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Breathing on the Roof of the World

Memoir of a Respiratory Physiologist

JOHN B. WEST

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Memoir of a Respiratory Physiologist

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Preface



As is clear from the first chapter, I began this Memoir for members of my family, particularly my children and grandchildren. However, as it developed, it occurred to me that it might be of interest to a larger community. I have been fortunate in having had an unusual career. Also, as noted in Chap. 1, I was influenced by recently reading biographies of two medical scientists with whom I previously worked, Charles Fletcher and Archibald Cochrane. I then realized that I was sadly ignorant about so much that was going on in their lives that was related to their research. The result was that I now have a much clearer understanding of their work. Scientific papers are essential of course, but so much else happens that is never related in this medium. I have tried to fill in some of this material here.

The result is this Memoir. The narrative occupies 11 chapters that are amply illustrated with photographs. Many of these deal with my two Himalayan

expeditions that I was fortunate to take part in. There are also footnotes to flesh out some of the details in the narrative. This part should be accessible, and hopefully interesting, to many people who do not have a scientific background.

Additional online material is directed at physiologists and others in the academic community who have an interest in respiration and high altitude science. It includes a section that is a commentary on what I think are the most significant scientific contributions. To do this, I have selected a number of articles and included their abstracts that summarize the science and then added comments that hopefully explain why the study is important. I hope that this strategy will make the Memoir useful and interesting to a larger number of people.

I should say something for North American readers about the education process in Australia. This is actually similar to that in the UK and Europe but will be foreign to some US and Canadian readers. The high school that I attended reached a very high level in science in the last 2 years, although as a result, my education was regrettably very narrow. For example in these last 2 years, my subjects were mathematics I, mathematics II, physics, chemistry and, mercifully, English. This last was the only leaven in this otherwise very nerdy selection. As an example of the high level of teaching, the mathematics included substantial advanced calculus.

From high school I moved straight into the Faculty of Medicine at the University of Adelaide. The medical course lasted 6 years followed by the required 1 year of residency. However, I completely missed the college experience that all North American students are exposed to. I regret this. Our children, who were both born in the USA, went to college of course, and I became very aware of the advantages of this broad education. I think this system is superior to the one I was exposed to, although of course it is expensive. Incidentally, some of the medical schools in Australia and the UK are now moving to a pattern more like that of the USA.

Another disadvantage of my education is that I was only 17 years old when I entered medical school. This is far too young. I now teach first-year medical students who are about 22 years old. These 4 or 5 years make an enormous difference at that age, and the students are far more mature and receptive than I was. Remarkably, I was only 23 when I received my medical degree, and a year later I was qualified to remove your appendix if you were brave enough to let me.

Many people have helped with this Memoir. Amy Clay produced an early draft 14 years ago. Lisa Richter has been invaluable with the present text, and Zhenxing Fu has been indefatigable with the figures. My wife, Penelope, has been a continual tower of strength. I am greatly indebted to all.

La Jolla, CA, USA

John B. West

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Chapter 1

Early Days, 1928–1945

Why a memoir? Vanity of course. But seriously, there is another reason. I have had an interesting life (and for the last 50 years have shared it with Penelope) and it seems wrong if our children, and perhaps their children, do not know something about it. History is often fascinating, and, for example, I very much regret that I know so little about many aspects of my father's life. Of course he told us some anecdotes of his boyhood but I would love to know more about his period at Adelaide University while studying medicine, his training at the Royal Adelaide Hospital, his early days with my mother, his early experiences in general practice in Jamestown in the 1920s, his periods of training in Edinburgh and Liverpool, his experiences during the war, and his subsequent very successful career as an orthopedic surgeon. Apart from a few isolated facts, I know little about what must have been a very interesting life and certainly there is nowhere to turn to read about it. My account should ensure that our children, and perhaps their children, do not have the same regrets.

There is another reason for this memoir, and this may resonate more with many readers. I have been involved with many scientific projects, and some of these have been unusually interesting, for example the Silver Hut Himalayan expedition in 1960, the Everest expedition in 1981, and our more recent studies of astronauts in space. All of the results of these studies have been written up in papers in scientific journals.¹ However these formal accounts omit much of what was actually going on during these projects. An informal memoir like this allows the opportunity of “telling it like it was”.

I became more aware of the interest of this anecdotal information when I recently read two autobiographies of prominent clinical scientists with whom I have worked. One was Charles Fletcher² who, as will become clear in Chap. 3, was

¹My curriculum vitae and a full list of books and articles can be found in doi:[10.1007/978-1-4939-7122-0_12](https://doi.org/10.1007/978-1-4939-7122-0_12).

²Pioneering physician: the life of Charles Fletcher 1911–1995 by Max Blythe and Richard Peto. Bicester UK, words by design, 2016.

largely responsible for me choosing respiratory physiology as a career. He also set up the Pneumoconiosis Research Unit in which I spent a year in 1955, and this was one of the best years of my life. However when I read his biography, I was taken aback to learn that Fletcher had serious reservations about some parts of the physiology program that seemed so innovative to me.

The other autobiography was by Archibald Cochrane³ whose name will be familiar to some readers because of the Cochrane Database. His influence on my career was not nearly as important as that of Fletcher. However his account of the early days of epidemiology of which he was one of the founders, opened my eyes to the unevenness of scientific progress. Incidentally, readers who are more interested in science than my early days might like to skip parts of the first couple of chapters of this Memoir.

I was born on December 27, 1928 at the Memorial Hospital in Adelaide. I still have an official copy of my birth certificate, and one oddity is that my mother's first name is given as Neta whereas her correct name was Meta. Presumably the error occurred because the name is so unusual and it was misheard. My sister Rosemary was born 2 years after me on December 1, 1930.

At this point I should say something about my parents. My father, Esmond Frank West (Fig. 1.1) was born on March 31, 1899. Parenthetically the 18 often irritated him because all the official forms he had to fill out had the date beginning with 19. . . and he said this made him feel antiquated. Of course 1899 was indeed a long time ago and Queen Victoria was still on the British throne. My father came from a large family of nine children (Fig. 1.2) and was the eighth child of William Arnold West (1856–1922) and Emily Burnard (1856–1933). William was a teacher who did well to become Inspector of Schools in South Australia, but the large family had modest means. Rosemary remembers that my father often spoke of his impoverished childhood. They lived on jam made from home grown plums and apricots boiled in the “copper” (usually used for washing clothes). He talked of having “bread and point” for a meal—that is when they were particularly short, the younger children would be given bread and dripping and then point to what they would really like to have on the bread, but not be allowed to eat it! Nevertheless grandfather West was remarkable in that seven of the nine children had a tertiary education at a time when this was unusual. Only Lorna (who left school relatively early to help care for the large family) and Arnold whose health was poor did not have a tertiary qualification. Even the other two daughters did when few girls went to university. The family lived in a typical, attractive, bluestone house named Arlington at 49 Hewitt Avenue, Rose Park, a suburb of Adelaide. The house was built in 1894 and still stands. My father's forebears were researched by my uncle Reginald and I have an extensive family tree.

³One man's medicine: an autobiography of Professor Archie Cochrane by Max Blythe and Archibald Cochrane. London: British medical journal, 1989.



Fig. 1.1 My father, Esmond Frank West (1899–1988)



Fig. 1.2 My father’s parents and their family of six sons and three daughters. Back row: Arnold, Stanley, Roy, Marjorie. Middle row: Reginald, my grandfather, my grandmother. Front row: Lorna, Ruth, Esmond, Eric

My father was educated at Norwood Primary School and Norwood High School, and then Adelaide High School. This is a state school with little or no tuition fees and perhaps this was one reason why it was chosen. However my father’s much older brother, Reginald was a teacher at the school (he subsequently became principal) and that was probably the main reason. Adelaide High School probably did not have the social cachet of the large private schools such as Saint Peter’s College and Prince Alfred College but it provided an excellent education. For

example, my father had a life-long love of English literature and could quote Shakespeare at length. His knowledge of the English classics was nurtured by his father who used to read a chapter of a Charles Dickens novel to the whole family every evening. My father studied medicine at the University of Adelaide and graduated M.B.B.S. in November 1922. A curriculum vitae that he prepared states that he took the top place in the last 4 years of his course. It is interesting that the year before my father's included Howard Florey (1898–1968) who later became a Nobel Laureate (1945) for his part in the discovery of penicillin.

Rosemary and I do not know much about his period as a medical student but there are some anecdotes about the professor of anatomy, Archibald Watson. He was an eccentric and used to ride his motorbike around the dissecting tables in the anatomy room. According to one account⁴ there was a price on his head at one time because he was a crewmember of a pirate ship that kidnapped natives in the Pacific islands and subsequently sold them. Another less colorful story was that he was invited to a somewhat formal weekend party at a grand house in the Adelaide Hills but arrived without any luggage. When reminded that it was customary to dress for dinner he replied that he was wearing all the appropriate clothes under his day suit together with his pajamas, *etc.*

After graduation father spent a year as a resident at the Royal Adelaide Hospital and during this time (or before) he met my mother who was a nursing sister. They married on October 18, 1924. We know little about his residency except that he was involved in the very early use of insulin for the treatment of diabetes in Australia. This came about because T. Brailsford Robertson (1884–1930), who was the professor of physiology and biochemistry, had recently returned from Toronto where he had worked with the Banting and Best group who had discovered insulin, and with Macleod had received a Nobel Prize in 1923. Brailsford Robertson had learned how to extract insulin from animal pancreas, and apparently my father was involved in treating some of the early patients by injecting this new and presumably crude material.⁵ Of course diabetes was a terrible scourge until insulin became available. Following his year of residency at the Hospital, my father went into general practice in Jamestown, a small country town about 200 km north of Adelaide.

My mother, Meta Pauline Spehr (Fig. 1.3) was born on October 13, 1897 in Millicent, a prosperous farming town in the southeast of South Australia. Her father, Georg August Spehr (1853–1925), had emigrated from the Hanover region of Germany and married Louise Pauline Pohlner (1862–1922). Louise's grandfather, Ignatz Pohlner (1787–1871), had emigrated from Germany in 1847. Both the Spehr and Pohlner families have done very extensive genealogical research. There

⁴WGK Dawson and RA Leonard. *The University of Adelaide 1874–1974* Adelaide, Rigby, 1973.

⁵According to the entry in the *Australian dictionary of biography* (edited by G. Serle, Melbourne University press, 1988) Brailsford Robertson made an important contribution in improving the method for preparing insulin. It was manufactured for the first time in Australia in the Darling building on the Adelaide University campus.

Fig. 1.3 My mother, Meta Pauline Spehr (1897–1995)



are books on both families^{6,7} and the Spehr family book has a hard cover with over 470 pages and many fine photographs. My mother was one of ten children (Fig. 1.4) and was brought up on a large farm named Willowbank three or four miles outside Millicent where the schools were situated. She always walked the three miles to school, sometimes over muddy roads, and according to Rosemary who had good opportunities to hear her stories, she sometimes spent the whole day there in wet shoes. Many of her relatives remained in the Millicent area and Rosemary and I used to spend the summer holidays with one of the families. One of my memories is of my mother undoing the stitching of my jacket, putting a £1 note inside and stitching it up again. This was apparently my keep for the summer! I suppose we had good and bad times at Millicent but I tend to remember the bad ones, for example, when my cousins of about my age taunted me into trying to lift bags of wheat which I could not do.

⁶The Spörer, Speher, Spoehr and Spehr family in Australia, 1847–1986. Spehr Family Reunion Committee 1986, Adelaide: Lutheran publishing house, 1986.

⁷The family history of Ignatz Pohlner and his Wife Johanne Elenore nee Wunderlich and their known descendants. Anonymous, Adelaide: Lutheran publishing house, undated.



Fig. 1.4 My mother’s parents and their family at Willowbank. Left-to-right: Myrtle, my mother, my grandfather Georg, Eda, my grandmother Louise, Anne, Edward, Hilda, George, Walter, Eileen (*in front*). Henry was not yet born

My mother presumably left school at the age of about 14. She was a beautiful young woman (the Spehr girls had a reputation for good looks) and an accomplished horseback rider. Later she moved to Adelaide for training as a nurse at the Royal Adelaide Hospital where she excelled and received a gold medal as top of her class. She told a number of stories about this period to Rosemary. Times were hard. She used to work 12 h shifts with 1 day off a week and there were no wages for the first 3 months—just “keep” plus uniforms and perhaps a little pocket money. She was called a “black pro” for this period because the uniforms were black. But there were amusing anecdotes. If they had a death in the ward just before the end of the night shift, they would prop the body up with a cup of tea and pretend that he had only died when the day staff came in! Otherwise they would have to work an extra hour or so laying the body out. They also had to dismantle and scrub the iron bedsteads after each patient left to get rid of the bed bugs.

My parents lived in Jamestown for a short period after their marriage. The only information that I have about this period is my father’s anecdote that my mother had to run fast to round up the cow. Presumably they kept one for milk. However in 1925 my father went to the U.K. for advanced surgical training where he received the degree F.R.C.S., Edinburgh in March 1926. I know that my mother joined him for part of the time at least. My father used to say that he had never been so cold as

he was during his period in digs in Edinburgh and it took him several years to warm up!

When he returned to Adelaide he joined Dr. Frank Beare in general practice at Mile End, a gritty industrial suburb on the west side of Adelaide. My father handled the surgical side of the practice while Frank Beare (known as Teddy Beare) concentrated on internal medicine. There is an anecdote about his return to Adelaide but I am vague about the details. Apparently he did not have any plans for where to work but someone told him that Frank Beare was looking for a partner. Father telephoned him and the agreement was made almost immediately. During this time my parents lived in Rowland Road, Hilton in a large house with a garden and tennis court. My father used to enjoy tennis, golf and bowls. The house no longer exists and the area has been redeveloped. I have almost no memories of the house except that there was a sandbox, and I had a tricycle. My father used to relate that at one time my tricycle was stuck somewhere in the garden and someone offered to help but I retorted that I would “do it my sauce.”

In 1934 when I was five, my father returned to the U.K., this time to Liverpool, to study for the degree of Master of Orthopaedic Surgery, M.Ch. Orth. Liverpool was an important center for orthopedic surgery at that time partly because it was a large port and ships would arrive with sailors with terrible bone injuries having fallen off a mast or whatnot. There were famous orthopedic surgeons in Liverpool including McMurray and Reginald Watson-Jones. The latter was a very colorful surgeon and wrote an influential textbook on orthopedic surgery. I remember him coming to our home in Adelaide for dinner many years later. My parents and I also went to a party at his elegant flat in Portland Place in London when they visited me in the early 1960s. The flat was near the statue of Lord Lister in the middle of Portland Place and was unusual in that it contained a pipe organ that Watson-Jones played enthusiastically. There was prodigious drinking and my parents and I subsequently went to France and Germany for a tour in my car where we gradually recovered from the party and would refer to the date as Watson-Jones plus 1, plus 2, *etc.* Watson-Jones was president of the British Orthopaedic Association when my father was president of the Australian Orthopaedic Association, and there was a meeting in London in June 1952 when my father was presented to Queen Elizabeth, the Queen Mother together with Watson-Jones. My father received his orthopedic degree in November 1935 and then spent a short time with the famous orthopedic surgeon Lorenz Böhler in Vienna. He returned to Adelaide in February 1936 to start full time orthopedic practice both at the Adelaide Children’s Hospital and as an assistant to the well-known surgeon Lionel Betts at the Royal Adelaide Hospital.

While my father was in Liverpool, my mother and the two children lived in a small rented house in Scott Street, Dulwich. I suppose the large house in Rowland Road was sold. The main advantage of this house was that it was close to 14 Gurney Road, Rose Park where the Potts family lived. Lorna was an older sister of my father’s who married Gilbert (Gib) Potts and according to Rosemary, Lorna was a second mother to my father when he was young. The large Potts family included Renfrey (Ren), Don, Helen, Dorothy and other sisters who were older. Helen and I were about the same age and used to play together sometimes. Ren was 2 or 3 years

older but we became close friends and have been so all our lives. Ren was a distinguished applied mathematician who was a Rhodes Scholar and subsequently returned to Adelaide from Oxford where he became the Chair of the Department of Applied Mathematics and a very influential person in the University of Adelaide. He received the Order of Australia (AO) and was one of my closest links with Adelaide.

Another advantage of the location of the rented house was that it was close to Rose Park Primary School which was only about 10 min walk away. Father's youngest sister, Ruth, was a teacher there. My only memories of the school are the drum and fife band in which I played the fife and I recall that "Men of Harlech" was part of the repertoire. My memories of the Scott Street house are very vague although I do remember getting lost on one of the nearby streets on my tricycle and giving my address as Scott Street, only to find that there was another street of the same name in an adjacent suburb.

I must have been at Rose Park Primary School from 1934–1937 when I was enrolled in the Preparatory School at Prince Alfred College, presumably in February 1937 at the age of eight. It was natural for me to go to P.A.C. because Uncle Gib was one of the most prominent teachers there and he eventually became Assistant Headmaster. Also P.A.C. was the Methodist high school and had a very high standard. However the most prestigious high school was the Anglican Saint Peter's College but this was in North Adelaide some distance away. There was always, and still is, keen but friendly rivalry between Prince's and Saint's.

When my father returned from the U.K. in early 1936 he bought 11 Fergusson Square, Toorak Gardens This was in the same area of east Adelaide as Dulwich but much nicer. Fergusson Square is a very attractive location having a large public garden in the center and no through traffic. However the house was relatively modest with small front and back gardens and unlike the house in Rowland Road it had no tennis court. I have often wondered why my father who had a very successful practice in orthopedic surgery did not move into a larger house at some stage. It is true that Fergusson Square was well situated being only 10 min drive to the center of Adelaide. I used to go to P.A.C. on my bicycle and that probably did not take more than 15 min or so.

My father was very fond of the land (rural country) and according to my sister spent many of his Christmas holidays working on a farm in Yorke Peninsula west of Adelaide helping with the harvest, and sowing wheat bags by hand. Later in life he bought a large property in a fairly remote part of South Australia near Coonalpyn. The soil lacked trace elements but when these were added with the super-phosphate fertilizer it became more productive. There were tax advantages in developing this land the locals used to refer to city people who did this as "Rundle Street farmers" (Rundle Street is one of the main streets in Adelaide). My father was in partnership with Dr. Sam Pearlman, an ophthalmologist, whom he liked very much. Father spent many weekends down on the farm and I went down on several occasions. It was only a 2 or 3 h drive from Adelaide.

I continued to live in the Fergusson Square house until I left Adelaide, and indeed my parents stayed there until they were too old to look after themselves.