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**Fork  
in the Road**

If you have managed to read this far, you are probably beginning to wonder when you are going to get to the part of the book with all the melodrama, tension and angst. You've probably also started to think to yourself that there don't appear to be enough pages left for any of these things to build up to a dramatic crescendo. If you think this way, then you're probably one of many people who have had their life's expectations of the professional world completely warped by fictional novels, movie and television melodrama. If you have read this far, you will also have worked out that, as far as engineers are concerned, the only times we use words such as *melodrama*, *tension* and *angst* are in completing crossword puzzles.

However, before you begin to yearn for the melodramatic in your life, and in your reading, perhaps you need to consider the consequences of having the sorts of zealots, who are portrayed as *passionate* professionals in books, movies and television shows, working for you in real life. Consider going into a real hospital emergency room, only to find all the medicos thumping their fists in rage and yelling:

*"Get me those goddamn test results - stat!"*

Would you seriously want someone like that making decisions about a life-threatening condition, or about some toxic medication that he was about to inject into you? Or, what would you think about being in an aircraft that was making a rapid descent, only to hear the sound of an angry co-pilot's voice emerging from the cockpit:

*“Damn you all to hell! You’re not fit to be flying this aircraft. I’m taking command!”*

The reason that you don’t often hear these things in real life is because real professionals generally don’t behave in the sort of hyped-up, melodramatic manner in which artists portray them in books, movies and television shows. In over two decades as a professional engineer, I can honestly say that the only time I’ve ever heard a professional engineer thump their fist and ask for anything *stat* was when ordering a glass of beer at a bar. And, if I ever have the misfortune of going into a hospital emergency room, I’d kind of hope that the medical people in there remained calm, quiet and disconnected, and saved their fist-thumping zeal for their golf games.

An important part of being a professional is in understanding that work is work and life is life, and the two don’t necessarily have a lot in common. To this end, I can say that, without exception, all the most intelligent, professional and productive people that I have ever encountered have always been the ones who have been able to disconnect themselves, their personal biases and their careers, from their decision making. And, yes, it is still possible for professional people to be very passionate about something and to remain impartial and detached. In other words, it is possible to be passionate without being a zealot. So, for those who have to go into real hospital emergency rooms, or to fly on real aircraft, it is comforting to know that professional decisions are generally based on calm and impartial assessments of facts, rather than melodrama.

As far as research is concerned, a good rule of thumb is to always put one's faith in the cynics and never the zealots. Good research is only partly about trying to move things forward – it is equally about trying to understand the truth – sometimes, the truth is hidden and even experimental results don't show it in its entirety. Often this means that researchers need to disprove things, or to try to find out why good experimental results may have some fundamental flaws in them. The good researchers are cynical and reserved about their research outcomes, and always ask "*why is it so?*". The zealots welcome, without question, experimental results that substantiate their theories, and so they have an innate capacity to provide an animated *yippee* or *eureka* that makes for good storytelling.

For those who choose to write books, or make movies or television shows about professionals, zealots with *yippee* or *eureka* discoveries are naturally always far more interesting and persuasive than detached cynics. Let's face it – nobody wins a Pulitzer prize for writing a story about a mousy accountant who just does his job for forty years, and nobody wins an Academy Award for accurately portraying a physicist who just sits in an office for decades, quietly doing his calculations and getting nowhere. A lack of melodrama tends to diminish the weight of a message in the mind of a reader or viewer, and so artistic licence often has to be employed. Artists, being emotional people (relative to we engineers), tend to think that scientific people are the same as they are – and so that is the way they interpret them in art. In bringing out the *real professional*, artists generally create a cartoon character that one rarely encounters in real life.

In order to satisfy those of you who have an artistic bent, or would have preferred something more melodramatic, I would have dearly loved for you to have gotten up to this chapter, and for me to have exclaimed:

*“Goddamn it! It was the “banana and bag of peanuts” all along. We’ve found the cure! It’s been staring us in the face all along! How could we be so blind? Why didn’t we just see it earlier? My God! Let’s get this thing out there and start curing people – stat!”*

Unfortunately, such a convenient and well-packaged ending simply wasn’t possible with our research project, and therefore you are not going to get one of those conventionally happy endings to finish this particular story – just a whole bunch of things to go away and think about for yourselves about Parkinson’s Disease (PD). And you should think about these things seriously because one in every two hundred of you that read this book either already have, or will contract, PD at some stage in your lives. If you think that this makes the disease just an outside chance, then consider whether or not you would invest a dollar on a lottery ticket at the same odds.

There is something even more disturbing to think about in terms of the statistics as they pertain to PD – some of you reading this now will be thinking *“thank God I don’t have to worry about it...”* and, yet, unbeknown to you and your doctor, may already be lurking the disease – unnoticeable and undiagnosable – perhaps for another several years. As I have already told you, PD is a very slowly progressive disorder that doesn’t appear to play favourites.

As a hypochondriac, in order to allay my own fears, I reviewed the scientific literature to find out whether any other

neurotic, 40-something engineers, who wash and wax their cars twice a week, have ever contracted PD – so far none have turned up, and I have to take solace in that. The rest of you can make up your own meaningless rules for why you won't be one of the people who get it.

Having provided you with these warnings about both the disease and the anticlimactic ending to this story, we can now move on with the conclusion.

In terms of our research project, I would like to have told you that its outcome had set the neuroscientific research world on fire – but, it didn't. I would like to have told you that what we did was going to have an enormous impact on the lives of people with PD – but, it probably won't – at least, not directly. I would like to have told you, in the spirit of Horace Mann's 1859 statement,

*“Be ashamed to die until you have won some victory for humanity...”*

that our research had won some victory for humanity – but, it hasn't yet. The end result is that you will have to satisfy yourselves with some contrived and Pyrrhic victories that I have created to assuage my own ego, and to bring to some finality my excursion upon the hackneyed and clichéd *road less travelled*.

To begin with, you need to understand what happens with research findings after a project has been completed. This, and where elephants go to die, are two of the great mysteries of the universe. We do know, however, where research projects begin their *afterlife*. First of all, research findings can be published in research theses, or in the innumerable scientific journals, for other people to

read and use. Sometimes, other scientists read them, use them and create other findings which are also published and used. So, the original author can get some satisfaction from knowing that his or her findings have been formally cited and used by peers – hopefully for some ultimately valuable end purpose.

Each research paper or thesis effectively documents one possible link in a chain between the discovery of a problem and the discovery of its solution. Only a few, amongst an entire myriad of links, are critical ones, and all the others are there because they are an integral part of the process of elimination that leads to the critical ones. For this reason, when many research findings are published, they live out their retirement years on dusty library shelves or in the bowels of cyberspace, for months, years, or even forever, without being used by anyone.

As I am writing this, it is premature, in a research sense, to tell you what value our research would ultimately have or, indeed, if it would ever have any value at all, other than contributing to the process of elimination. I can tell you, on a more positive note, that our university did end up forming an alliance with the local Parkinson's support group, and that they did commence a process of collaborative research – specifically, in looking at a range of serious social issues that confront people who have PD. The outcomes of these will hopefully have some far more direct, shorter-term benefits for the people who have to endure the disorder. So, that was one collateral outcome of our research.

Our university and our local Parkinson's support group also got together in terms of fundraising, and in terms of locally raising

the profile of the disorder. This too was a small victory for those who have the disease in our state. I only discovered that the formal alliance had occurred when I received an invitation to attend a combined university / PD fundraising art exhibition – or, as we engineers prefer to call such an event, a *framed wallpaper* exhibition. We engineers generally don't get invited to many things (certainly not for a second occasion, at any rate), so it seemed to be a good idea to accept.

Prior to receiving my invitation to the *framed wallpaper* exhibit, my last memorable visit to an art gallery had been almost two decades earlier, when I had visited the Guggenheim Museum, and wherein I had managed to set a record in viewing the entire gallery in under 15 minutes. A great achievement in the annals of engineering if not art.

"How did you find the Guggenheim?" people would ask.

"Walked up Fifth Avenue and there it was," I would reply.

"No, I meant weren't you impressed with the scope of the artwork?"

"All I can say is that it's a pity that they had to subsidise the entry fee with all those Campbell's Soup commercials over the walls."

"Those aren't commercials, they're art," people would tell me, while rolling their eyes in disbelief.

"And the difference between those and a Campbell's Soup billboard on a freeway would be what?" I would rhetorically enquire.

Usually, this comment would attract one of those condescending *engineering barbarians* looks that people with an interest in *framed wallpaper* give to us engineers. It would also terminate any further discussion on the fine arts. But, baiting artistic types with poisonous barbs is one of the few joys that we engineers derive from life (apart from baiting medicos), so please do not deny us such small pleasures. As far as this upcoming exhibition was concerned, however, I had decided to be on my best engineering behaviour, given that it was for a good cause. I therefore cautioned myself to count to ten before issuing any poisonous engineering barbs at this affair.

When I arrived at the art gallery, I discovered that it was already cram packed with hundreds of people.

"This is your program for the exhibition," said someone near the entrance, as she handed me a few sheets of paper. "All the artists are listed here."

"*One-two-three-four-five-six-seven-eight-nine-ten,*" I counted to myself before responding. "Oh, how nice. I see you've also included a phone number for each artist so that we can call them at any time," I remarked with the engineering sarcasm machinery on full.

"No. Those aren't phone numbers – those are the prices," remarked the lady with an incredulous and confused look on her face. "Would you like a drink?"

"Are the drinks on the same price scales as the art works?"

"No. The drinks are free."

"Good. Then I'll take two."

As I was directed to the front of the crowded gallery, I went past one of the artists next to her exhibit.

“Is there anything I can help you with in regard to my work?” She asked.

“*One-two-three-four-five-six-seven-eight-nine-ten,*” I counted. Yes. Yes there is. What sort of art would you recommend to blend in with pale olive colored walls?”

Again, I received one of those confused and incredulous looks that artistic types give to us engineers. I decided that I ought to break the ice on this conversation, as it clearly wasn’t going at all well:

“While you’re thinking of an answer to that question, I might just go and help myself to some drinks.”

As I got to the drinks area, I fortunately bumped into a fellow engineer.

“And are you an art aficionado?” I enquired.

“Yes. As a matter of fact, I am,” he replied.

“So, how do you tell what is good art and what isn’t?”

“It’s fairly elementary if you’re as cultured and refined as I am. You simply take the price tag for a painting, and then you divide the price by the surface area of the painting and the number of colors in it. For example, this painting costs \$25,000 and has a surface area of two square metres. It also has about 20 colors in it. That gives me a result of 625. This other painting costs \$21,000, has a surface area of one square metre, and has 12 colors in it. That gives me a result of 1750,” he said, looking at his calculator.

“So, the \$21,000 painting is almost three times better art than the \$25,000 painting,” he concluded.

“That’s fantastic,” I said. “So that’s all there is to being artistically sensitive, cultured and refined?”

“That’s all there is to it. Anyone can do it, even an engineer. All you need is a work of art, a price tag and a pocket calculator,” he replied.

This was another victory that I had derived from taking *the road less travelled* – acquiring a detailed appreciation of fine art. From now on, whenever anyone asked me what I thought of a piece of art, I would ask them how much they paid for it and divide that by the area and the number of colors. This business of refined cultural awareness was a lot easier than I had ever imagined. And, with this newfound engineering approach to art appreciation, I didn’t even have to be distracted by the aesthetics of a painting – I could just perform a cold, clinical engineering calculation in order to truly appreciate what the artist had in mind.

The other thing that I learned from being at the art exhibition was that people found the fact that I was involved in PD to be interesting. This was quite unusual for an engineer.

“And what do you do for work?” Asked one lady.

“Actually, I’m an engi... – actually, I have been undertaking important research into Parkinson’s Disease,” I replied.

“Oh, that must be so interesting,” she remarked.

“Yes. Yes it is. Particularly, the engineering aspects of it that we were looking ....”

“Excuse me, sorry to interrupt you there, but I think I just saw someone that I know. I’ll be right back a little later after I talk to them.”

“*One-two-three-four-five-six-seven-eight-nine-ten* – take your time...I’ve got all night,” I said outside of her hearing range, as she sped off.

So, another important lesson was derived from my foray into the world of Parkinson’s research. No matter how you introduce anything relating to the word *engineer* or *engineering*, the *Easter Island Syndrome* response will always be precisely the same.

Shortly after this demoralizing encounter and lesson, a blonde lady came up to me to congratulate me for organising the event. As it turned out, I had met this lady several times before at various other functions, and she was a well known target of many jokes in the circles in which she operated. She did mean well, however, and had somehow convinced herself that I was the instigator of the charity event. It appeared that the more I tried to explain to her that I had nothing whatsoever to do with the event or the fundraising, the more she was convinced that I had:

“Oh you’re just being modest,” she said. “I’m sure this whole thing has got your name all over it. I think it’s wonderful that you’re involved in Parkinson’s research. Actually, my boyfriend is over there. He’s in a very similar area of research.”

“And what area is that?” I asked.

“Liver cancer. Is that similar to Parkinson’s Disease?” she enquired.

Unfortunately, a couple of milliseconds before she had come up with this priceless response, I had just taken a mouthful of champagne which began spraying out through my nostrils and bubbling its way up through my ears. There was no time to count up to ten this time. Somehow, while trying to stop the explosion of laughter that was building up inside, I managed to cough out,

“Almost identical. Liver. Brain. I’m sure they’re all connected. There’s just so much we don’t know isn’t there?”

“Mmm. That’s right. Mmm. It’s so important to have the research isn’t it?” she replied authoritatively.

“That was just a rhetorical question. You don’t actually need to answer it right now. Excuse me, but I think I just saw someone that I know over there. They probably need my advice on assessing an art work – we engineers are very good at that sort of thing. We live for our art. I’ll be right back a little later.”

I hope that you recognize this incident as another important milestone outcome along *the road less travelled*. Quite possibly the first time in history that an engineer has been able to apply the “...I think I just saw someone that I know over there – I’ll be right back a little later” line.

As I was about to leave the event, having acquired all the artistic appreciation that I could endure for one evening, another lady came up to me and asked,

“Do you remember me?”

I responded with, “No. Should I?”

“I was there when you presented at the young Parkinson’s group a few months ago.”

“Oh, sorry – I didn’t recognize you. Do you have Parkinson’s Disease?” I asked, still trying to work out who she was.

“No. But you sure looked like you had it when they finished with you,” she responded with a smirk. “The boys gave you a harder time than you expected, did they?”

“Not really,” I lied. “Just another average day in the world of research. No more or less humiliating – ...well, maybe a teensy bit more humiliating.”

“Hope that it all worked out for you in the end.”

“It did, thank you,” I replied as I left. And, as far as the research was concerned, it had.

As I left the art exhibition that evening, at the back of my mind, I could see the *on-ramp* leading back to the *engineering freeway*, and further away from the *road less travelled*. The art exhibition appeared to be the end of the excursion.

A few days later, however, the telephone rang and the caller turned out to be one of our Parkinson’s research participants.

“I just wanted to call you to thank you and your research student for the kind way in which you treated my wife and I whenever we came in. I’m actually in the process of writing you a letter to thank your research student formally.”

“That’s very nice of you, but there’s really no need for you to do that. You’ve already done an enormous amount for us just by participating in our research. Anyway, I get paid for what I do, and if you say anything nice about our research student in writing, he’ll only get a big head.”

“No, I wanted to thank you properly. And, in the letter, I’m also including details about how I first noticed that I had the disease; and how it affects me – and how I explained what was happening to me – to my family. It might be important for you to understand that.”

Despite my assurance that it wasn’t necessary to send a formal thank you, sure enough, a few days later, the letter arrived and, in part, read as follows:

*“...Enclosed is a note that I sent to my family and friends in the hope that they will continue to be understanding and not to worry about me so much. My carer is my wife of 51 years and she is wonderful.*

*I would say that my experience of Parkinson’s has been better than other sufferers that I have met or spoken to. I have occasional spells of depression and anxiety but overall am managing reasonably well.*

*...The work you are doing is very important to us. Please thank your research student for being so pleasant and helpful to my wife and I.*

*...My main concern is the constant awareness that I am not able to make commitments or communicate properly while on the tightrope of medication. Parkinson pain is not severe but the discomfort is distracting. The digestive process...this is probably the most dangerous problem – I have difficulty swallowing – very untidy whilst eating. The real situation is that the whole muscular system is not working and coordination is very poor. ...I have a magnificent John Cleese walk, which I try to limit to my wife’s enjoyment. I also have quite a lot of involuntary movements which are exciting and unpredictable.*

*...I am very lucky to have a disease which can be treated by the drug Levodopa, with the help of many other ancillary drugs.*

*...There is no cure for Parkinson’s, but many people have lived with it for 25 years or more. This will mean that I can get old and grumpy.*

*I am lucky – I am happy with my life and intend to continue to be a bloody nuisance....”*

The letter, though perhaps unintentionally so, was both powerful and moving. It is a rare thing in life for even rich and healthy people to formally acknowledge that they are either happy

or lucky. And, yet, here was this man who was, seemingly, neither rich nor healthy proclaiming himself to be both happy and lucky. His letter gave me pause to think back to old Sister Kevin, and her far away cows with the long horns.

That *far away cows have long horns* was really just an old Irish nun's Gaelic way of saying that the grass is always greener on the other side of the fence. And, more importantly, to not go looking for those far away things at the expense of happiness and living, because those far away things sometimes appear better than they really are.

The letter also led me to recall a conversation I had had some months earlier with one of the young-onset Parkinson's research participants, while we were waiting to set up for one of our tests.

"Do you think they're ever going to cure this thing? Do you think I'll ever be able to *get my life back*?" He asked.

"It's not my area of specialization and I'd just be speculating. You'd really need to ask a neuroscientist that question. What I can tell you with absolute certainty is that nobody is doing research into the area of *getting your life back* – they're just doing research into removing the symptoms of a disease – and that is not the same thing and you need to understand that. As far as getting rid of the symptoms is concerned, I'm guessing, because I don't really know, that the pharmaceuticals will end up giving you a significant improvement in your life long before you see a cure, just because of the amount of money involved in the development and commercialization of a cure. And, can I now also ask you a hypothetical question, instead?"

"Sure."

“Supposing, hypothetically, that rather than being an engineer, I was the world’s greatest neuroscientist, and that I had read every piece of research on the subject of Parkinson’s Disease. Supposing, then, I told you today that we were never, ever, ever going to find a cure for Parkinson’s Disease. And that you believed my prognosis. What would you do today?”

After a pause, he replied, “I’m not really sure. I suppose I would have to sit down and think about it. I would have to work out how I could be making the most of every single day in my life, given where I was physically, and how I could enjoy every day to the best of my ability – knowing that things were never going to be better than they are today.”

“That’s a very interesting answer you’ve given, isn’t it? Do you see the supreme irony in what you are saying and doing?” I queried.

“No, I’m not with you,” he replied.

“Well, if I follow your reasoning through to its logical conclusion, I see it this way. Currently you have Parkinson’s Disease and you’re not as happy as you think you might otherwise be – because every day the disease seems to have taken something more away from you. However, somewhere, in the back of your mind, you’re harbouring a hope that one day there’ll be a cure, and then all those things that have been taken will be returned to you – and you’ll be happier because you’ll *get your life back*. But, if today, I were to tell you that there was no hope of ever being cured, and that none of those things that have been taken will ever be returned, then you tell me that you would take stock of your life, and do something to make

yourself happier than you are now. In other words, that you would actually be happier today if I gave you no hope than if I gave you some hope.”

Just as I had finished saying this, I realized that I had really overstepped my mark with this whole conversation, and that I should have kept my mouth shut. It wasn't for me to go and make such a comment, and it had nothing to do with our research. I was also sure that I had made the guy angry and was about to be yelled at and told that I didn't understand his problem at all. Surprisingly, however, after a pause, the response I got was one of agreement:

“I think that's probably right. That is a very good point – and that makes me very nervous. Nobody's ever put it in those terms before. I've never really thought about it that way. That is a very disturbing thing you've given me to think about. And, I guess it's not something I ever really wanted to think about.”

And, in truth, at the same moment that he made his realization, I also realized that this was indeed a very disturbing thing about research, life and diseases. Research has an intrinsic ability to improve the quality of our lives, but it also creates the illusion of those far away cows, that sometimes prevents us from making the best of what we currently have – because there is always the mirage of something intangibly better in the distance.

It would have been very easy then for us to have just dismissed the more mature sufferers that we met with PD as having a basis for greater contentment than the young-onset sufferers. Granted, the mature ones didn't have to work or pay mortgages, or to raise children. Some of the symptoms of PD also coincided with

the symptoms of age, so they were not as pronounced in more elderly sufferers. Given this, the young-onset sufferers genuinely had been dealt a bad hand because far more had been taken away from them. But this line of reasoning would also have served a great injustice to some of the older PD sufferers. Their quiet acceptance of the problem and their understanding that science probably wouldn't be able to provide a rescue (for them) within their lifetimes had instilled them with a greater sense of purpose, and with a wisdom about how to handle PD, and the rest of their lives.

Notwithstanding this, having seen what PD could do, and to such large numbers of people, led me to hope that one day soon someone would find a better remedy than the treatments that currently exist. Perhaps a herbalist with a *banana and bag of peanuts* cure; or a pharmaceutical company with a lifelong pill that will make them even more billions of dollars; or a neuroscientist with a stem-cell – or perhaps even a naturopath, slapping a couple of dead fish over the tops of people's heads. But, on those occasions when I thought about the people who already had PD, I also realized that for many of them, a cure would be a far away cow. At best it would remove the symptoms but it would never reverse the hands of time and turn them back into the people that they were before they contracted the disease. And, if the truth be told, reversing the hands of time was one of the far away cows that many of them were in search of.

And that was probably the most significant thing that I learned from our research.

In deference to old Sister Kevin (wherever she may now be), and her wisdom and philosophy on far away cows, and in deference to those who have PD, it would be unwise of me to conclude without quoting from something apropos. So, I have extracted part of a letter from Paul to the Corinthians, which I believe is as relevant to Sister Kevin and her far away cows as it is to this discussion, and as it was two thousand years ago:

*In all things we suffer tribulation – but we be not anguished, or distressed;  
We be made poor – but we lack nothing;  
We suffer persecution – but we be not forsaken;  
We be made low – but we be not confounded;  
We be cast down, but we perish not.*

Anyway, you've probably heard enough from me on all this moist-eyed-bumpkin stuff. As an extremely busy engineer, I had to take the on-ramp from the *road less travelled*, back on to the *engineering freeway* and back to the important issues in life. I consulted my diary to see what critical engineering issues had been neglected during my foray onto that *road less travelled*. What vital diary entries needed my professional engineering attention? And there it was:

*“Change cat’s flea collar.”*

Yes. It was going to be another very busy and fulfilling week in the world of engineering.

### *Post Script...*

You will no doubt be wondering what happened to the progress of our little research program. Needless to say we did kindle enough interest in some of our emerging research students to take up and carry on the work that we started on the relationship between Auditory Brainstem Response and Parkinson's Disease. Those postgraduate researchers are currently working on the development of a "wearable" ABR monitor which, if successful, can be applied to monitor and profile PD patients over the course of a day. If such tests show that there is, indeed a correlation between medication levels and ABR, then it may be that a wearable device could improve the efficacy of medication. But, that's all in the future...

On another note, you should also know that as an engineer, I may have achieved a milestone in having been invited to another Parkinson's fundraising function after my appearance at the Art Exhibition. The Director of our Parkinson's support group was kind enough to introduce me to a lady that he thought I would be interested in speaking with. After he introduced her to me, he proudly stated that,

"...She was involved in the very first trials of Levodopa in this country."

Thinking that I should pay her a compliment for this feat, I responded in a slow patronizing voice with,

"You look remarkably good for someone who has been on Levodopa for almost 40 years."

She seemed rather surprised by what I had intended as a compliment and replied with,

“You idiot. I haven’t been on Levodopa for 40 years – I am a Professor of Neurology – I was the one who was conducting the trials. If I’d been on Levodopa for 40 years I’d be completely gaga.”

Despite having my now frequent feeling of dissolving into the floor in embarrassment, a little voice inside me told me that I simply had to dig myself in deeper,

“Don’t you find neurology rather frustrating? I mean after all, you can’t do much other than diagnose and prescribe pills.”

“Not really. I’m also a Professor of Neurosurgery.”

As I felt myself oozing down through the cracks in the floorboards, she winked at me and said,

“And you were right the first time – I do have Parkinson’s Disease”.

I’m not expecting any further invitations to Parkinson’s functions. The *road less travelled* has had impenetrable road blocks installed.

