The moving finger writes; and, having writ,
Moves on: nor all thy Piety nor Wit
Shall lure it back to cancel half a line,
Nor all thy Tears wash out a Word of it

Omar Khayyam, 1048-1122 AD

These observations were made by a Persian mathematician some 900 years ago. His sentiments are self-evident but no less easy to accept especially for operating surgeons.

The reasons for staying on in the operating theatre are rarely financial. A recent survey shows that top surgeons earn more than ministers, which in Singapore, is quite a bit.

If the reasons for continuing operative surgery are not financial, they must certainly be egotistical but egotistical in a very special way.

We make a very great investment in acquiring surgical skills, an investment both in time and effort and it is very difficult to give up what has been so hard to come by.

"I can only offer blood, toil, tears and sweat."

Winston Churchill, Hansard 13th May 1940

This is what Winston Churchill offered the British people at the start of the Second World War. In our enthusiasm to exercise what we have achieved by toil and sweat, we occasionally forget that the blood and tears are those of our patients.

Forgetting this is never forgivable but it is understandable for apart from the toil and sweat we make, often without even realising it, enormous sacrifices in our personal lives; distancing ourselves from family, friends and even from commonplace pleasures which most people take for granted.

You never know when the telephone is going to ring or when that devil’s invention, the pager, is going to go off except that it will be at the most inconvenient of moments. In fact, the perfect way of boosting a flagging practice is to take a holiday. As soon as your airline tickets are secure, hotel bookings are confirmed and your friends in faraway places have planned for your arrival, the whole world and his brother will find it urgently necessary to be operated on by you and no one else will do.

This kind of about-turn is nothing compared to the way we play fast and loose with those who love us, and most surgeons have horror stories enough without my adding my own.

Though the training is long and arduous, the shelf-life of a surgeon is short; we spend a long time learning to do what we do but do it with competence with what seems like a moment.

Look carefully at your palm and you will recognise that what I have depicted as your career line is, time-wise, the reverse of your life line.

The reasons for this short shelf-life are, to my way of thinking, pretty clear.

1. Hand/eye skills tend to fall off quickly with ageing and by the time you have reached your peak, they are on the point of waning. The eye-lens harden and accommodation becomes increasingly difficult. Joint position sense becomes less reliable and your intention tremor increases.

2. With age, the ability to assimilate new knowledge in an ever burgeoning field, to obtain a working basis of new technologies and to master new techniques decreases.

In my own career, I had to tangle with the novelty of the operating microscope, brain scanning and regional cerebral blood flow.

Microsurgery was made easy for me for I began in a unit where the operating microscope was in everyday use.

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Nevertheless, because microneurosurgery came out of Zurich, the home of watchmaking, we were, by the respectable surgeons of the day scorned as “watch-maker surgeons”. They muttered about us missing the wood for the trees and mouthed the kind of “wise sayings” which surgeons who have passed their due date are given to muttering. None of the old guard could see that the operating microscope provided perspective in depth i.e. three-dimensional vision however deep a cavity you were looking in, unhindered lighting because your head never got in the way and magnification so that you were not only more exact but your eyes checked the natural tremor of your hands. No neurosurgeon operates without the microscope today. What was esoteric has become essential.

Then there was neuroradiology. When I had, with enormous effort, acquired a working knowledge of cerebral angiography and air-encephalogrophy, computed tomographic (CT) scanning…..CT scans exploded on an unsuspecting world. This made my knowledge of angiography and encephalogrophy redundant. Effort had been in vain but it always is……there are always new things. To understand CT scans, one had to comprehend solid geometry. I did my best but there was worse to come.

Geometry, however solid, was static but there was something dynamic that had to be mastered: cerebral blood flow. To grasp this needed an understanding of the integral calculus which was difficult enough in my thirties. God help me if I had to do so today especially if I found at the end of the day that what I had learned to do so painfully could be achieved by magnetism and an array of chips and answers obtained at the touch of a button.

It is not just that ageing makes the acquiring of new skills more difficult. Even preserving skills already acquired is an effort. Think of tennis players—Martina Navratilova and Venus Williams. The game hasn’t changed but who would you put your money on in a singles match?

In surgery, the game has changed and is constantly doing so. Changing skills are required. The feel-cut-stitch needed for an open surgery is quite different than those needed for operating on images on a television screen as is the case with laparoscopic surgery. This is accomplished without any sense of touch, which we were taught to believe was the pre-requisite of a good surgeon and through long instruments introduced through stab wounds in the abdomen. I see this clearly as the future: the technique which will replace surgery as we know it today.

The difficulty of mastering new skills is not the only trial that ageing surgeons face. Their brains themselves change. Neuronal tissue is lost at an alarming rate and this lost tissue is replaced not by new neurones but by cerebrospinal fluid (CSF) i.e. water.

The depletion of neural tissue results in a loss of insight.

### Insight:
The ability to see ourselves as others see us.

I have numerous examples of how this loss of insight has ruined the memory of many a famous surgeon. The most telling example of this must go to a man who many regard as one of the greatest surgeons of the century.

“I would not mind being operated on by a surgeon of ninety-one.”

Dr Michael DeBakey at ninety-one

I will now look at four problems:

1. **What are the factors which encourage surgeons to continue after they are "time expired"?**
2. **What can be done to protect the public from surgeons operating past their due date?**
3. **What can surgeons do to fill in the time they used to spend in operating?**
4. **How can surgeons prepare themselves for this inevitability?**

#### 1. What makes surgeons continue?
The inability to accept a short shelf-life; the long build-up for a brief spurt of action.

Ego is, I believe, necessary to embark on the job of being a surgeon and ego is the most difficult thing in the world to rid oneself of.

Cultural attitudes which are particularly relevant to Asia do not help. The old are usually the powerful and being old is equated as being good. This, in many cases, explains the success of the obsequious and weak-kneed.

#### Asian Values?

“You’re a sniveling little crawler and a weakling—
I like that in a man.”

Veneration of age or, as I like to call it, the reverence of senility, is a hangover from the days when information was orally transmitted. This era should have ended 500 years ago when Johannes Gutenberg (1400 to 1468) invented the moveable type that made printing possible and knowledge
easily transmissible. Asians have even less of an excuse to lag behind for the use of moveable type was available in China and Korea in the 11th century, 400 years before Gutenberg. In these days of electronic transmission and information technology, to look to the old as repositories of knowledge and wisdom is akin to looking at dinosaurs as models of locomotive design.

I am not denying the need of kindness and courtesy to the old……..I am grateful to be offered a seat by a young colleague, helped home when I have had too much to drink and overjoyed that so many young people have turned up at an ungodly hour of a Saturday morning to listen to the ramblings of an old man whose garrulousness is mercifully limited by his shortness of breath.

2. What can be done to protect the public from surgeons past their due date and are clinging on to outdated techniques?

Generally surgeons are retired from public positions between roughly the ages of 55 to 65 years. The majority continue in private practice. Even in the West, there is no age limitation as to how long a surgeon can function and what he is permitted to do. There is nothing to stop a surgeon of 90 from clipping aneurysms within the cavernous sinus or replacing a segment of the ascending aorta. There is also no way of stopping surgeons performing outdated procedures which they have spent long periods mastering when newer methods are more appropriate.

I believe that we, the respected and responsible members of our profession, must make it our business to offer our patients the best possible options there are. This is especially so in my own country which aspires to being a centre of medical excellence. To make this a reality, we need legislation: legislation to ensure that there is a time constraint on the working life of an operating surgeon just as there is with airline pilots.

The law must decree and age must be the only criterion. There is nothing that will be a fairer and more precise cutoff point. True, surgeons, like all of us, age differently. Some are perfectly competent at 80 and some begin to lose their skills at 50 but this is as irrelevant to the argument as the age of sexual consent is to the emotional maturity of a child. Because of the loss of insight, no surgeon, however honest and honourable, can be the judge of when his time has come to quit. Only the calendar can decide.

Nor can I accept that groups of surgeons, however fair-minded, can decide on which of their fellows can continue operating. Such a system smacks of too much nepotism and cronyism which we already have in abundance.

There is the argument that there are things that change and things that do not in surgery and that the old are repositories of the unchanging.

What is changing is clear. It is the unchanging that is nebulous. In the area of the unchanging, we can talk about sympathy, concern, and putting yourself in the place of your patients. These things are, however, not bits of information……..they are values and can only be transferred by example. You can only provide example by practising what you preach. What I mean is that the values you best convey is when you are active in surgery. If you have not transmitted these values to the young in your operating life, you have missed the boat and all the platitudes you mouth will be but the sound the wind which blows where it listeth.

3. How do surgeons fill the hiatus created by the absence of surgery?

I don’t know. I do know that hobbies like golf or wood carving will not. They are as relevant as occupational therapy is to a concert pianist incapacitated by a stroke. Nothing can replace the joy of using your hands, your eyes, your co-ordination, your ingenuity, your compassion in relieving the suffering of a fellow human being. One simply has, early in one’s career, to get used to the idea that the kind of happiness that operative surgery provides is, by its very nature, short-lived and that things change. Every morning, even before you brush your teeth, say the mantra that I have used these past 20 years: “The only constant thing in life is change.”

There is one other way of softening the blow.

If you feel that you have done everything that time, competence and effort have made it possible for you to achieve when you were active as an operator, it is no longer necessary to struggle, you have nothing to prove and can let go.

“You don’t grope the woman who has spent the night in your wigwam.”

Red Indian saying

I have some small reputation as a writer. When I told my contemporaries that I was giving up operating, they retorted that it is easy for me to do so for I had another passion to fall back on. This is not the case at all, quite the reverse in fact. The bulk of my writing was done when I was busiest as an operating surgeon. I am quite worried that I may not be able write now that I have stopped operating. There is some incestuous connection between the pen and the scalpel which I will not try to explain since I do not understand it myself. I will have to wait and see if I can continue to write.
now my operating days are over.

I do, however, have a secret which I will tell you.

My Sundays as a teenager were filled as are most teenager Sundays. There were piano lessons and cricket practice; I had to check that the hydroponic lab had not dried up in the days I had not visited it. I had to rush to the library to collect material for overdue assignments. As I walked out in the morning to catch the bus, I noticed old men sitting with their feet up in coffee-shops. They held newspapers but seemed under no compulsion to read them, putting them aside to enter into conversations with passing friends or to observe some going on that had caught their eye. It was early in the morning but there was always a glass of Guinness in front of them.

How I then wished……really, really wished, that the day would come when I could be like them too. That happy day has finally dawned and I am damned if I am going to let anything or anybody spoil it for me.