Strait of Gibraltar.



Figure 14.13 The Bab el Mandeb.

So what do we know about these two seas? The mean depth of the Mediterranean is 1.5 km (0.93 mi) and its greatest depth is 5.1 km (3.17 mi). The Red Sea is shallower; 40 % of it is less than 100 m (328 ft) deep and 25 % of it is less than 50 m (164 ft) deep. Fifteen per cent of it is greater than 1 km (0.62 mi) deep. Thus, it would probably not be a good idea to completely drain these two seas. It should still be possible to maintain these seas as major waterways with a suitable system of locks, together with some man-made channels. Now the area of the Mediterranean Sea is about 971 000 sq. mi (2.52 million sq km) and the area of the Red Sea is about 175 000 sq. mi (453 00 sq. km), thus we are talking about a large area of reclaimed land. If the above project is ever carried out, many disputes will take place over how much land each country will get, but at the same time it may lead to a long-term solution to the problems in the Middle East. If for example, Israel, Palestine, Lebanon and Syria acquire a lot more land, this may oil the wheels for a long-term solution to the problems of the Middle East. It is unlikely, however, that the above proposals will be carried out as the advantages of carrying out such a project are completely outweighed by the disadvantages; particularly as such a project may result in an environmental disaster for the area. However, there is another way that these seas can be used to man's advantage; this will now be described.

Figure 14.11 also shows the Tropic of Cancer, which goes through the Sahara Desert. Now the area of the Sahara Desert is about 3.32 million sq. mi (8.6 million sq. km). That is, the area of the Sahara Desert is about the same as that of Europe or Australia and Oceania and if crops can be grown on it, it will help to feed Africa's malnourished millions. In the far distant future, it may be possible to make much of the Sahara into agricultural land by irrigating it with desalinated water obtained from the Atlantic Ocean and the Mediterranean and Red Seas. The Americans have shown at EPCOT, Florida, that many vegetables can be grown with the aid of nutrients, water and air only; many do not necessarily require soil! This method of growing plants is called 'hydroponics' and this method is shown in Fig. 14.14. The power required to achieve these great feats can be aided through the use of nuclear reactors. Another method of acquiring 'land' is by building large floating island cities on the seas, near land bases. These islands can operate like natural islands. It must be

remembered that 71% of the Earth's surface is covered by water and in the future, mankind is likely to occupy more of this space!



Figure 14.14. Growing vegetables without soil in EPCOT, Florida, USA.

To conclude on my work at Portsmouth I would like to say that I have been happy there and as a result of this, I have been able to be very creative. Appendix 1, which gives a list of my professional contributions, shows this. Nobody has interfered with my work or discouraged me from doing it. In general, I have been encouraged to develop my research interests.

Additionally, Portsmouth's undergraduate intake consists of about 93% of state school products and I feel that this high intake gives the Portsmouth don a greater opportunity of 'putting something into the system' than other establishments where they have a smaller intake. In fact at Portsmouth, I like to be known as the "People's Professor".

I have not received any awards for either my research or my inventions, but this might be because I live in a small pond. The inhabitants of big ponds, particularly the big fish, must realise that sometimes a big fish survives better in a small pond than a big one.

Chapter 15 – My Mother.

In this chapter I will try and discuss why I believe my mother was so beastly towards me when I was a child. It must be remembered that she came from almost pure European stock but my father was not pure European; in fact he was quite dark. Therefore, her children were darker skinned than her and she was disappointed by this. In pre-war British India, the colour of your skin mattered and the whiter your skin, the greater were your chances. Thus, most Anglo-Indian women wanted to marry white husbands, so that their children would have so-called 'good colour'. My mother, however, did the reverse.

The problem was that my maternal grandfather was not particularly well educated. He was working as a secretary in the East India Company and was doing fairly well financially, being able to support his large family of 7 children. However, his boss was not a pleasant person and on one occasion was being particularly nasty towards him and he hit his boss in anger; this proved to be the decline of my grandfather. He lost his job and the only work he could get was as an overseer of uneducated Indian workers in a remote area where his family were the only people of European stock; it was the 1920's. My mother's description of this area was that it was in the jungle. There were no schools or hospitals nearby. The Indians collected and transported coir (the fibre from coconut shells which is used to make ropes and rugs) for the East India Company and my grandfather was responsible for the operation of this venture and for the paperwork.

On one occasion, a scorpion stung an Indian labourer and his colleagues brought the sick man to my grandparents' house for treatment, as there was no available medical treatment in this area. Normally, such a person would die. Now my grandmother was a very intelligent and resourceful woman. She removed the sting and treated the sick man the best she could. The sick man survived and the next day the wives of the labourers came to my grandparents' house carrying large baskets of delicious fruits on their heads as gifts to my grandparents' family in gratitude for my grandmother's good work. Scorpions later stung other Indian labourers and they too sought and got the help of my grandmother; all of them survived. Despite the fact that my grandparents' family had settled down in the jungle, things weren't working out too well for my grandfather, on the financial side. Thus, he gave up his job and moved back to civilisation.

My grandmother took a crash course in pharmacy and my grandparents set up two shops; one was a pharmacy and the other a milliners. They imported hats from Britain, but unfortunately most of the people were poor and often purchased items 'on tick' including Doctor's prescriptions. Thus, whereas they were selling, they were very often not being paid and as a result they went bust.

The family were now in great financial difficulty and had to sack all their servants, except for one, a very black Indian (Dravidian) Christian. Eventually, they could not pay the servant so they told her she had to go. The servant's reply was "Do not sack me. I will work for nothing. Just feed me". To economise, they would boil rice and mix it with condensed milk for their main meal of the day. Sometimes they could not afford the condensed milk, so they boiled the rice and the women drank the starch water (called cunjee water) and the three men would eat the rice. Eventually, they could not afford to feed even the servant so they told her that she had to go. The servant's reply was, "Do not sack me. I will get another job and feed you all; I will still work for you though" The Indian servant showed one of the greatest acts of kindness I know of! This situation carried on until my father arrived on the scene.

My father was at that time 35 years old; he was the Assistant Chief Draughtsman of the Bengal Nagpur Railway. He was a bachelor and was well off. My mother was 15 years old and it was now 1926 and her family were poor. My mother was the oldest girl in the family; the other girls were being educated, free of charge by the convent. My mother's school friend had accidentally broken my mother's glasses and as my mother could not afford to buy a new pair, she could not continue her education at the convent. She stayed at her home with her mother, earning a little money through needlework. My father wanted to get married, so he travelled south from Kharagpur to Cochin and asked my grandfather for his daughter's hand in marriage; the Beales were a respected family and my father had heard good reports about them. My grandfather asked my mother if she would like to marry my father and she consented, being quite ignorant about boys, sex and what marriage involved; she had never ever had a boyfriend. My grandfather agreed to it, but made the proviso that the marriage could not take place until her 18th birthday in 1929.

All parties kept their word and the marriage took place when my mother was 18 years old and my father was nearly 38 years; my mother knew nothing about sex at this age. My father then helped to finance the family and most of them travelled north to Kharagpur, where he helped them to get work.

When my mother was a child she was asthmatic, and her mother believed that to stop asthma attacks in small children you must beat them while they were suffering an attack. My mother related that her mother often beat her for having an asthma attack, so she grew up in a lot of ignorance and violence. Her father never beat her; he was a strict, but a just 'Victorian' type of person.

Another source of her violence may have been due to what she witnessed at the Convent school. The nuns' favourite biblical quotation appeared to be; "Spare the rod and spoil the child" For example there was an Indian girl, the daughter of a tribal chief, who was in my mother's class. She was a 'chatterbox' and she regularly got caned for this. On one occasion, her Indian nun teacher, caned her several times on the hands during a certain lesson, but the girl continued to chatter. In desperation, the nun told the girl to stick out her tongue because she was going to cane the girl on her tongue. The girl duly obliged and the nun caned her on her tongue and badly bruised the girl's mouth. This stopped the girl from chatting but the next day the girl's tribal chief father and his tribe marched down to the school, brandishing sticks. This called for the skill of Mother Superior, who quickly defused the situation. What became of the Indian nun teacher I do not know, but the police were not involved.

So why did my mother beat her children for getting suntanned? Basically, she was ashamed of the colour of their skin; it may not have been that uncommon for Anglo-Indians to be ashamed of their colour in the 'blinkered' environment that they lived in during that period. When we were children, we often compared our colours to see which one of us was the whitest of the group. Additionally, I often heard adults talking about other adults and one of the common expressions used by Anglo-Indians in discussing other Anglo-Indians was, "He/she is of good colour"; this meant that the person they were talking about was white or near white.

One of my mother's luxuries was to visit the cinema in Kharagpur at the 'European Institute', where she saw a lot of Hollywood movies. Her heroes were film stars like Humphrey Bogart, Cary Grant, Douglas Fairbanks Junior, Errol Flynn, James Cagney, Fred Astaire, etc. etc. All of these film stars played the parts of gallant heroes and they were all white; not a single one was brown or black, unlike her children. Thus, she believed that all white people were good and that God was white and the devil was black and as a result, she grossly underestimated the potential of her

children. They consequently had a very low sense of their self-worth! She believed that she had to keep them as white as possible, so she beat them when they became suntanned. She read the bible, but made a naïve interpretation of the biblical saying. "Spare the rod and spoil the child"

When we came to England, we became quite light-skinned during the English winters. On one occasion, my mother's cousin was visiting us during the winter. He complimented my mother on the colour of her children. He said, "Phyllis, isn't it nice to see that your children have opened up?" By this he meant, "Hadn't your children become quite light-skinned?" For many years into adulthood, I held a grudge against my mother, but when she was about 61 years of age, she got cancer of the small intestine. It was then that I realised that she was mortal and I forgave her completely for what she had done to me during my childhood. It was the only way out; I drew a line under it all and said to myself, "Tomorrow is the first day of the rest of my life". I was about 36 years old at the time.

When she got cancer, the hospital did not detect it and her General Practitioner (GP) said to her, "The reason why you are being sick and losing weight is because you are imagining it". She came from that generation of women who grossly overestimated the ability of a GP and she took his word as 'gospel'. In six months, her weight plummeted from nine and a half stones to five and a half stones. My sister Zee observed this and went to see my mum's GP. Zee said to the GP, "I am not medically qualified but I can see that she has got cancer". The GP arranged for her to have another X-Ray at the hospital and this time they detected cancer of the small intestine. When I heard this, I went to see her and I wondered how long she had to live? I felt very sorry for her; she looked very thin and scrawny but she was cheerful. I had no hesitation in forgiving her for being such a rotten mother. She made no complaint about the incompetence of the hospital staff; she took it all in her stride. She survived the operation and lived until she was nearly 95 years old, with no recurrence of the cancer. It was a near miracle, because in those days, they had no chemotherapy and she did not receive radiation treatment either. She was a remarkable woman; she never complained when she was ill. She lost two sons; Brian died of cancer when he was 43 years old and Stan died of a heart attack at the age of 70 years. Both deaths caused her much grief, especially the death of Brian, because he was so young. She was tough and resilient; she gritted her teeth and she simply 'soldiered on'.

Fig. 15.1 shows a photograph of her when she was 91 years old. She lived alone, after my father's death in 1977 and only when she became very old, did she need some help. She suffered from a stroke in April 2005 at the age of 94 years old and then she had to move into a nursing home, never ever returning home; she pined for her home. She died in hospital in January 2006. She grew to love her children in adulthood and in the enlightened environment of Britain. We had an excellent relationship with her later in life and we made sure she was not short of anything after my father's death. Her hair never went grey and she did not dye it!

She changed her will, in her last will and testament, which she made just after her 94th birthday; she managed to split the family, because she left the house, etc., to my sisters and very little to her sons. Even in death she managed to rule from the grave. I hope, however, that one day, the resulting wounds will heal. As Grandma Beale used to say me "Time can heal anything"

Appendix 2 shows my maternal family tree; I have no similar paternal family tree. Appendix 3 shows my Dad's army certificate.



Fig. 15.1 Phyllis Helen Ross (nee Beale) – taken on June 3rd, 2002

Appendix 1 - Publications & Guest Lectures of Carl T.F.Ross.

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22. ROSS, C T F. "Matrix Algebra for Engineers & Technicians", T.A.S.S., 47 pages, 1971-72.
23. ROSS, C T F. "Finite Element Theory in Structural Mechanics", T.A.S.S., 91 pages, 1974-75.
24. ROSS, C T F. "ALGOL Programs for Structural Analysis", T.A.S.S., 70 pages, 1977-78.
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26. ROSS, C T F. "ALGOL Programs for Cross-Stiffened Flat Plates and Grillages", T.A.A.S., 80 pages, 1979-80.
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204. ROSS, CTF, ”The Loss of some Ro-Ro Ferries: An improved Damaged Stability Method”, Fareham Rotary Club, Fareham, HANTS, 11th November 2004.
205. ROSS, CTF, “Recent Advances in Submarine Structures”, Farnborough & Guildford Area Branch of the Institution of Mechanical Engineers, Farnborough College of Technology, 10th May, 2005.
206. ROSS, CTF, “Exploiting Elephants – Pushing the Engineering Boundaries of Ultra Deep Sea, Oil & Gas”, Joint Meeting of ICE, IEE, IMechE Greater London North West Region & the Off-Shore Engineering Society, Brunel University, Uxbridge, London, 18th October, 2005.
207. ROSS, CTF, “Exploiting the Oceans Deep – Pushing the Boundaries of Ultra Deep Sea Exploration and Usage”, Oxford Area Branch of the Institution of Mechanical Engineers, Oxford Brookes University, 7th December 2005.
208. ROSS, CTF, “Exploiting Oceans Deep – Pushing the Engineering Boundaries of Ultra Deep Sea Oil & Gas”, Wessex Area Branch of the Institution of Mechanical Engineers, University of Portsmouth, 8th December 2005.
209. ROSS, CTF, “Loss of some Ro-Ro Ferries – An improved Damaged Stability Method”, Institution of Mechanical Engineers Luncheon Club, South Downs College of Technology, Purbrook, Waterlooville. HANTS, 11th May 2006.

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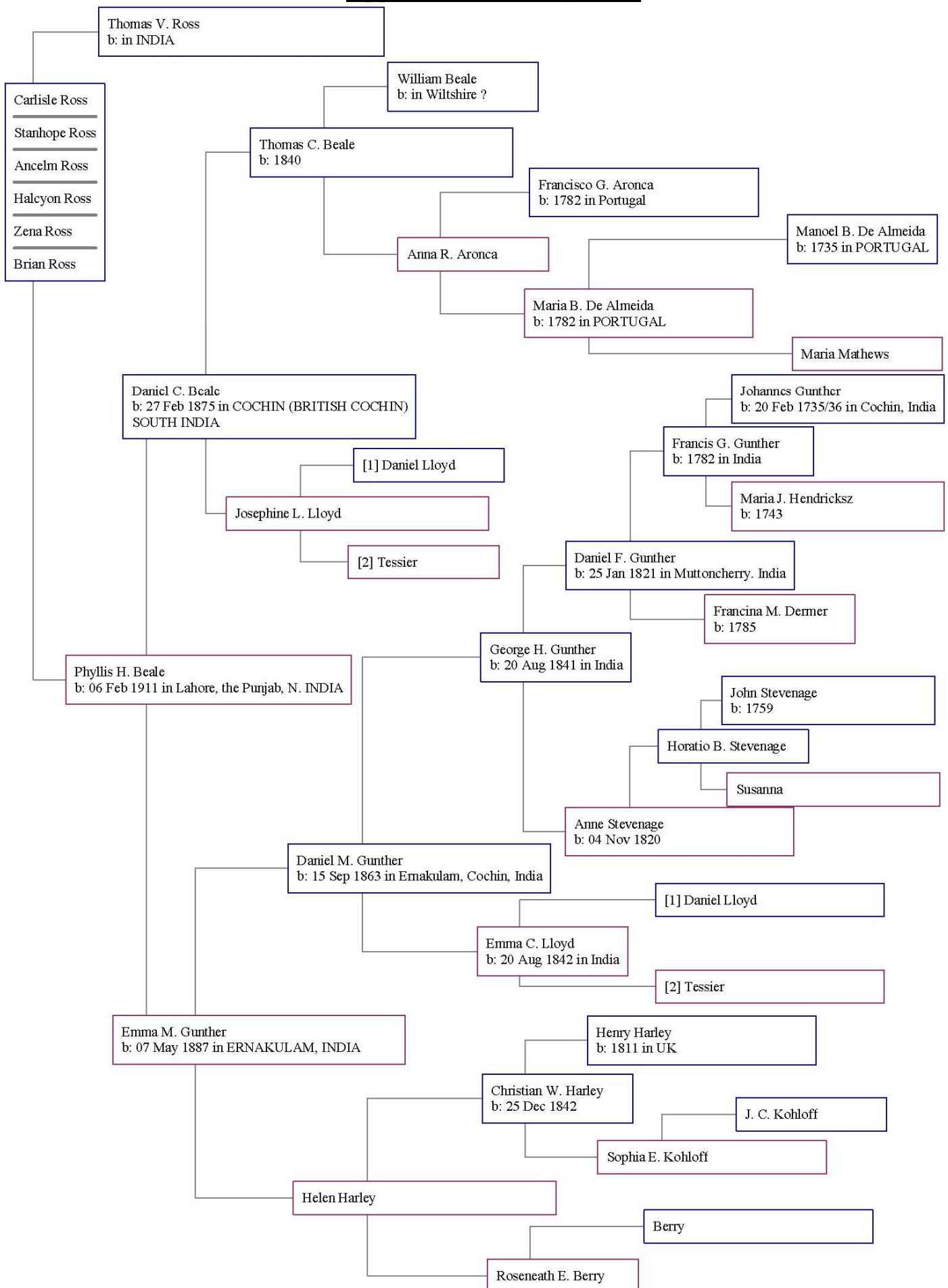
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I have served on the following Editorial Boards:

- 1) The Eighth Int. Conf on 'Civil and Structural Engineering', Eisenstadt, Vienna, Austria, 19-21 September, 2001.
- 2) Int. Conf. On 'Computational Methods in Mechanics', Gliwice/Wista, Poland, June 3-6, 2003.
- 3) The Eighth International Conference on 'Computational Structures Technology' Las Palmas de Gran Canaria, Spain 12-15 September 2006

Appendix 2 – Family Tree.



Appendix 3 – My Dad's Army Certificate

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EMERGENCY.

George VI by the Grace of God, of Great Britain,
Ireland and the British Dominions beyond the Seas, King,
Defender of the Faith, Emperor of India, &c.

To Our Trusty and well beloved *Thomas Vincent Ross* Greeting:
We, reposing especial Trust and Confidence in your Loyalty,
Courage, and good Conduct, do by these Presents Constitute and Appoint
you to be an Officer in Our Indian Land Forces from the first
day of November One thousand nine hundred and forty two. You are
therefore carefully and diligently to discharge your Duty as such in
the Rank of *2nd Lieutenant* or in such other Rank as We may from time
to time hereafter be pleased to promote or appoint you to, of which
a notification will be made in the Gazette of India and you
are in such manner and on such occasions as may be prescribed by the
Government of India to exercise and well discipline in Arms both
the inferior Officers and Men serving under you and use your
best endeavours to keep them in good Order and Discipline. And
We do hereby Command them to Obeys you as their superior Officer,
and you to observe and follow such Orders and Directions as from
time to time you shall receive from Us or any your superior Officer,
according to the Rules and Discipline of War, in pursuance of the
Trust hereby reposed in you.

Given at Our City of Delhi this *fifteenth* day of *June*
in the Year of Our Lord One thousand nine hundred and forty three
and in the *seventh* Year of Our Reign.

In Witness Whereof Our Viceroy and Governor General
in India hath hereunto set his hand and Seal at
New Delhi the day and year last above mentioned.

By His Excellency's Command.
R. V. Pruthi
Secretary to the Gov^t of India, War Department.
Registered N^o 6538