Prologue

From the start, you will want to know that this is a book about the English language and how it is used in health and disease. It is also a book about how it came to be used by the scientific community, whether it is in Italy, Egypt or England. Along this journey I will be digging up old stories sometimes buried in the archives of a thousand year old university and adding new ones, as we race to the stars. Language, biology and medicine excite me to no end, so the idea for writing this book was born out of my own journey as a lifelong learner, philologist, physician and teacher of biology. For the study of language is a biological science and we will see how that is so in the chapter on the Brain and Language. Underlying my excitement are many of the stories I tell from my own experiences on hospital wards in the United States and Italy, in the lecture halls with Italian students, in the mountains of Afghanistan during the long war and in the arid deserts of Kuwait. If not to entertain you, with these stories I hope to sometimes leave you, well, just curious about how the biological sciences have invested in English. In any event, I tried to fuse medical notions and English prose into discussions about words, objects, phrases, nuances and strange or unusual observations. Starting with the title of this book: *Strawberry Tongue*, used to describe the red papillary appearance you see on the tongue of a patient with, among other afflictions, scarlet fever, medicine draws on a wealth of medical metaphors. For this one, a quick browser search reveals various uses in the medical literature:

"*Recurrent Kawasaki Disease with Strawberry Tongue and Skin Desquamation in a Young Adult*"[1].

"*A Girl with a Sore Throat, Fever, and Strawberry Tongue*"[2].

"*The strawberry tongue is also associated with both streptococcal and staphylococcal toxin-mediated disease*"[3].

It may make you feel better to think that it cannot happen to you, but the history of science is filled with researchers who have been slighted, overlooked and forgotten for not reporting their findings (a word that is quickly replacing "results") in English. So I have included a chapter of stories to honor (or British honour) those researchers.

Looking beyond these injustices, something must be said about tedious and never easy grammar. This should be no obstacle though for students whose mother tongue comes from Latin. But as much as English teachers would like English to be Latin, scientific English remains steadfast in its succinctness and simplicity. *I don't have any time to waste*, becomes *I have no time*, in scientific English. The "no" as an adjective speeds things along and reduces ambiguity. The real problem is that there are relatively few rules in English and many exceptions. So science needs the advice of literature. In this humorous passage from *In Another Country* written in Italy while in hospital during The Great War, Ernest Hemingway shows that speakers seeking fluency in Romance languages have their headaches as well.

On Hemingway's behalf it is appropriate and fascinating to include the Italian translation for comparison.

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[1] Yuan K., Park J.K., Oubti M.A., Hague U.J., Recurrent Kawasaki Disease with Strawberry Tongue and Skin Desquamation in a Young Adult. In Journal of Clinical Rhematology, Vol 18, issue 2, March 2012, pp. 96-98.

[2] Leung A.K.C., Barankin B.K.C., Kam Lun H., A Girl with a Sore Throat, Fever and Strawberry Tongue. In Consultant for Pediatrics, appendix 2, 2014, p. 192.

[3] Burns J.C., The strawberry tongue is also associated with both streptococcal and staphylococcal toxin-mediated dis. Ease, in Clinical Practice Guidelines. The Royal Children's Hospital, Melbourne. Retrieved Dec 26 2016 from http: //www.rch.org.au/clinicalguide_index/Kawasaki_disease_Clinical_Features

> The major, who had been the great fencer, did not believe in bravery, and spent much time while we sat in the machines correcting my grammar. He had complimented me on how I spoke Italian, and we talked together very easily. One day I had said that Italian seemed such an easy language to me that I could not take a great interest in it; everything was so easy to say. «Ah, yes,» the major said. «Why, then do you not take up the use of grammar?» So we took up the use of grammar, and soon Italian was such a difficult language that I was afraid to talk to him until I had the grammar straight in my mind[4].
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> *Il maggiore, che era stato un grande schermitore, non credeva al coraggio, e, mentre eravamo seduti agli apparecchi* [ortopedici], *trascorreva molto tempo a correggere la mia grammatica. Si era complimentato con me per come parlavo italiano e parlavamo con molta facilità. Una volta gli avevo detto che l'italiano mi sembrava una lingua tanto facile da non destare il mio interesse; tutto era così facile a dirsi. «Oh, davvero!» disse il maggiore. «Perché, allora non metti in pratica la grammatica?» Così incominciammo a studiare la grammatica, e presto l'italiano divenne una lingua così difficile che ebbi il timore di parlare con lui finché la grammatica non no mi fu ben chiara nella mente.*

You can't think without words. This has been etched as a glowing ember of memory on my hippocampus from my otherwise forgotten high school English teacher and it may come as quite a surprise to you, but it is true. Based on fMRI evidence we know that thoughts require words the way music requires notes. This becomes immediately apparent in practical terms when you learn a second language. "*Withdrawal*", for example has no equivalent in Italian without a lengthy explanation. For native English speakers, words from Italian, like *anzi*, *magari* and *proprio* (respectively and often incorrectly translated as "not". "it would be nice", and "own") can be daunting and a bit frustrating at first. And there are a slew of words from Italian that have enriched English, mostly from art and music, but also medicine (belladonna, pellagra, influenza, malaria,

[4] Hemingway E., in Another Country, in Men Without Women, United States, Charles Scribner's Sons, 1927.

cascade). Other words are sometimes maddening because they are used incorrectly. In English "*toast*" refers to a plain slice of grilled bread, but in Italian it is a toasted sandwich. *Pepperoni* in Italian has nothing to do with pizza and everything to do with bell peppers. Then there are the English words that have taken on a whole new life in Italian: *footing* for running, *box* for shed or garage, *slip* for men's underwear. And make-believe-we-are-English words that are indispensable for touring Italy: *auto-grill* for roadside diner, *auto-stop* for hitch hiking, and *clacson* for car horn.

If you are reading this book and have come this far, you already know English, or you are just curious. According to an ancient Arabic proverb, a man is defined by every language that he knows. However, written English has not kept pace with spoken English. This is best illustrated with a passage by William Shakespeare. At the time, this quip from Act II, Scene VII in *As You Like It*, made people double over in laughter. It no longer does so because the word *hour* pronounced as *whore* changed into its modern pronunciation.

> And then he drew a dial from his poke, and, looking on it with lack-lustre eye, says very wisely, «It is ten o'clock»: Thus we may see, quoth he, how the world wags. 'Tis but an hour ago since it was nine; and after one hour more' twill be eleven; and so, from hour to hour, we ripe and ripe, and then, from hour to hour, we rot and rot; and thereby hangs a tale[5].

This ambiguity probably stems from the fact that the English alphabet has for very good reason been adapted from Latin. It is not for nothing that it is technically called the Roman alphabet. In turn the Romans borrowed from the Phoenicians and W from the Egyptians. All of this borrowing has created quite a mess with five written vowels (A, E, I, O, U) for a far greater number of vowel sounds. For this reason, fish can just as well be spelled '*ghoti*' (*gh* as in *through*, o as in *women*, *ti* as in *station*). This spelling has been attributed to George Bernard Shaw and to James Joyce. And

[5] Shakespeare W., As You Like it, Act II, Scene VII, in First Folio, 1623.

although it is not in any of Shaw's writings, it does appear in Joyce's Finnegans Wake[6].

Errors and changes in the alphabet that reflect errors and changes in a language are somewhat similar to gene mutations being fuel for natural selection (except that mutations are random and natural selection isn't): both are gradual and cumulative changes over time. Because the Indo-European family of languages dates back some 9000 years, linguists have often cited the Greek letters *alpha*, *beta*, *gamma* and the Phoenician letters *aleph*, *bejt*, *gimel*, as well as the evolution of the word "royal" in English from *raj* in Sanskrit, which became *rex* in Latin, *roi* in French, *rey* in Spanish and *reale* in Italian. Although it takes much less time to change a language than it does to change an organism, both cling to their roots, like *avis* in Sanskrit and *ovis* in Latin. There is an endless list of cognate words that follow this trend.

Sanskrit	Greek	Latin	Italian	English
pitara	patēr	pater	padre	father
naranga			arancia	orange
sharkara		succarum	zucchero	sugar

There is only one way to say: *quite*, *rather*, *pretty*, *kind of*, *sort of*, or *somewhat* in Italian: that is with the adverb *piuttosto*. Being aware of this English subtlety will help when you want to be non-committal in your dealings with the public, but should be excluded entirely from any scientific writing. How high are, rather high levels of cholesterol? Learning a foreign language helps you to think clearly and understand your own language that much better. This is not surprising if you consider the sheer number of words you must learn and the knowledge that a foreign language is located in a distinct area of the brain not necessarily overlapping the area housing your native language. I explain this further in The Brain And Language chapter.

[6] Joyce J., Finnegans Wake, "Gee each owe tea eye smells fishy", London, Faber and Faber .4 May 1939, p. 299.

Most medical books are scarcely at all interested in language and most language books are written by authors who scarcely know much at all about the science of medicine. So to the readers of this book, there are themes in biology for the biology student, biologist, biotechnologist, and themes about medicine for the medical student, medical doctor (MD), physician assistant (PA), nurse, nurse practitioner (NP), obstetrician, pharmacy student or pharmacist. Have I left anyone in the life sciences out?

A revolution is underway as countries in the EEU are taking steps to adopt English for degree programs in science. This has led to entire degree courses in medicine now being offered and taught in English in non native lands. As a consequence, there is hope for an effortless flow of students and scientists between countries as they transition to other universities and hospitals. I may be opening up a proverbial can of worms with this, but one thing is becoming unmistakably apparent. Scientists who have learned English as a second language often have a working knowledge of English far superior to students who study English in the Humanities. This is because scientists have to compete with native speakers for publication, grants and primacy of discovery, whereas students in the humanities generally remain local as primary and secondary school teachers.

Today, most European students come to the university with prior knowledge and skills in English that they have acquired in school. It is then the university that must hone those skills to meet the demands of science. Has it escaped anyone's notice that modern language books, regardless of content and focus, have been strangely silent on how doctors and researchers actually speak and write? The likely reason is that they are always written by third party linguists who mimic what they think we say. But pain, misery and death rarely come with a "present perfect" smile, and empathy cannot effectively be glossed over in the passive tense. So this book could no longer simply be a miscellany of interesting but unconnected curiosities, it had to evolve into a collection of stories that when taken together illustrate these many points.

One thing you learn in medical school is that it is inappropriate to ask a patient: "*What is your problem?*" to avoid being embarrassed by a witty patient who can answer: "*That is what I would like to*

know." A safe approach is to ask open ended questions. Say: "*Tell me about your problem*".

> "*Teaching Inappropriate English, though just part of the problem, is teaching the already linguistically handicapped to limp*"[7].

It is one thing to speak to patients and quite another to gossip with your peers. You may at this point be asking: what do doctors actually speak about when they are together? Like everybody else, doctors dedicate roughly 70% of their verbal energy to gossip.[8] The other 30% of what we say sounds pretty prosaic. We often disgracefully refer to patients in a derogatory fashion with practical terms as "*the bleed in room 2*". "*The MI in CCU*," or "*The shingles in room 9*". Everything. Every single detail is SOAP annotated and later discussed as Subjective, Objective, Assessment Plan with an eye on pathogenesis, pathophyiology, etiology, clinical course, treatment and prognosis. We tend to think fast and think again as we talk about triage and masscals (mass casualties), chief complaints, histories, and spot diagnoses while multitasking on the run. We talk about hidden clues, treating the patient and not the disease, the cause not the symptom and pain. Always treat pain. In the end, all talk inevitably returns to the realization that "*The longer someone stays in the hospital, the longer one stays in the hospital*". This applies to patients, who end up with nosocomicial infections and doctors languishing through the corridors on perpetual call.

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[7] E.L. Degauwin & R. L. Degauwin, Bedside Diagnostic Examination, Fourth edition, New York, Macmillian Publishing Co., Inc, 1981, p. 15.

[8] R.I.M. Dunbar, Gossip in Evolutionary Perspective, 2004. In Review of General Psychology, Vol 8, No 2, pp. 100-110.