

SAVING ALICIA

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Summary

Saving Alicia is a creative thesis written to explore the possibility of incorporating some non-fictional concepts of neurophysiology into a work of fiction. The initial component presents the historical and contemporary context in which such a work is written along with an analysis of the writing techniques employed by other writers in the field. It sets out the aim of the subsequent creative composition.

The second, and major, component of this thesis is a work of fiction. A story is developed in which the protagonist, a young woman, revives her deceased mother's neurophysiological research work in the hope that it will help her brain-damaged niece, Alicia, recover. For this she is dependent on two men who were her mother's colleagues. As they compete for her attention, while pursuing their own conflicting goals, the protagonist maintains her determination to keep her mother's work going. She has no prior knowledge of neurophysiology and, so that she can understand the research, she is keen to learn some of its basic concepts.

Woven through the story of *Saving Alicia* are descriptions of neurons and their physiology. This is presented to the protagonist through the mouths of the two researchers. In this way, the non-fiction is interspersed with the fiction.

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SAVING ALICIA



Exegesis

BY

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EXEGESIS



1. OBJECTIVE

An effective medium for illuminating science topics is the rarely used literary genre of 'science-in-fiction' (not to be confused with science fiction), in which all aspects of scientific behaviour and scientific facts are described accurately and plausibly. (Djerassi, 1998b, p. 511)

The objective of this research thesis is to explore the use of the medium of a novel to convey concepts of physiology to a readership of non-scientists. With such a readership in mind, a fictional story is to be developed into which will be woven some aspects of the currently accepted understanding of how neurons (nerve cells) function.

Neurons are the functional unit of the human nervous system. They seemed the most appropriate physiological topic to choose for a creative Masters thesis in Communication because they are essential for all forms of human communication. The aim of the thesis is to investigate ways of communicating enough information about the physiology of neurons for the reader to grasp the essential elements of how they transmit *messages*, both electrically and chemically, without overburdening the reader with information, or becoming too didactic.

The story developed for this thesis, *Saving Alicia*, revolves around the desire of the protagonist, Louisa, to help her baby niece, Alicia, recover from brain damage sustained in a near drowning accident. Louisa learns about neurons because they are the basis of the research that she believes will lead to the baby's recovery. She is both aided and obstructed in this by two researchers, Gareth and Vince. The fact that by the end of the book Louisa still does *not understand* the research is an effect of the complexity of modern neurological research, which is beyond the scope of this thesis. A deep understanding of the research belongs to Gareth and, to a lesser extent, Vince. Louisa is satisfied to have gained a basic understanding of neurophysiology.

This exegesis will seek to explain how science has, historically, been incorporated into fiction; why there is a need for science to be written for non-scientists; the genres in which science predominantly appears; and the methodology employed by writers seeking to blend science and fiction.

2. THE RATIONALE BEHIND THE RESEARCH TOPIC

The popularization of science is seen as one route to public understanding of science. (Gregory and Miller, 1998, p.88)

Professional scientific writing is written for a readership of fellow scientists, familiar with the terminology. It is written in the passive voice and the third person. *"The need to conform is drilled into scientists at an early stage of their training. A good scientist is disinterested and objective . . ."* (Shortland and Gregory, 1991, p.5). One reason why scientists write in this dry style, according to Dorothy Nelkin, professor of sociology at New York University, is that until recently scientists were *"concerned that public visibility could encourage external intervention"* (Nelkin, 1994, pp. 25-31). Scientists allegedly also fear misunderstanding of their work by the public and believe that publicity can compromise scientific integrity (Shortland and Gregory, 1991, p.5). *"But the stakes have changed in the face of scandals about*

research fraud . . . and threats of outside regulation," Nelkin writes. "Seeking ways to improve their public image, scientists are using rhetorical strategies to communicate the excitement and benefits of their work," she continues (Nelkin, 1994, pp. 25-31).

Shortland and Gregory (1991, p.7), two scientists whose interest is the popularisation of science, take this further. *They argue that "science is part of our culture and heritage, and scientific knowledge ought therefore to be common property. No poet would insist that his work be read only by other poets; nor would any actor forbid all except actors to watch his performance."* Viewed from this perspective of science being integral to our interpretation of the world, it is not surprising that many scientists have written for the general public. Among them are Australians such as Paul Davies, professor of mathematical physics at the University of Adelaide - author of many books, including *The big question* (1996) and *The fifth miracle* (1998) - and Margaret Wertheim, science writer, now living in USA - author of *Pythagoras' trousers: God, physics and the gender wars* (1997) and *The pearly gates of cyberspace* (1999). The fact that these and overseas writers of popular science, such as Richard Dawkins - author of *The selfish gene* (1978), *The blind watchmaker* (1986), and *Climbing Mount Improbable* (1995) - and Desmond Morris - author of *The naked ape* (1967), *The human zoo* (1969), *Manwatching* (1997a), and *Bodywatching* (1997b) - have been successful, is an indication of the public's interest in science when it is presented in a comprehensible form. These authors write about their scientific subjects in an interesting and direct way, often using the active voice and the first person, to present jargon-free writing.

But, popular though such writing is, it is not the only way of presenting science to the public through writing. Professor Carl Djerassi, professor of chemistry at Stanford University in California, advocates disguising science in the cloak of fiction (Djerassi, n.d.b). It is the aim of this thesis to explore the presentation of science in this way, by writing a work of fiction in which concepts of neuron physiology are embedded.

3. HISTORY OF SCIENCE IN FICTION

The details of Dicken's novels often reveal that he had absorbed, like an intelligent layman, some of the key ideas issuing from contemporary developments in geology, astronomy, and physics. (Levine, 1988, p.124)

The divergence of science as a discipline separate from that of philosophy is relatively recent, with the recognition of science as a distinct, specialised, professional area being marked by the first issue, in 1869, of the science journal, *Nature* (Paradis and Postlewait, 1985, p.159). Others may argue differently about the exact timing of the divergence, but it is the fact that it occurred that is relevant to this thesis.

As an awareness of science grew in the nineteenth century, scientists and writers presented scientific ideas to the public, often with great imagination. Michael Faraday, an eminent scientist, described in a lecture in 1848 the science of how a candle burns with such skill that it is still quoted today as an excellent example of the popularising of science (Gregory and Miller, 1998, pp.134-136). But people noted more for their writing than their interest in science also presented scientific concepts to the public. According to Levine (1988, p.124), Visiting Fellow at Cambridge, "... *the scientific essays [of Charles Dickens] stressed the relation of science to ordinary life and made his journals important popularizers of scientific ideas.*" Other notable writers of the nineteenth century who incorporated scientific ideas in their works included Edward Bulwer-Lytton, Jules Verne and H.G. Wells (Chappie, 1986, p.13). Such writers played with the scientific ideas of the time with the name of H.G. Wells, in particular, living on because of the scale and number of his imaginative projections and his enduring ability to capture the public's interest.

Such imaginings about science led to the vast genre of science fiction, from the writings of H.G. Wells to those of the myriad of modern science fiction writers. All fiction is the product of an author's imagination, but the fantasy element of science fiction often places its version of 'science' in a world far removed from the reality of modern living. Since it is not the aim of

this thesis to develop a fantasy world, I restricted my reading to fiction that is set in some plausible, earthly realm and which has a substantial component of accepted scientific facts, theories or concepts. Fascinating though the genre is, science fiction is not the subject of this thesis.

Nor is the objective of the thesis to give a thorough historical analysis of the use of fiction to convey science. Having established that fiction has been used since the middle of last century for this purpose, I further restricted my research to recent literature in order to study the methodology used by contemporary writers. I have kept the category of science broad and have *not* restricted my research of contemporary works by focusing only on physiology. However, works incorporating biomedical data, being more relevant to the thesis topic, naturally claimed more of my attention than did those incorporating concepts of physics or mathematics. The challenges presented in carrying out such research form the topic of the *next* section.

4. RESEARCH OF CONTEMPORARY FICTION INCORPORATING SCIENCE

Is collecting not the most innocent of pastimes, combining as it does the thrill of the hunt and the retrieval, the satisfaction of gathering what has been scattered into an original whole which will conserve its own small part in the integrity of the past? (Gould, 1998, p.28)

In crossing the boundaries of science and literature, in its broadest sense, I have stepped outside the limits of each discipline and found myself in a strange city with few signposts and many dark alleyways. To find direction, my research methods ranged from using the signposts of traditional classification systems to a more informal, personal approach. The result was often surprising. I could end up confronted by a brick wall, or I could stumble into a sunlit boulevard, alive with the interesting characters of fiction. Clustered amongst these were often many whose actions were moulded by

scientific ideas, discoveries and knowledge – the treasure that I sought, the blend of science and fiction.

One traditional signpost pointed me to the well-beaten path of the Library of Congress classification scheme (University of Canberra Library Guide, 1996). Here, books on science, for example, are placed in Class Q, while books on medicine are in Class R. Each class is further subdivided into narrower subject areas, such as QP for physiology and RC for sports medicine. Through such a cataloguing scheme, or through databases, the researcher such as myself could easily find material on a selected topic. Citations and hotlinks then lead to related works of interest.

Fiction, by contrast, is discovered along a less well-defined route where works are classified by genre, such as romance, historical or mystery. Within the genre, a reader's attention may be drawn to individual works by the popularity of the author, the catchiness of the title, a recommendation by friends, or simply the cover of the book, rather than by knowledge of any non-fictional content. Citations are usually absent from fiction, so that the reader cannot easily identify related works. In other words, finding references to specific topics, such as physiology, in works of fiction is a challenge.

To address this challenge I turned into the highway of modern technology. First Search, an online reference service providing access to more than thirty databases, responded to keywords like "science in literature", "physiology in literature" and "anatomy in literature". It yielded references to works as wide-ranging as *Kishina* by Maxine A. Rock (1996), a book about the first baby gorilla born in Yerkes Regional Primate Research Centre, and *Bugs in the system* by May R. Bernebaum (1995) which covers insect physiology, behaviour and sociality. Such references, however, were not exactly the object of the search. Extending the search to different libraries' catalogues and different databases, and using different combinations of keywords, revealed more titles, but few of relevance to my project. Clearly, the works I sought - that is, fiction in which is embedded scientific information - were not catalogued in a way that made them accessible through this type of

search. The question still remained of how to find them. I was entering uncharted territory. The signposts had gone.

A loss this might be, but the benefit was a freedom to explore the terrain. Approaching the Internet in a different, less systematic way, brought some unexpected results. For example, browsing revealed the website of Carl Djerassi (n.d.a), an eminent American scientist and prolific author of fiction. Through his site I was able to communicate with him, and he directed me to the author Simon Mawer (1998). Another interesting website revealed by chance was that of Felice Aull (1998) of New York University. This gave a 26-page list of references on Medical Humanities, Literature, Arts and Medicine, including such works as *Ingenious pain* by Andrew Miller (1997) and *Therapy* by David Lodge (1995).

But the Internet is not the only way to explore uncharted territory. By simply asking people, references came flooding in. These ranged from the medical dramas of Robin Cook, such as *Godplayer* (1983) and *Outbreak* (1987), or the veterinary stories of James Herriot, like *Vet in harness* (1974), and *Vets might fly* (1977), to the thought-provoking novels of the Danish author, Peter Høeg, about the Gaia hypothesis (that the earth is a living organism) in *Miss Smilla's feeling for snow* (1997), and the possibility that apes are more important than humans in *The woman and the ape* (1996). Even the fantasy writer Terry Pratchett, who explains the science behind his Discworld series in *The science of Discworld*, was brought to my attention (Pratchett, Stewart and Cohen, 1999). The serious disadvantage of the word-of-mouth method is that works can easily be missed. Because it depends on chance rather than disciplined research, there is no way of knowing the extent of relevant writing that exists.

While word-of-mouth may be neither the traditional academic tool for research, nor the infallible method that I desire, it has provided a very wide range of suitable references. Inevitably, the works I have selected are a result of this unsystematic research and equally inevitably my choice will affect the process of writing the thesis.

The conclusion I have drawn from the research is that scientific information can be found in fiction from a variety of genres.

In addition to the genres mentioned above, science is often woven into crime novels. The American author Patricia Cornwell, for example, uses scientific detail to lead the reader to an understanding of the forensic significance of clues. For example, in *Cruel and unusual* (Cornwell, 1994), Dr Kay Scarpetta, Chief Medical Examiner of Virginia, seeks help from Special Agent Minor Downey of the FBI, in identifying eider feathers found at the scene of certain crimes. Such expensive feathers are sometimes used as stuffing in garments and so their presence gives a clue to the social class of the culprit. As Scarpetta learns about the eider duck, its feathers and the use of its feathers by humans, so does the reader.

Forensic evidence is not the only way of incorporating scientific information in crime writing. The Australian author David Owen, for example, wraps a crime story around wildlife smuggling in *The devil taker* (Owen, 1997). As the detective protagonist, Franz Heineken, uncovers details of the illegal trade in endangered species, the reader absorbs many details about those species, their habits and why they are sought after.

But not everyone accepts that crime writers are the best people to convey scientific information. "*My hackles were raised subliminally*," writes Carl Djerassi of crime novelist P.D. James when she claimed she knew little about science, knowing only where to get it if she needed it (Djerassi, 1998a). For Djerassi "*. . . clansmen can best describe a scientist's tribal culture and idiosyncratic behaviour.*" Djerassi is the author of several novels in an emerging genre he has dubbed 'science-in-fiction' (Djerassi, n.d.b), which, he writes "*. . . is based in real, or at least plausible, science*" (Djerassi, n.d.c). In his novels, such as *Cantor's dilemma* (1991), *Bourbaki gambit* (1994) and *NO* (1998c), he presents the reader with scientific information by having scientists, in their scientific environment, discuss with colleagues topics such as cancer, or nitric oxide as a biological messenger.

Another writer in the science-in-fiction genre is Englishman Simon Mawer, a former biology teacher. In *Mendel's dwarf* (Mawer, 1998), he weaves the science of genetics through two parallel narratives. One, set in the last century, is about Gregor Mendel and his groundbreaking research on the genetics of peas. The other, set in the late twentieth century, is the story of Ben Lambert, who is searching for the gene that caused his achondroplasia, a genetically inherited form of dwarfism. The stories are loosely intertwined and the science of genetics is integral to the dynamics of them both. They are so rich with the excitement of romance, lust, revenge and other powerful emotions, that by the end the reader has absorbed effortlessly some understanding of the discipline.

Australian writers also contribute to the presentation of science in fiction. For example, Adelaide doctor Peter Goldsworthy, in his book *Wish*, examines the relationship between people and apes (Goldsworthy, 1995). The reader learns about ape behaviour, sign language and the issue of animal consent. In *Honk if you are Jesus*, Goldsworthy explores the possibility of recreating Jesus from relics He may have touched, and in the process educates the reader about DNA and *in vitro* fertilisation techniques (Goldsworthy, 1992). Sally Morrison, a former science researcher from Melbourne, provides another example. In her book *Against Gravity* her characters discuss the nature of the universe, and in the process the reader learns about black holes and gravity (Morrison, 1998).

5. METHODOLOGY

The artist and scientist both live within, and play active roles in constructing, human mental and physical landscapes. (Kemp, 1998, p.875)

In searching through the diverse literature that incorporates science, I found a variety of functions played by the science, yet a certain commonality in the writing techniques employed.

Functions

In terms of the functions within the book, the science could be introduced to enhance reader involvement; as part of the setting for the story; or it could be integral to the plot. It may, of course, be used for more than one of these purposes, and the boundaries between such uses are anyway often blurred.

A writer may use scientific information to *draw the reader* into the story. Valerie Parv (1993, p.48), romance writer, writes that "*In fiction, the viewpoint character is the one through whose eyes the reader will experience the events of the story.*" If the protagonist has a goal that requires he or she learn particular facts, the reader, vicariously experiencing the protagonist's pursuit of the goal, will also become familiar with those facts. For instance in the crime novel, *Cruel and unusual* (Cornwell, 1994), Scarpetta needs to learn about feathers to solve the crime. The reader is drawn into the enquiry and the subsequent understanding of feathers along with Scarpetta. Similarly in *The devil taker*, Owen's story about wildlife smuggling, Heineken learns about the different habits of Tasmanian devils and orange-bellied parrots from Cynthia Till, a staff member of the Australian Nature Conservation Agency. Along with Heineken, the reader learns the detailed knowledge the culprit must have had in order to commit the crime (Owen, 1997, pp.125-6). Owen shows Heineken learning the details.

Useful though crime is for drawing readers in, it was not appropriate for *Saving Alicia* - neurons are hardly the material of clues. Somehow, Louisa had to be motivated to learn about them. A powerful alternative motive is the need or desire to save a loved person who is injured, ill or in danger, as for example in the film, *Lorenzo's oil* (Mitchell and Miller, 1992). In this story the parents of the neurologically impaired Lorenzo learn about the nervous system in their desperate attempt to have him cured. I decided to give Louisa a similar motive by wanting to save an injured person. Writers often use children to enhance the empathy of the reader for the protagonist (Parv, 1993, p.19). So, to enhance the motivation for Louisa to learn about

neurophysiology, I made the injured person a baby, Alicia. To make the motivation stronger, I made Alicia a family member, Louisa's niece.

Science is also used in fiction as part of the setting. In some of Djerassi's novels the characters play out their stories in scientific environments, such as laboratories or scientific conferences (Djerassi 1991, 1998c). Expanding the definition of science to include medicine and veterinary science, the novels of Cook (1983, 1987) and Herriot (1974, 1977) provide examples of stories set in hospitals and farmyards, with all the scientific detail of the work in these environments. In investigating the possibility of using the setting to convey physiology, I concluded that in *Saving Alicia* it was not appropriate because of Louisa's essential lack of scientific background. But to give authenticity to the research Louisa is pushing forward for her own ends, I use the scientific environment of a research laboratory for some scenes.

Finally, if the plot revolves around a scientific issue the reader is drawn rapidly into the science. In *Mendel's dwarf*, Mawer (1998) creates a protagonist, Ben Lambert, who is a molecular biologist searching for the gene that caused his condition of achondroplasia, or dwarfism. Like the rest of us, his genetic inheritance gives him no choice, but Mawer presents him with a chance to play God to the next generation through his knowledge of genetics. The science of genetics is essential to the plot and drives the protagonist. In many other books too, science is fundamental to the plot. Without DNA studies and *in vitro* fertilization, there would be no story about recreating Jesus in *Honk if you are Jesus* (Goldsworthy, 1992), nor would *Wish* (Goldsworthy, 1995) be a story without the moral issues surrounding experiments on apes. The ape, Wish, simply would not have been kidnapped in the first place. Similarly, if apes all had the level of intelligence we humans usually ascribe to them, there would be no story for *The woman and the ape* (Haeg, 1996) in which Erasmus, the ape, outsmarts the humans. There would be no desperate attempts to retrieve a stone from Greenland, in *Miss Smilla's feeling for snow* (Haeg, 1997), if it were not possibly holding the answer to the

origin of life itself. Parasites and the qualities of ice are essential components of this story too.

Neurophysiology is hardly controversial enough to form the skeleton of a story that shocks, claws at the arrogance of humans, or builds on ruthlessness and avarice. In order to make it an issue that drives the story, I made Louisa determined to save Alicia through research into brain repair. In reality scientists cannot yet repair brains. Louisa is driven by her own naivety to promote her deceased mother's research in this area. She does not realise, until the end of the story, the impossibility of what she wants others to do. Gareth and Vince, who must understand the impossibility of the project because of their professional involvement in brain repair research, are driven by their own ambitions to continue with the work. Vince hopes the publications he will gain from the work will assist him in becoming the dean. Gareth hopes to retrieve his career, which foundered with the death of his mentor, Louisa's mother. Because of the conflict between the two men, the project appears in jeopardy. Louisa feels she must prevent this or Alicia will not be saved. To do this she involves herself more deeply with Vince and Gareth than she first intended.

I aim to make Louisa's learning about neuron physiology integral to the plot, because of this involvement. Vince relishes his superior knowledge of physiology and lectures Louisa about it. Despite her irritation with his patronising attitude, she is drawn to him by his apparent paternalism; becomes further involved because of his power over both the project and Gareth; and finally outwits him as he hinders the project's development. Gradually Gareth emerges as the person who does the work and who needs her support to overcome Vince's exploitation of him. Gareth is keen to explain to her about neurons, so that she may understand a little of his work. He is sympathetic to her and his way of explaining has a gentleness that attracts her to him.

Writing techniques

The fictional works referred to above use certain techniques to convey information. Usually it is introduced slowly; summarised and recapitulated; and presented through dialogue. Analogies or metaphors are also often used.

Slow introduction allows the reader time to absorb information. A summary lets them check their comprehension of it, and recapitulation reinforces this. An example is the way in which Mawer (1998) describes, in *Mendel's dwarf*, the genetic reason for some people having eyes of differing colours. Protagonist Ben Lambert thinks and talks about his love interest, Miss Jean Piercey, as the story unfolds.

I haven't mentioned her eyes, have I? . . . They were of differing color. One was blue, the other green. How do you explain that by the mathematical dance of genes. . . ? (p.25)

*

Miss Piercey. I haven't explained her eyes, have I? – her asymmetric, quirky, aberrant eyes: . . . They are not the stuff of inheritance, of course: they are the consequence of somatic cell mutation, or one of them is, at any rate. . . . cells are dividing – 2...4...8...16...32...64 – and, by the purest chance. . . a single gene on chromosome 19 is copied imperfectly. (pp.91-2)

*

'You need to know what eye color Jean's parents had. . .'
[Lambert says].

'Blue,' Jean said. . . . 'They had blue eyes, both of them.'

'So one of the blue-eyed genes mutated to green. There's a blue/green gene' – we laughed at the pun – 'on chromosome 19. . .' (p. 103)

In *Saving Alicia* I aim to introduce material slowly by having both Gareth and Vince explain neurophysiology to Louisa. As each discovers her ignorance of the topic, and each develops a relationship with her, they explain elementary aspects to her.

Having decided on what information is to be conveyed, how much conveyed at a time, and how often it *should be repeated* – in themselves all difficult decisions to *make* - the next question to address is the manner in which the material is presented. The writers studied commonly use *dialogue*.

In addition to the established uses of dialogue in fiction writing, such as portraying character and *making stories more lifelike* (Grenville, 1990, p.102), dialogue provides an opportunity to convey information in a way that is personal to the protagonist and so to the reader. Grenville warns against using dialogue to convey information that would *be conveyed better* in the narrative. She implies that when used for this purpose, dialogue is not fulfilling the functions just mentioned. However, in the fictional works studied, dialogue seems a very effective way to convey scientific information, maintaining the reader's interest that could *be lost* in a narrative description *overburdened* with facts. One reason is that a more informed character can explain a difficult concept without condescension to the reader, *by allowing* the protagonist to ask for clarification, a recap, or confirmation of their understanding. Another reason is that a *substantial body* of information can be presented in small consecutive quotients *by delivery* through alternate speakers. A change of speaker can also mark the introduction of a new point.

An illustration of the effectiveness of dialogue is shown in this excerpt from *Cruel and unusual* (Cornwell, 1994, p. 272). Downey has just described the structure of feathers to Scarpetta, and is speaking.

' . . . Now we're going to magnify it some more so we can get a good look at the barbules, for it is the features of the barbules that allow for an identification. Specifically, what we're most interested in are the nodes.'

'Let me see if I've got this straight,' I [Scarpetta] said. 'Nodes are features of barbules, barbules are features of barbs, barbs are features of feathers, and feathers are features of birds.'

'Right. And each family of birds has its own peculiar feather structure.'

By the end of the conversation, Scarpetta, and the reader, have learnt about the eider duck, its feathers and their use by humans. And all without the reader feeling overwhelmed.

Another example comes from *The devil taker* (Owen, 1997, pp.125-6). Heineken is learning about the wildlife that has been smuggled.

' . . . Whoever did it probably got them where a devil track crosses a creek. . . They mark territory at such sites by making a latrine and leaving their scats. . . What would also have been easy enough to take, but not to find, were the O-BP eggs,' [explains Anthony Broadbent, a zoologist].

'The what?' [asks Heineker].

'Sorry. Orange-bellied parrot. You'd know that it's one of the rarest birds in the world. . . They breed in one small area of the South-West, and they migrate to the southern coastlines of Victoria and SA in our coldest months. . . . But not many people know where to find their eggs in the wild.'

In both these examples the reader has a chance to learn facts easily by following the conversation.

Valuable though dialogue is, it needs to be used cautiously when a large amount of information is being conveyed. For example in *NO*, Djerassi (1998c, pp. 53-56) writes three pages in almost total dialogue, describing the nature and effects of *NO* (nitric oxide). Despite lightening the presentation with comments about sex, for example by having one character, Renu Krishnan, saying, *' . . . Which leads us to NO – the holy grail of erection'*, the dialogue slows down, rather than carries the story forward. It is very dense with information as, for instance, in this example further on in the same piece of dialogue. Renu, a scientist, is explaining her research to other scientists.

' . . . The beauty of my system,' she quickly looked at Felix Frankenthaler, . . . 'is that, on the one hand, the NONO grouping causes spontaneous release of NO in the aqueous environment of the cell. On the other hand, the nature of the secondary amine, to which the NONO function is attached, can be varied in such a way as to modify the rate at which NO continues to be released. Additionally, the chemical constitution of the amine handle will

also affect in a predictable manner the lipophilicity of these molecules.'

Although this may be a depiction of the way scientists present information to, or converse with, their colleagues, or may be a deliberate use by the writer to present the character of an individual scientist, readers could become distanced by the dryness of the dialogue. So, when the information conveyed is not intrinsically fascinating, the dialogue needs to be boosted. An injection of emotion can enliven it as, for example, in this extract from *Cantor's dilemma* (Djerassi, 1991, p.14). Professor Cantor, who has ambitions to win the Nobel Prize, seeks to impress his post-doc assistant, Stafford – and at the same time conveys information to the reader.

'Did Krauss have any suggestions about an experiment?'
[asks Stafford].

Cantor's reply was instantaneous. 'Of course not. Nobody did to whom I spoke on this trip. All they produced were the usual objections, as if I hadn't thought of them myself. dozens of times. I know perfectly well that metastases are not just a characteristic of malignant cells, spreading from organ to organ. . .' Without realizing it, Cantor switched to a lecturing style. *'Nobody has to remind me that frequent cell division is not by itself a malignancy. . .'*

By introducing an aggrandising tone to the speech, Djerassi has engaged the reader in emotion while delivering a fairly detailed description of the growth of tumours.

But emotion must be handled carefully, because negative emotions risk discouraging or distancing the reader. In this example, from *Against gravity* (Morrison, 1998, p.211), Sir Hiram Pomfret, scientist, is condescending to Neville Cardigan, clergyman, who is in discomfort.

But Neville didn't want to hear. His piles had grown monstrously intrusive and he needed to repair to a safe place with an ice pack . . .

However, he (Neville) was not to escape cleanly. As he made for the door, the old killjoy piped up, 'Never be fooled into the position of thinking that one neurone makes a mind, either, Neville. . .'

The writer must walk a fine line to develop *empathy* in the reader, when using a domineering character to present the science through dialogue.

In *Saving Alicia* Louisa's initial emotional reason for learning about neurons is that she does not want to appear foolish. Later, Vince's mode of delivery irritates her and then *makes* her feel defiant. Not only is he naturally bombastic, but he also wants to stop her meddling and possibly exposing his sloppy science. So as to balance this for the reader, Gareth's explanations are delivered with more *empathy* and understanding. He *genuinely* wants her to learn, the more so as his feelings for her grow.

Whether using dialogue or *not*, analogies can be employed to present scientific information imaginatively. "*Analogies are a powerful, descriptive tool, and are as useful in writing about science for the public as they are for communicating with other scientists,*" write Shortland and Gregory (1991, p.56). In fact, use of evocative images, catchy titles and *metaphors* are transforming the writing of scientists hoping to catch the public's attention (Nelkin, 1994). This is as true of writing science-*in-fiction* as it is of writing it as *non-fiction*.

An example is the way in which Mawer (1998, p.71) uses the power of analogy to describe Jean Piercey's eyes:

Those eyes, like an ill-matched pair of costume jewels. They brought to mind a teddy bear I had owned as a child. One eye had come unsewn and my mother came to the rescue with a transplant. But she wasn't able to match the startling blue of the original, and so the replacement had been a lucid ochre, like a barley sugar. One cornflower blue, one amber, a strange mutation.

But the use of analogies has its limitations. They are useful only when the reader places upon them the interpretation that is intended (Stockelmeyer, 1995, p.10). This is something that cannot be determined, but only guessed at, by the writer. So, in *Saving Alicia*, I have aimed to use analogies which, I hope, are familiar and unambiguous, such as balloons to represent

neurotransmitters, or the opening of a door from the laboratory to the corridor to represent the opening of sodium channels in the membrane of a neuron.

6. CHOICE OF MATERIAL

And almost everyone in the know agrees that trials using stem cells to repair the human brain are likely to begin within five years. (Motluk, 1998, p.43)

Scientific research

In devising a plausible, but non-existent, research topic I made use of recent issues of the *New Scientist* (Blackmore, 1999; Boyce, 1999; Clayton, 1999; Coghlan, 1999; Cohen, 1999; Holmes, 1999; Motluk, 1998; Motluk, 1999) and *Australasian Science* (Kennedy, 1999; Pockley, 1999). By gathering together a number of articles on related topics, I was able to extract some key words and techniques that could be used as a part of the setting for the story. At no point is Gareth's specific research spelt out, and Louisa never comes to understand it in more than general terms. It must, nonetheless, be reasonably plausible, current, and connected in some way with brain damage.

The project that I devised for Gareth involves his growing M cell neurons in culture, at a controlled temperature. These should produce growth factors, which are important in brain repair. When Vince interferes with Gareth's cultures by introducing an infective agent and altering the temperature, the neurons are destroyed. However, Vince is unaware not only that other cells, called stem cells, are unaffected by his sabotage but further, that they are stimulated by it. Instead of dying, they become white cells, which are important because certain of their genes, known as MHC genes, are switched on. These switched-on genes cause the white cells to synthesise a surface protein, similar to the growth factor that Gareth is searching for.

In reality, the work would probably be carried out by a team, not an individual; would have to be replicated by other researchers; pass through clinical trials; and meet certain legal and ethical requirements. Vince knows this, but is lazy and motivated by self-interest. His only concern with the project is that it produce publications which will boost his chance of becoming the next dean. Gareth, who is far from lazy, knows what would be involved, but is unaware of Louisa's ignorance of it. With the death of Charlotte, his boss, he is in a weakened position in the department, and is more concerned about the future of his own career than about pursuing her grand ideas. Louisa, in her enthusiasm, ignores all warnings that the project, as she understands it, cannot succeed.

Presentation of science

I have explored the presentation of only a very narrow area of neurophysiology, but a most exciting one for a thesis in Communication, because it concerns the electrical and chemical mechanisms involved in communication. This is an area whose complexity far exceeds the constraints of this thesis. To keep the description simple I confined it to two small aspects. First is the nature and propagation of the nervous impulse, known as the action potential, along the axon of a neuron; and second, the transfer of chemicals, the neurotransmitters, from one neuron to another across the synapse. With my scientific background, and several years' experience in tutoring undergraduate students in physiology at the University of Canberra and Canberra Institute of Technology, I felt confident to write about neurons. However, to check scientific accuracy, I used Marieb (1996, pp.340-371).

Given my experience with students, I started with the assumption that the reader would know little if anything about neurons. As with the students, I started by introducing basic information about the brain and about the structure of neurons. My diagrams are simplistic, designed to present ideas rather than details. Dendrites are omitted and synapses are disproportionate. Although undergraduate students would be expected to learn considerably more about the structure and function, in this thesis I sought to present only

basic physiological information, but enough, I hope, to give some understanding of nervous impulses and neurotransmission.

Characters

With a limited word count and physiological information to impart, I restricted the number of main characters to a protagonist, Louisa, a hero, Gareth, and a villain, Vince – archetypes, maybe, but with enough character to make them plausible. The protagonist is female because I wanted to write from a female point of view. The other two characters are male to provide romantic interest. To create at least one character who was not a stereotype, I chose a female physiologist to have done the groundbreaking research. Such women do exist but are still in a minority.

The protagonist is young because an older person might be less naive about inter-personal relationships and would have more personal commitments. Both of these would interfere with the simplicity of the story. I also made her an arts student. She could not be a science, medical or veterinary student as they would have to learn more neurophysiology than could be presented within the confines of this story.

At a deeper level the characters can be interpreted as having a metaphorical function. Louisa can be seen as the stimulus that generates the electrical message, the action potential. Vince represents the action potential, because once stimulated he cannot be stopped. Gareth can be seen as the second neuron, which accepts the message and acts on it. It is at the junction between neurons, known as the synapse, that errors can occur. It is at the 'synapse' between Vince and Gareth that matters go wrong.

Other characters, though important, have minor roles: Alicia, whose injury is the motivating factor for the story; Charlotte, Louisa's deceased mother whose research could help Alicia recover; and Susie, Louisa's sister and baby Alicia's mother. Josh, Susie's husband and Alicia's father, is there only to complete the picture of a family.

To keep the story focused, Louisa has few friends, no boyfriend, and no significant relatives. She is devastated by the tragedy of her mother's death, and is so obsessed with saving Alicia that she lets other relationships wither. Gareth, too, has few friends, and lives alone. This is in character, as he is single minded about his work, with dreams of respect and accolades from his peers. Vince is a sad alcoholic man whose wife, never mentioned, understandably left him many years previously along with his now adult children. His only hope of self-respect is to become dean.

Plot

The plot is simple and straightforward, with the interest coming from the conflicting motives of the three main characters. The first act, taking Louisa to the point of crossing a threshold and accepting a challenge, is passed through quickly. The bulk of the story is spent in the second act, with Louisa confronting a number of tests. As she finds that Vince uses the project for his own ends, denying her mother's input, driving Gareth to work to exhaustion, and finally refusing to pursue funding to keep it going, she is driven to take action which is against her placid nature. By the third act, as life returns to normal, Louisa matures to realise she can stand up to Vince, but that although perseverance can bring rewards, in future she should learn more about projects before she rushes into them. Because I like happy endings, I made the research successful, despite the improbability of this, so that Louisa and Gareth can "sail into the sunset" secure in the knowledge that, even if Alicia cannot be saved, there is hope for the future.

7. CONCLUSION

Physiology: The science of dealing with the functioning of living organisms or their parts. (The Macquarie Dictionary, 1981, p.1304)

In preparing this thesis I have explored the possibility of incorporating aspects of physiology into fiction. Fiction has been used since at least the

middle of last century to convey ideas about various areas of science. However, the scientific community has largely avoided this as a means of communicating their insights to the general public. In recent years, though, there has been a growing awareness of the need for scientists to improve their image and write in a more comprehensible way. One such way is through the use of fiction.

The aim of this thesis has been to address the issues confronting a scientist who wishes to use this means of communication. In doing so, I discovered works conveying scientific information in a variety of genres that might have no overt connection with science. It would appear that a scientist writing fiction need not be confined to a particular genre. However, in common with other fiction writers, the writer of science in fiction must have an engaging story, whether it be one of mystery, romance or social realism.

In addition to development of the story, the scientist writing fiction must seek ways to incorporate the science in an interesting way. For this, the standard techniques of fiction, such as use of dialogue, setting and emotionally charged situations, can be employed. The explanation of a scientific concept can be further enhanced by the use of analogies. Using characters to convey information minimises the risk of explanations having the didactic aura of more formal scientific writing.

In choosing neurophysiology, the study of the system that allows us to communicate, I sought to use a physiology topic for *Saving Alicia* that might be of interest to non-scientists but is particularly appropriate to a thesis in Communication. Without neurons, which are the functional units of this system, there would be no communication by humans, not even this thesis.

It has been an exciting challenge to use the electrical and chemical activity of my own neurons to create this work of fiction. Creating further fiction in this way is limited only by the limitations of neuronal connections.

SAVING ALICIA



A work of fiction

BY

GILLIAN BRIDGEWATER

1



I knew from Susie's face as she and Josh came out of the doctor's consulting room that the news was bad. What I didn't know, or expect, was that this would propel me into the world of brain repair research.

Susie was carrying Alicia, who lay against her mother's chest, oblivious to her distress. It was the first time I had seen my niece out of her hospital cot and, if it hadn't been for the tears running down Susie's face, I'd have been thrilled that she was free of tubes and gadgets. She looked just like she had before the accident: a normal, healthy toddler.

Susie wiped her tears away with a tissue and gave me a weak smile. 'It could be worse,' she said. 'She's not a vegetable. She'll walk all right, he said. But. . .'

'But, what?' I looked at Alicia, who was smiling at me coyly. She looked so innocent and happy. My heart pounded, waiting for Susie to answer.

'But she'll never talk properly and she won't be very bright. She'll have to go to a special school.'

I couldn't believe it. After weeks of anguish waiting by Alicia's hospital bed, we'd been let down. Those tubes they'd stuck in her little body had kept

her alive, but was that all? Where was the bouncy little girl who had gone for a picnic by the river? Where was my chatty little niece? Where was Susie's adorable, cuddly little baby? My hopes, my prayers, my wishing and longing had been no use. Alicia wasn't going to get better.

Josh had his arm around Susie as we struggled to the car park. I walked behind them, staring at Alicia's blonde hair spread across Susie's shoulder, forcing my numbed mind to accept the situation. Then Susie, Josh and Alicia went home, leaving me to go back to the empty house where Mum should have been, but wasn't.

I'm not going to bore you with the details of how I felt, because that would be tedious. I wept and howled over the next few days, as you can imagine. Everyone was very kind to me, as they were to Susie and Josh, but it couldn't bring Mum back or change the situation with Alicia.

The accident had happened on a beautiful morning. Mum had gone with Susie and Alicia down to the river. I've felt guilty since about not going with them but I had wanted to get my essay finished. Feeling pleased that I had done that, I was starting to get lunch ready when the phone rang.

It was Susie. At first, I couldn't understand what she was saying, and anyway I was expecting her and Mum to walk in the door making baby talk to Alicia. The word "hospital" slowly sank in to my brain.

When I got to the hospital, Susie was in a terrible state. I couldn't believe someone could change so fast. Her face was grey and drawn, like an old woman's – and she's only three years older than me. She must have been running her hands through her hair, because instead of the long silky blonde strands that I envied so much, there was a tangled, spiky mess. Her eyes stared straight through me as I walked in. It was only when I touched her arm and spoke to her that they came into focus. She forced a smile of recognition for a fleeting moment. Then her lips quivered downwards as her chest heaved with uncontrollable sobs.

With tears streaming down her cheeks, Susie told me Alicia had toddled into the water without her or Mum noticing. It seemed Mum had dashed in, with all her clothes on, and thrashed over to Alicia's disappearing head. But the current was strong and Alicia was carried away to where the water really churns up. Susie described how she kept being dragged under, just her hair swirling on the surface.

A man had appeared out of nowhere, Susie sobbed, and grabbed Alicia. He must have been a strong swimmer because he had her over to the bank quickly. He'd known what to do and had given her mouth to mouth. As soon as she was breathing regularly, he'd called an ambulance on his mobile. As Susie couldn't get any more words out, I felt my chest tighten and my throat clench so that I could hardly breathe. Then in a strangled whisper, she said Alicia was in intensive care. You probably think I was really foolish, but a wave of relief swept through me. Everything would be all right, after all.

'Where's Mum?' I asked, assuming she would join us once she'd been seen to.

Susie's hoarseness increased. She could barely stutter. Mum had been drowned. The news hit me with the force of a cyclone. I've never felt like that before. Not even when Dad died. Drowned? It couldn't be true. I stared at Susie, and I'm sure my mouth must have dropped, or whatever happens when you have a shock. But it was true. Susie had been cradling Alicia, soothing her cries, and hadn't noticed that Mum's clothes had caught on a branch. She didn't realise that she was being bobbed in and out of the water by the eddies around it until she noticed the man who saved Alicia swimming out to her. Susie thought she looked limp as he struggled against the current, bringing Mum back to the bank, but she didn't worry. The man had saved Alicia with mouth to mouth. He would save Mum. But when the ambulance arrived it was obvious, even to Susie, that Mum was dead.

I don't remember much of what happened after Susie told me that. I may have screamed. I may have gone quiet. I don't know and it doesn't

really matter. Josh arrived at some point. In my mind there's a blur of people in various uniforms, and trolleys, tubes, beds and bustle. We cried. We forced ourselves to drink the cups of tea people brought us. Nurses were wonderful.

So that's what happened. That's where this whole business of learning about Mum's work started. With Mum's death and Alicia's injury.

Now I'll tell you how it came about. I don't suppose you can really imagine how awful it was being at home on my own, expecting Mum to appear at any moment, which of course she wouldn't. Just take my word for it. Apart from the silence, the thing that upset me most was seeing her lab coat hanging limply by the back door. She kept it there, next to the key for the garage where she had a lab set up.

When I was little my friends had always been fascinated by Mum's lab. No-one else's mum had a lab. Other people's parents kept their car in the garage, or their dad used it as a workshop. Our parents kept the car in the driveway, and the garage was Mum's. She used to disappear in there at weekends, and sometimes in the evenings, and we were not allowed to disturb her. This was where Mum did experiments and thought about her research in peace she couldn't get at Uni.

Seeing her lab coat made me sad and angry at the same time. Mum had done such important work. She'd been very excited recently about her brain repair project. That was her area of research, you see. She was a neurophysiologist. Another embarrassment to me when I was little, but now I was grown up, I was proud of her. Like Dad. He'd been proud of her.

I avoided going out to the garage-lab, because it was so much Mum's place, but it lurked in the back of my mind. One day I'd have to face it but first I tidied up Mum's things in the house. That wasn't easy either, but it had to be done. I filled bags full of her clothes and took them to the charity shop. It helped keep my mind occupied. I couldn't face going to lectures at Uni. That was another world and I knew I could catch up later what I missed. Then, of

course, there was the funeral. We kept it small and private: just Susie, Josh, me, the very few relatives we have, and a couple of Mum's close friends. We didn't invite any of her colleagues from Uni. It would have been too much for us to have dealt with them when we were all so stressed over Alicia. Too bad if they thought us rude.

I barely slept. Each night my pillow became sodden and I thrashed around. My bed had never been so uncomfortable. You'll probably think I'm being dramatic, and I know it's clichéd, but I felt that my emotions swept over me like a gigantic tidal wave. The power of them, and the ferocity with which they engulfed me, was something I'd never known before. There was this awful turbulence of the present but to get to the future, whatever that was, I would have to confront Mum's sanctuary, the garage-lab.

One night I decided to bite the bullet – there I go with another cliché. To move forward I had to sort out the garage-lab. If I hadn't forced myself then, I wonder if I would have come up with my idea.

2



Going into Mum's garage-lab was like entering another world. Although I had been in there a few times, it had mainly been to take her cups of tea or suchlike. Now I switched on the fluorescent light, which immediately sparkled off the glassware. Mum loved everything to be in order. The test tubes, the conical flasks, the beakers - all were lined up on the benches. Her books were neatly arrayed on the shelves.

In the house I had expected to see Mum around every corner, and hear the sharp clip of her shoes on the polished floor. Here in her garage-lab were the professional effects of Charlotte McLean, neurophysiologist. Despite it being Mum's place, I felt no connection with her. There were no ghosts for me here. That made it easier.

I had expected that clearing the lab out wouldn't take too long. I was right. Everything was neatly filed and clearly labelled. Not much to sort through. Susie and I would offer it to Mum's colleagues at Uni eventually. No problem there.

Much of her material was unintelligible to me. You can imagine the sort of thing - the draft of a paper, with editorial notes in Mum's neat writing; scientific publications, right back to when Mum had done her Ph.D.; and folders containing what looked like results of experiments.

I glanced at some of the stuff, but all I could make out was that her recent work was concerned with stem cells and the CA1 part of the hippocampus, whatever *that* was. She was the sole author of some of her papers but others were co-authored by people whose names were vaguely familiar to me: Vince Langslowe, Martin Perkins, Gareth Howell. They had titles like '*The effects of growth hormone on neurotransmitter synthesis and release in cultured cells*' and '*Neuron stimulation using Planck's technique*'.

At one point a burst of anger swept through me. Mum had been such a conscientious researcher, and now all this work was wasted. Would anyone at Uni make use of them? I doubted it.

I was still feeling despondent when I came across a pile of Mum's old diaries. They were sitting on a bookshelf, and went back several years. Immediately I was intrigued, and forgot her scientific work. Would I find hidden secrets of Mum's life, or comments about Susie and me, or even Dad? I looked in her desk drawer for keys to open their little gold locks, but couldn't find any. Frustration. Still, I wouldn't defile Mum's memory by breaking the locks. Quite unthinkable! So, her secrets were safe until I could find the keys.

The only other item that drew my attention, though with much less excitement *than* her diaries, was a letter waiting to be answered. It was from someone called Mark Krueger, from a company called VivoTech, and expressed interest in Mum's work on brain repair. Mr. Krueger wrote *that* what she had shown him was exciting and that he would like to talk to her about it sometime, with a view to expanding the scope of her experiments. Apparently he thought her work had a great future, with the potential to help a variety of neurological conditions - Parkinson's disease, he wrote, and Alzheimer's, and others I had never heard of. So, it wasn't just her family who thought she was great? Someone else did too. I would have to answer this letter eventually, so I put it in my jeans pocket to take indoors.

During that night I worried again about Mum and Alicia. I thought about what I had found of Mum's work in the garage-lab. It was about brain repair, I

understood that much. Part of Alicia's brain was gone. It needed repairing. Couldn't there be a connection? I asked myself. Could little Alicia's brain be saved? Could it? No, I thought. The idea was preposterous. A brain-damaged child was a brain-damaged child. Hadn't Susie said that only a miracle could make Alicia normal?

But as hard as I pushed the idea of helping Alicia out of my mind, I couldn't quite banish it. And it stayed with me over the next few days. It was there when I was driving; it was with me in lectures; and did it ever take over my mind at night. It grew larger every day, instead of diminishing. I kept thinking that somehow Mum's research had to be involved. The two ideas entwined: Alicia's injury, Mum's research; Mum and neuro-repair, Alicia and brain repair. There had to be a connection.

I hardly slept during those intolerably long nights. Could something be done? Should someone approach Mum's former colleagues? I intended offering them Mum's stuff, but going to them with the idea of making a connection between Mum's work and Alicia seemed preposterous. I barely knew them, they were in a different faculty to mine, and they would be very senior people.

One particular night, I just couldn't sleep. I turned on the light and read my book. That didn't work. I kept thinking of Alicia. Always little Alicia. I thought of her in the hospital, with tubes stuck in her, or as I thought she would be in a few years time. She would be fighting her way through life, making ugly sounds that people couldn't understand. The sort of person people avoided. Someone, I decided, had at least to ask Mum's colleagues about my idea. Who would, or could, talk to them? Not Susie. She had enough to do, caring for Alicia. Who else? Josh? No way. He was an accountant, not a scientist or a doctor. Then who? My throat went dry. I turned the light off, pulled the doona around me and shut my eyes. Sleep refused to come. The answer was obvious. The person had to be me. Me, Louisa McLean. There was no-one else, was there?

The next day, I rang Susie. My heart was thumping. Susie might tell me not to be so stupid, and if she did, I'd forget the idea. At least, I'd have tried.

Susie didn't laugh at me. 'Mum's work help Alicia? Who knows? It might. Anyway, Lou, it's worth a try. Get over to the science faculty and see the head of Mum's department. Vince Langslowe, isn't it?'

I felt my throat tighten. There was no turning back now.

After my lecture that day, I went across the campus to the building where I hadn't been since Mum's death. Resolutely, I went up the stairs and into the office of Vince Langslowe's personal assistant.

'Could I make an appointment to see Professor Langslowe, please?'

The assistant scanned the diary and then looked up. 'He could see you now, if that's convenient.'

3



'Delighted to see you,' Professor Langslowe said, pushing back his chair as I went in to his office. It was untidy, not what I'd expected from Mum's former boss. Books lay haphazardly on the shelves lining the walls. On the floor were piles of boxes, with papers stuffed in at all angles. A computer took up much of his desk and the rest was scattered with papers too. But the room was bright and light, with a large window, through which was a good view of the campus.

Most of my attention, though, was on the professor. He leaned across the desk and grabbed my hand. Although he only shook it briefly, the pressure of his fingers was firm. It gave me a bit of confidence. He waved me to a low grey chair beside his desk and sank back onto his own chair, which swung slightly.

Despite the reassurance, I was feeling uncomfortable now that I was actually with the man. He looked friendly enough, but he was the head of department and I was a nobody, just Mum's daughter and a student in a different faculty. I put my bag on the floor and perched on the edge of the chair, waiting for him to settle.

To my relief he started talking, and he was really nice about Mum. 'We've all been deeply affected by your mother's death. A wonderful woman,'

he said. 'We offer you our deepest sympathy, and your sister, of course. Terrible, terrible about the baby too.' He looked down at his desk and picked up a biro before he continued. 'Now, how can I help you?'

This was the moment I had been dreading. I had to put forward my idea. You might think I was silly, but my brilliant thought of the night now seemed, well, stupid. I felt for the strap of my bag and ran my fingers along it. It's a habit I have, whenever I feel unsure of myself. It kind of helps. 'I wondered if there's any chance Mum's research could help Alicia, Susie's baby. Mum was working on brain repair. Alicia's brain's damaged.' As I came to the end of my little speech, my mouth felt dry. I stumbled over the last words. 'There must be a connection, mustn't there?'

My nervousness wasn't helped by the professor's expression. He was studying the biro, and he pouted his lips.

'I really doubt it,' he said, finally looking at me. His eyes were pale blue, I noticed. 'There's a big jump between laboratory research and clinical use. We can't just use drugs we think might work and hope for the best.'

He said it kindly, and this was the answer I had expected. All the same, I was deflated. After getting myself so tense, I didn't want my idea brushed aside so quickly. I told myself I had to thank him for his time and then politely leave. But another part of me said that I'd made this great effort to come and see him and I couldn't give up that easily. Also, I could hear in my mind the gurgling sounds Alicia made now, instead of the baby words she should have been gabbling. That, more than anything, gave me the courage to continue. 'Mum left a lot of results at home. Can't they be used somehow?' I asked.

'I don't think so, my dear.' He spoke gently, but firmly. He rolled the biro between his fingers. 'Sorry though I am, Charlotte's work wasn't complete, but no-one will be continuing it.'

Of course it wasn't complete. Mum had been killed in mid-career. Who knows what she would have done, if it hadn't been for the accident? My mind flashed back to her study. All her results there. They must be some use. They couldn't be wasted. And, there was something else that nagged at me. I thought about the benches, the filing cabinet, the bookshelves. Then I remembered. It was something on the desk. Something I had put in my jeans pocket and later transferred to a folder. 'Mum had a letter from a biotech company,' I said.

The professor's fingers stopped fiddling. 'A letter?'

By chance, I had the folder with me. I unzipped my bag and pulled out VivoTech's letter. I handed it to him. 'Look. They're interested in her work. Something about hope for Parkinson's disease and Alzheimer's. They're brain damage, aren't they?'

I watched him read the letter and lay it on his desk, running his hand over it to smooth its surface. He looked up at me. 'How much unpublished material have you got at home?' he asked.

This suddenly seemed promising. I sat up straight. 'I don't know exactly. Quite a bit.' I hardly dared breathe, as I waited to see what he would say. I wished I understood more about Mum's work and could have talked more intelligently about it.

He paused, and I felt he was looking through, rather than at me. 'Perhaps I was a bit hasty,' he said eventually. 'I might be able to do something. After all, brain repair is a hot issue now. So many of us are living to a ripe old age, we've got to find some way of stopping us going ga-ga.' He laughed. 'It wouldn't hurt to look at what Charlotte left.'

I felt my tension ease. My fingers, which had still been clutching my bag, relaxed. I hadn't realised how tight my shoulders had become either. I leant forward and took the letter back from him. 'Shall I bring Mum's work in for you?' I asked.

'No. Don't trouble yourself. I'll come round to your place and check it out,' he said, leaning back in his chair. 'Are you free tonight? We could have a bite to eat, then you could show me all there is.'

This invitation was so sudden that it took me by surprise. I'd only just caught up with his turn around on Mum's work and now he was wanting to see it all. Even more, he wanted to make it a social occasion. Showing him Mum's work was one thing, but dinner? What would we talk about all evening? He was so old, older than Dad. Still, I thought, he seemed a fatherly sort of man, so it would probably not be too bad. Anyway, it would be rude not to accept and now that he was keen on my idea I didn't want to upset him.

While these thoughts were rushing through my mind, he was relaxing. He stretched his legs out, clasping his hands behind his head. 'I wish I had more time to potter around with research. All this work on the hippocampus. Fascinating stuff. I look forward to you filling me in on what Charlotte was thinking.'

Did that comment ever make me feel nervous! He must have thought I actually knew something about Mum's work. You couldn't blame him. It was what you would expect from someone pushing it, wouldn't you? I needed to set him straight quick smart, but without making myself look too stupid. 'You'll have to explain it to me, before we can discuss it,' I laughed. 'I'm an arts student. Mum's work was not my area at all.'

'Oh, Louisa. Charlotte's daughter doesn't know anything? Of course you do, but I'm delighted to explain anything you like, my dear. You know what went on in the lab here, don't you?'

'Not really,' I said. I hadn't been here since Susie and I were old enough to stay home on our own.

'In that case, we'd better show you round. I'll call Gareth Howell down to do the honours.' Professor Langslowe picked up his phone and started

punching in the numbers. 'He was Charlotte's post-doc,' he said to me, while he waited for Gareth to answer.

4



Gareth arrived. Lean and lithe, with a diffident smile, he almost tumbled into the room. He greeted me shyly as he pulled up a chair next to me.

Immediately, Professor Langslowe started outlining to Gareth his plan for the future of Mum's work. Occasional words, like "growth factors" and "stem cells", didn't sound too strange to me, but when they talked about "interleukins" and "MHC genes", I was completely lost. Listening to them, but not understanding much of technical jargon, I was aware that the professor's voice was somewhat domineering.

While they talked, I switched off and surreptitiously studied Gareth. He looked rather intense; you know, almost the stereotype of a scientist. But he was quite good looking, in a funny kind of way. His hair was straight and dark, and fell across his forehead. I didn't like his nose much and his lips were a bit thin, but then I'm no beauty queen myself. He had long, slim fingers, which he was rubbing over his knee as he talked. Those hands would be very good at precise laboratory work, I thought.

My mind came back to the conversation when I heard the professor say, 'Right then, young Gareth, Charlotte's work had better go ahead. I think we can count on getting a few good papers out of it.'

I felt a surge of elation. My idea of using Mum's work to help Alicia was exciting everyone. I couldn't wait to tell Susie and Josh the good news.

'Well,' said Professor Langslowe, drumming the desk lightly with his fingers. 'Take Louisa along to your lab and show her the set up. She claims total ignorance, which I don't believe.' He smiled, and then winked at me. Pausing for a moment, he then stood up, shuffled to the door and held it open for us. 'Till later,' he said to me, as Gareth and I went out.

'Yes. Thanks,' I mumbled, still surprised at the outcome of the interview.

I had a job keeping up with Gareth's long strides as we walked along the corridor to the lab. I was grateful that he was talking, because I felt shy now that I was alone with him. Professor Langslowe's all-encompassing friendliness had made us companions yet we barely knew each other.

Gareth didn't seem to worry. He spoke as eagerly to me as he had to Professor Langslowe. 'Thanks for whatever you've done. That's a real turn around in Vince. It's fantastic. I can't wait to get some experiments going.' He glanced at his watch.

I was conscious of having interrupted his work. He must have better things to do than show me around. 'If you're busy, I can go,' I said.

'That's OK. I've got to change some solutions in a few minutes but there's time for a tour of the lab first. You've been before though, haven't you?'

'A few of times, with Mum.' A little worm of apprehension was growing inside me now. I hadn't had time to prepare myself for the lab. Would Mum's ghost be there, like at home, or would it be like the garage-lab, a different part of Mum?

'Oh, yes. Sorry.' Gareth hesitated. 'I don't know what to say. It must be terrible for you, losing your mum like that. Awful, awful. I've been devastated too. She was so wonderful to work with.'

'That's really kind of you. I miss her a lot.' We walked the remaining few paces to the lab in an awkward silence.

I hesitated as Gareth swung the door open and walked in. 'Come in,' he said.

Cautiously, I did. The lab looked just as I remembered it – bulky items of equipment cluttering the benches or freestanding on the floor; glass and plastic bottles standing on shelves above the benches; and a plethora of glass beakers, funnels and measuring cylinders neatly lined up where there was space. The only thing that was different was Mum's absence. I hadn't been there for years, but to me it was instantly Mum's place. It was uncanny that two months after she'd died, it still had her aura.

I was quite relieved that Gareth's enthusiasm seemed to revive once we were in the lab. I did want to learn about Mum's work. I relaxed a bit as I followed Gareth between the benches. He pointed out the items of equipment - the ultracentrifuge, the freezer, the electrophoresis equipment and others I can't remember. 'I'm doing my best to keep things going. It's been tough. Nobody's interested in this work,' he said. 'But now, with Vince changing, I can get things up and running again. Are you going to be working here?'

'No way,' I said, following him around a large refrigerator. 'I haven't a clue about all this. I want Mum's work to help my little niece.'

'Oh?'

'It might help repair her brain.'

Gareth stopped and frowned. 'You mean our immortomouse studies or the MHC genes and surface proteins stuff?'

That feeling of being out of my depth returned. 'I don't know. It could be one of those,' I muttered.

'I'll show you our cells anyway,' he said, walking towards a door that I hadn't noticed before. 'This is where I grow them.' A surge of warm air hit me as he opened the door. I followed him in. It took a moment for my eyes to adjust to the dim light in there. Then I saw rows of conical flasks, stoppered with cottonwool in a variety of colours. 'My babies.' Gareth laughed. 'In their five star hotel.'

I didn't know what he meant by that so I just said, 'They look great. What are they?'

'Our baby neurons. The ones we're nursing along for experiments. You know, the sort of thing your mum was interested in.' He carefully picked up a flask with a blue cottonwool stopper. 'These are the youngest cultures. Charlotte had just set them up and I've kept their pluripotent stem cells going. Those ones we've had on the go for longer.' He pointed to the flasks with other coloured stoppers. 'In some we've had a go at stem cell cloning and in others we've used immortomouse cells. We've got some good neurons growing well in several of them.'

I had an uncomfortable feeling of getting further and further out of my depth. I avoided his eyes by looking past him at the flasks. 'It's awful, but I don't understand the first thing about neurons,' I said hesitantly, hoping he wouldn't think me too stupid. I thought it best to come clean before we got much further.

'I'm so sorry. I thought you would know about this.' Gareth put the flask back in its place on the bench. Then he pushed back his hair and gave me an apologetic grin. 'It's my fault. I get carried away. Sorry, sorry, sorry. Shall I explain?'

'Yes, please,' I said, with enormous relief. He hadn't sneered at me. 'But can you start with the real basics?' I asked, knowing this was my chance to learn a bit. 'What a neuron is and all that.'

'Sure. These little guys can wait.' Gareth stood back to let me out the room then clicked the door shut behind him. I was glad to get back into the lab. The heat of that incubation room was making me sweat.

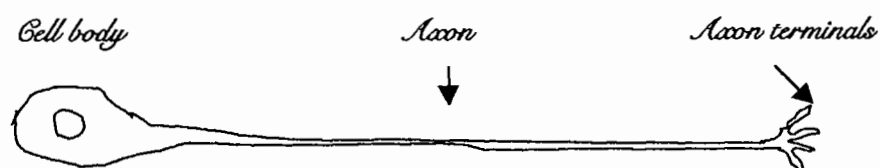
We went over to a whiteboard and he pulled out a stool for me, from under a nearby bench. 'Crash course. Learn all you ever wanted to know about neurons in under five minutes,' he said, grinning as he picked up a marker pen and yanked the top off it. 'Stop me if I tell you something you already know, or if I go too fast.'

'I don't even know what a neuron looks like.' I shrugged and smiled, to show him that I knew how ignorant I was.

He responded with a smile, which eased my self-consciousness. Then he started his explanation by drawing a rough circle on the whiteboard. 'Neurons are all basically the same, whether they are part of your brain or your nerves. They all have a cell body. Inside it is the nucleus and much of the cell's machinery.' He drew another circle inside the first. Then, from one side of the outer circle, he drew a long, tapering process. 'This bit is called the axon.' He wrote "axon" beside it.

The drawing looked a bit like a tadpole, I thought, but with a much longer, thinner tail than any tadpole I'd ever seen. 'That's very artistic,' I said.

'You like it?' laughed Gareth. 'Wait till you see this. There's a tuft of tiny branches at the end of the axon.' He drew small spiky bits. 'These are called axon terminals because that's where an axon finishes.'



Scientists don't make good artists, you know, despite what I'd just said. I must have made some sort of chortling noise as I watched him draw, but fortunately he didn't take offence.

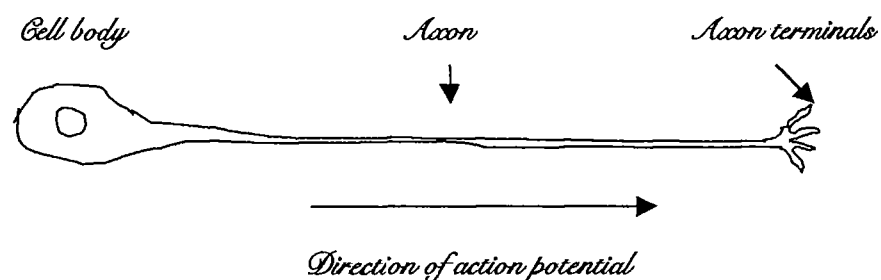
'What's so funny?' he asked, good-humoredly.

'Sorry. They look like fingers on the end of a very long arm. A bit like Mr. Tickle.'

Gareth stood back, looking at his drawing, and laughed too. 'Granted, I'm not the world's best artist.' He rocked on his feet a little. 'Mr. Tickle? Good one! But in real life there could be ten thousand terminals on the end of one axon. That's a lot, even for Mr. Tickle.'

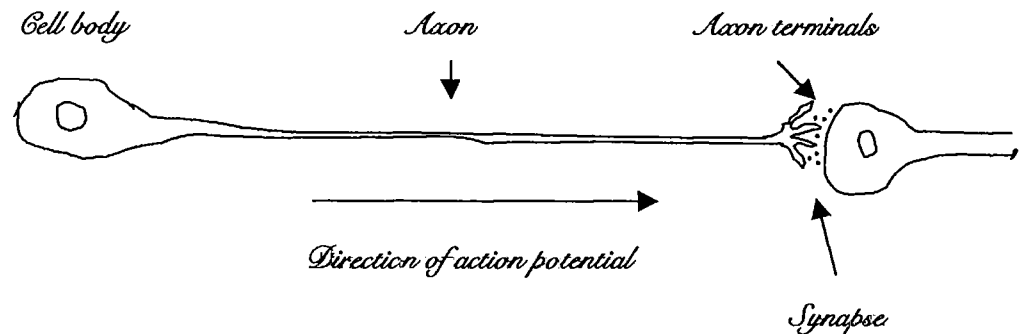
'Sure is! What do they all do?' I wriggled further back on my stool. Gareth was turning out to be quite nice. At least, he was explaining neurons to me in a way that was quite fun.

'Axons are a bit like telephone wires. They carry speedy electrical messages, called action potentials.' Gareth turned back to the board and drew an arrow along the axon, away from the cell body. 'Always in the same direction. But when the message gets to the end, it has to stop. It can't go further than these terminals.'



He continued, drawing another circle, just beyond the tuft he had drawn. 'The axon terminals sit over a neighbouring neuron. There's always a gap between the two neurons. It's called a synapse.' He held the pen up as he half swung round. I could see the enthusiasm for his subject in his eyes. He really wanted me to understand. 'You've probably heard about chemicals

in the brain. This is where you'll find them, passing a message from one neuron to the next across this gap, the synapse.' He tapped in little dots between the two neurons.



Gareth put the top on the marker and laid it down. He flicked back his hair as he leaned against the board. 'That's your five minute tour of a neuron. Do you want me to go on?' he asked.

I remembered that he'd had solutions to change or something. 'Do you have time? I don't want to hold you up.'

'I could spare another five minutes for the extended crash course.'

'Great,' I said. The more I learnt, the less ignorant I'd seem in front of Professor Langslowe tonight.

'Enough of drawing.' He pulled out another stool and sat near me, wrapping his legs around it. 'Neurons are linked to each other in a chain or a network. That way they send messages around your brain. That's what your memory or your thoughts are – electrical and chemical messages whizzing through neurons. Others whizz messages to your muscles, but their axons go together, like a bundle of electric wires.'

'You and Mum were researching this?' I asked. It didn't seem to be anything to do with repairing brains.

'Not exactly. That's well established. We were looking at ways to replace neurons when they'd died. Like when someone has a stroke.'

'Or brain damage from an accident?' I was thinking of Alicia, of course.

'Or that.' Gareth nodded.

'So, what is the research? None of the fancy words, please. Just the basics. Something my arts brain can cope with.'

'Sure. I'll do my best.' Gareth looked at the floor for a moment or two, as if thinking about the best way to explain, before he nodded and started again. 'When neurons die, from disease or injury, it disrupts the system. A dead neuron can't send action potentials along its axons, or chemicals across its synapse. It's totally kaput. No message goes anywhere. If you've got dead neurons in your brain you might have memory loss, or disturbed emotions, or paralysis of your muscles, depending on where the damage is.'

'Could Mum's research fix that?' I hardly dared ask, because I was afraid of the wrong answer. The professor hadn't really said, but I had to know. Gareth might be more straightforward. Could Alicia be helped?

Gareth shrugged as he smiled at me. 'Who knows? We want to.' He paused for a moment and gazed out the window. 'It's front line stuff. It could develop into something big. If Vince is really going to let me continue this work, we might get somewhere.' He looked back at me with a big grin. More than that. His face was radiant.

I couldn't help but grin back at him. I felt my heart pounding, I was so excited. There was hope after all. I opened my mouth to ask more questions, but I saw him glance at his watch. 'Your solutions?' I asked instead.

'Sorry. I must go.' He smiled apologetically, as he stood up. 'It was great to talk to you. Drop in again if you're over this way.'

5



When Professor Langslowe arrived, shortly after seven, I was glad that I'd dressed up a bit. I'd decided to wear my dark skirt and floral blouse, which were smart but not too dressy. Quite suitable for dinner with someone about Dad's age, I thought. The professor was wearing a navy sweater with his shirt collar just showing. He gave me a big smile when I opened the door to him.

I was still excited by what had happened during the day, and was looking forward to this evening. Except for one or two evenings at the movies with some friends, it was the first time I'd been out in the couple of months since Mum died.

'Hop along to the car, Louisa, love,' he said, as if he'd known me all my life. Immediately I felt at ease with him.

He opened the passenger door of his Holden Commodore and leant in. After chucking papers and oddments on to the back seat, he stood back to let me climb in. The car smelled a bit dirty, but I didn't worry. Not everyone keeps their car as clean as Mum did.

We went to a Thai restaurant, and once we were settled in he told me to drop the Professor Langslowe bit and call him Vince. That was fine. We ordered and chatted until our first course arrived.

'And tell me how you got on with young Gareth Howell,' Vince said chattily to me, as the waiter put a bowl of vegetable and prawn soup in front of him.

'He was really helpful and enthusiastic,' I told him. I had ordered fish cakes and started dipping one into the spicy sauce that accompanied it. 'I've got a lot to learn but he took me back to basics. You know, I only have high school biology so I don't know much about brains.' I felt more relaxed now about my ignorance. Gareth had been so kind. He hadn't made me feel stupid at all.

Vince's spoon clicked against the side of his bowl. 'You're in good company there. Brains are very complex organs. Scientists and psychologists spend their entire lives trying to understand them.'

'I'm definitely not in that league. I can't even imagine all those long, stringy neurons floating around in someone's brain,' I said. It was true. It seemed impossible to imagine.

I wasn't prepared for his response. He wiped his mouth with a napkin and let out a rather loud and embarrassing guffaw. 'Oh, Louisa. You don't think neurons *float around* in your brain, do you?'

'But Gareth said they did.' I felt hurt and defensive. There was no need for him to laugh at me like that.

'Neurons are your brain. They make up eighty per cent of what's up here.' Vince tapped his bald head. 'You need them so that you can think, but more importantly, so that you can stay alive. There's a vast network of them just keeping you going.'

'It sounds weird.' I stared at my fish cake and the sauce dripping off it. I thought back to Gareth's description as he sat on the stool. 'So, my brain's a sort of loose network of neurons?'

Vince swallowed another spoonful of soup, eyeing me as he did so. 'You are a funny one. There's nothing loose about them. Tight packing and strict order is the name of the game. Imagine if it weren't. Your body would be a complete mess. Your breathing would be all over the place, you wouldn't digest your food, you couldn't control your muscles and, then just think about how disorganised you'd be! You'd hear something, or see something, but never work out what the object was, let alone do something about it.' Vince held up his spoon. 'If your neurons were just a disorganised mess, you wouldn't know that this object is called a "spoon" and that you use it,' he plunged the spoon into his soup, 'to slurp this stuff, which is called "food", into your "mouth".' He opened his mouth wide and poured the soup in.

I looked away. It was a shock to me that a professor would behave like this.

He seemed to think me amusing. His eyes laughed at me. As soon as he'd swallowed, he continued talking. 'Your thoughts are only a combination of electrical and chemical signals between neurons. Electrical messages for speed and chemical ones for flexibility.'

His flow was interrupted as the waiter took away our plates and came back with our main dishes. As I watched him place the plates of green curry and fish with a ginger and spring onion sauce in the centre of the table, my mind was working on what Vince had just said. I was looking at a plate, I knew, but *how* did I know what it was? Good question. How did I connect what I saw with the word "plate" or what a plate was used for? The waiter scooped rice onto the plates in front of each of us, and left. 'Do you mean that chemicals and electricity form the pictures in my mind?' I asked Vince.

'Indeed they do.' Vince poured himself some wine and offered me some. 'They've got to be made somehow, haven't they? When I look at you I use electrical and chemical signals in my mind to make a picture of a beautiful young woman. As a physiologist, I see you too as being a mass of electrical and chemical signals – still beautiful, of course.'

I didn't like the way he looked at me over the rim of his glass as he said that, and I felt edgy about the personal comments. I told myself not to be silly. He was old enough to be my dad, and he was Mum's former boss. I shifted a bit and helped myself to the green curry, but without looking at him. I was sure he was watching me. Even so, I wasn't ready for his next comment. 'You wriggling your very pretty bottom is because of electrical and chemical signals too. Neurons are transmitting them to your muscles.'

I concentrated hard on my curry, keeping my head down. I didn't know what to say. Was I reading too much into his comments? I wasn't sure.

'You're not embarrassed, are you?' he boomed suddenly.

I glanced around and saw the couple on the next table whisper and look at me. I looked away and smiled weakly at Vince. 'Of course not,' I managed to say, hoping he would lower his voice.

He didn't. 'You shouldn't be, with Charlotte as your mother. She knew about neurons. Wonderful researcher. World class. Did my best to support her. I've got great ideas for beefing up the results she's left.'

That puzzled me. He couldn't yet know what the results were. He hadn't seen them. I was glad he'd switched from commenting about me, but I didn't want to talk about Mum's results either. Not until we went through her research material. I needn't have worried. Vince was off on a new tack, lecturing me now about gene trapping, green fluorescent proteins and other ideas that meant nothing to me. I listened idly, as he got carried away on a new theory of genes and memes, or some such. This man certainly liked the sound of his own voice. I glanced around surreptitiously. Several people now were watching us and whispering to each other.

I ate my curry slowly, taking small mouthfuls and hoping something or somebody would interrupt him. But there was only me and I had no idea what to say. He barely paused for breath. Vince, my companion for the evening, was in his own world, where he was king and he held court.

Eventually, in his own time, he returned to reality and me. I didn't like the way he beamed and raised an eyebrow. Clearly, he expected me to be impressed. I gave a short smile and looked down at the few remaining grains of rice on my plate.

'You can see that I need Charlotte's results so that I can develop her work to best advantage,' he continued, in a more confidential tone, holding up the carafe. 'Some more wine?'

One glass was plenty for me. It should have been enough for him too as he was driving, I thought. I shook my head.

'Very wise,' Vince said. 'Probably time we went home and looked at Charlotte's papers.'

But instead of making a move to leave, he just filled his glass. He sat back and sipped the wine. Thankfully, his conversation was more general so waiting wasn't too bad. All the same, I was pleased when he drained the last drop and called for the bill. His pen hovered over the amount to fill in on the credit card slip, then he scrawled a sum and signed with a flourish.

Vince continued in his relaxed mood on the drive home, although I would have preferred him to pay more attention to the road. He was the sort of person who shot through lights just as they turned to red, or turned corners without signalling. Despite this, we arrived safely.

I wanted to take him down the side of the house to Mum's garage-lab but I had to go indoors to get the key. Naturally, he followed me in and through to the kitchen, where I took the key off its hook by the back door. Then we went out, down the steps and across the yard to the garage.

I switched on the fluorescent light, which flickered for a moment and glinted off the glassware. I forgot Vince hadn't seen the place before. He took a couple of steps and then stopped, surveying the room. 'Oh, Charlotte, you rascal,' he said, shaking his head.

'This was her area,' I said, probably a bit sulkily. I was ruffled by his tone and wondered if I had been wrong, after all, to let him into Mum's sacred lab. 'She did her thinking here.'

'She was a lucky one! To have a hideaway like this.' Vince's shook his head.

I don't know if he was in awe or was envious, but whatever it was, his manner disconcerted me. I probably shivered. It's what you do in such a situation, isn't it? For the second time that day, I was in Mum's work environment but without her. Now, I felt acutely aware of her absence. As in the lab at Uni, nothing material was different, but it felt very strange having a stranger in Mum's private place. He didn't belong, although rationally, with him taking over Mum's work, he had a right to be here. I walked over to the filing cabinet and slid open a drawer. The best thing was to give him her results immediately so that he would go.

Mum had written so many papers. Looking at them meticulously filed there, I felt proud of her. She had achieved so much. I didn't let myself think about how much more she might have done. It was good to know that her floppy disks and handwritten notes would still be used. Mum had put so much of herself into her work. I pulled out some folders and handed them to Vince. 'These are some of the results I was talking about.'

Vince took them. 'Thank you, Louisa.' He carried them to Mum's desk. There was a slight scrape on the concrete floor, as he pulled back her old chair and settled down to read. He scanned quickly, and then went back and read parts slowly. For something to do I fiddled with the stuff on top of the filing cabinet. There were all the oddments I'd stacked up the other day including Mum's diaries. I was annoyed that I hadn't yet found the keys for them, but it didn't matter at the moment as they weren't for Vince.

Eventually, Vince closed the last folder. 'That's phenomenal. Just what I need,' he said, pushing back the chair and standing up. 'A box?'

I scabbled under a bench, forcing away a doubt. It struck me that Vince was taking away Mum's life's work. 'You'll let me know how it goes, won't you?' I asked, straightening up and handing him a box.

'Of course, my dear.' Vince took it and bundled the folders and disks in. 'Plenty of papers out of this lot.'

A few minutes later, we walked to his car. He flung the box with onto the back seat, then Vince turned to me. 'A wonderful evening, my dear. Thank you so much for your company. We must do this again some time.' I winced a bit as he squeezed my shoulder.

The impression of his hand still tingled as I watched him reverse out the driveway. He disappeared along the street without a wave. Such a small thing shouldn't offend me, but it did.

6



An A4 envelope, bearing the Uni's address, arrived a couple of months later. I was quite pleased, although I had rather expected Vince to ring me and tell me what was happening with Mum's research. I hadn't heard a word since the night he took her material away. Several times I told myself that as head of department he would be a very busy man and wouldn't have time for me. Now, it seemed, he had remembered.

Eager to see what was in the envelope, I pulled out the sheaf of pages. A yellow "Post It" was stuck on the front page. *Draft of paper on Charlotte's work*, it said. But to my surprise, the signature said *Gareth*, not *Vince*.

During that couple of months I'd been pretty busy myself. I'd started going to lectures regularly again, and I went round to see Susie frequently. She was much calmer and seemed to be accepting Alicia's injury. I don't know how she did it. I couldn't. The way Alicia toddled over to me, making strange gurgling sounds instead of baby talk, just about brought me undone every time. I would nearly squeeze her to death, wanting to make her right again. I consoled myself by thinking that I had done all I could in handing Mum's work over to Vince.

Now the first step towards using that work was in my hand. You can probably imagine how excited I felt, but my excitement diminished a bit when I

read the title and flipped through the text. They looked as unintelligible as any of Mum's other work. All the same, I thought, it was good of Gareth to send it. Then I looked again at front page. *Vince Langslowe* and *Gareth Howell* were the authors. Of course. But this was Mum's work. Where was her name? I flicked through the pages but there was definitely no mention of Charlotte McLean.

I was going to Uni that afternoon, so I decided to call in to the science building after my lecture and thank Gareth. I could ask him about Mum's name being left off. I felt reluctant to speak to Vince, although logically I should have gone to him. But, it was Gareth who had sent me the manuscript. Anyway, I felt a bit uneasy after the dinner with Vince and I wasn't sure how I should act towards him.

As fate would have it, or whatever it is that guides me, I spotted Vince and Gareth walking across the open grassy area at the centre of the campus. If I spoke to them now, I could see them together. Excellent.

'Louisa, my dear,' said Vince, as I ran up to them. 'How nice to see you.'

I greeted him, but then turned to Gareth and said, 'Thanks for sending me Mum's paper.'

'You've seen it?' Vince sounded surprised, but almost seamlessly became enthusiastic. 'Shaped up well, don't you think?'

Gareth smiled but said nothing.

'I guess so, but it's beyond me,' I admitted happily. 'Actually, I wanted to ask why Mum's name wasn't on it?'

The smile faded from Vince's face and one eyebrow shot up. 'She's dead.'

I stared blankly at him. That was pretty blunt, I thought. 'I know,' I said.

Vince ran his hand over his chin. 'I am sorry, my dear, but Charlotte's name can't be included. Only living authors have their names on papers.' His voice was soothing, but it didn't soothe me. I glanced at Gareth. He was watching Vince with an expression of something I couldn't quite identify. Surprise? Apprehension? Concern? It could have been any of them.

I stiffened. The situation wasn't what I expected and I couldn't make it out. 'But Mum did the work.' As soon as I'd said it, I knew I sounded petulant. I nodded my head to Gareth. 'With your help, I know.'

'That's true,' he muttered, looking now at the grass under his feet.

'So, Gareth's name is on the paper,' said Vince. 'What's your problem?'

'The ideas were Mum's,' I insisted. When I feel threatened like that my shoulders go all tense. That happened now. 'You can't leave her name off.'

Vince shrugged, curling his mouth down. He stared at me directly. 'I decide these things.'

Out of the corner of my eye, I saw Gareth shifting uneasily. I flashed a look at him but he still stared at the ground. Vince's response had totally confused me and I didn't know how to react. I swallowed hard. 'I've got to get to my lecture,' I muttered.

As I walked away, I heard Vince say to Gareth, '. . . stupid fool. Why did you . . . ?'

I was staggered by this sudden change in the man. Why was he saying that? Was Gareth not supposed to have sent me the draft? I stomped across the grass, my mind in turmoil. Hadn't Vince promised to keep me informed? He'd been keen enough to take Mum's work. Surely I had a right

to see the paper? Gareth had been good to send me the draft. Surely Mum had a right to be acknowledged?

When I reached the stand of trees at the edge of the grass, I looked back. At the same moment, Gareth looked over his shoulder. Was he looking at me? I don't know, because he turned back quickly and continued walking with Vince. I thought he looked a bit anxious. Was he trying to tell me something? That I should persist? That I should butt out? The look was indecipherable. I watched their backs disappear around the corner of the science building. Gareth did not look round again.

By now, I was late. My bag, slung over one shoulder, felt heavy as I ran along the concourse. Puffing slightly, I crept into the back of the lecture theatre and slid into a seat.

The lecturer flashed one Power Point image up after another, but what they were of, I don't know. I was thinking about Mum's name and the paper. Surely death didn't preclude you from authorship? Books were published posthumously. Why not a scientific paper? If anyone's name should be omitted, it was Vince's. He'd only edited the paper, at best. Gareth and Mum had done the work. Gareth must be on my side or he wouldn't have sent me the draft. And there was that mysterious look just now. What was he trying to tell me?

Straight after the lecture, I went to the science building. I did not want to meet Vince, so I went up the stairs at the other end of the building from his office. I was relieved that Gareth was alone in the lab. He was shaking a brownish fluid in a conical flask. He looked up and smiled as I went in.

I didn't know exactly what to say. I rubbed my hand nervously along the bench surface. I remember it felt smooth and was grey. 'Thanks for the paper,' I said, feeling foolish.

'I thought you'd like it, as it's your mum's work,' he said, continuing to shake his flask.

'That's just it. Why isn't Mum's name on it? Is it really because she's . . .?' I still had difficulty saying the word "dead". I didn't look at him, hoping he wouldn't see that I was biting my lip hard. I rammed my hand into my pocket and felt for a tissue.

Because I was concentrating on how I was feeling, I almost missed his reply. 'Vince is in charge,' he mumbled.

'She did the work. And she wrote the first draft.' My words were probably equally mumbled, but I was annoyed that he didn't give me a straight answer.

I felt him look sharply at me. 'I have to go with Vince's decision,' he said. 'I've got to keep results coming quickly. He writes them up.'

My fingers screwed the tissue into a ball. 'How can you do this to her? You know what Mum did. This was her life's work.'

'I can't help it.' Gareth was studying his flask intently.

'Vince did nothing. His name shouldn't even be there. It's not fair.' I clenched my fists so hard that my nails dug into my palms. Even my screwed-up tissue didn't protect me from myself. 'Why don't you do something?'

'I really am sorry, but I can't do anything. Vince will kill me if these experiments aren't done.' Gareth gave the flask a violent shake, which sent the brown fluid swirling. 'If you want to stick your neck out, go and see him. Like he says, he runs the department.'

'He won't take any notice of me, I can see that.'

'Then be like the rest of us and accept it.' Still shaking the flask, he brushed past me, the edge of his lab coat grazing my jeans. The coat flared out as he strode to the culture room door. His drawing of neurons was still on the whiteboard, I noticed. He'd seemed so enthusiastic, so considerate, when he'd done that. Now he was totally different.

'Don't you care?' I'd got the wrong idea about him, it seemed.

Gareth stopped and turned. 'Look, I'm working my guts out. These experiments have to be done. I can't worry about Charlotte.' He wrenched open the door.

This really got to me. How could he reject her like that? 'Scientists! You only care about things. Never people,' I shouted at his disappearing back.

The door clicked shut and I was alone.

7



I had been stupid. All the way home I went over it in my mind. I had alienated both Gareth and Vince in one day. How stupid is that? Neither of them would bother with me now. I wanted to be kept in the picture about how the research to save Alicia was going. Fat chance of that now, due to my own stupidity. The whole project could fall in a heap and I wouldn't know. What would I do then? It didn't bear thinking about.

I spent a miserable evening at home, eating limp slices of pizza. The telly flickered away but nothing grabbed my attention. My mind kept going back to Vince and Gareth. Why had I behaved so badly? I needed to talk to someone and get rid of my feelings. I rang one or two friends but either they weren't home or they were busy. Eventually, I rang Susie when Alicia would be in bed.

'Slow down,' said Susie in a flat voice, when I told what had happened. 'You get so carried away. So what if this Gareth character's a bit huffy? He'll get over it.'

'But Mum's work might stop,' I protested. It would have been nice if she'd been just a little bit sympathetic.

'What if it does? Mum's not here any more,' replied Susie.

'But there's Alicia,' I persisted, annoyed. I didn't want to give up. 'We've got to think of her.'

'Lou, just relax, will you. Mum's work probably won't help her and you'll only upset people if you go interfering.'

Susie was so calm that I couldn't go on being angry. And she was right. It was best not to make a bad situation worse. All the same, I kept thinking of Gareth rushing into Vince's office. He had been keen then. And afterwards, when he had drawn that neuron for me, he'd been enthusiastic. Just thinking about him made me ache. I had to smooth over the ridiculous situation I'd created.

I should have gone to a lecture the next day, but it was more important to sort out this mess. I went to the science department again.

To my horror, although I went up the stairs near Gareth's lab, I rounded a corner and nearly collided with Vince, who was lumbering down. His face clouded when he saw me, but quickly he put on a smile. 'Ah, Louisa. I didn't think I'd see you here again.'

'I want to see Gareth,' I said.

Vince's face went stern. He frowned and his cheeks wobbled. 'He's very busy. Right in the middle of some tricky techniques. Best not to disturb him.'

Blow. What a nuisance. I was about to ask Vince when would be a better time, when he continued. 'Anything I can help with? I've got a few minutes. Come along to my office.'

Before I could answer, he'd turned and started back up the stairs. Like a complete idiot, I followed.

He ambled along the corridor with me, feeling really irritated, beside him. I was still uncomfortable about the way he had dismissed Mum's name

being on the paper and I wasn't concentrating on what Vince was saying as we passed Gareth's lab. I should have been at my lecture if I wasn't seeing him. I glanced through the small rectangular window in the door of the lab. My heart jumped, because Gareth was just on the other side. I made a quick sign to him that I wanted to see him. He tugged at the door, but couldn't open it. The latch was probably caught, I thought.

I'd fallen a step or two behind Vince, who glanced over his shoulder at me. As I caught up I realised he was still talking about his theories of memes and genes. How boring was that?

I heard the sound of the lab door finally opening, as Vince was rifling in his pocket for his office key. I looked back along the corridor and saw Gareth emerging. I lifted my hand to wave but he turned and walked away.

That really deflated me. I plodded behind Vince into his office. Gareth clearly was offended, which meant that apologising to him would be hard. That was, if he was even in his lab and free to talk to me, after this silly chat with Vince.

Vince's chair swivelled as he lowered himself into it. He clasped his hands behind his head, easing his brown cords as he stretched out his legs. It seemed to be his favourite position. 'I hear you had a little run in with Gareth.'

I wasn't expecting that! 'Sort of,' I said, wondering how much Gareth had told him.

'Been getting your knickers in a knot over Charlotte's name on our paper. Silly girl.'

I looked down at my sneakers. I didn't want to look at Vince, although I knew he was gazing at me. I suppose he thought I was a trouble-maker. But it was for Mum. She should have the recognition for her work. Vince might be a professor but I had to stand up for her. 'It doesn't seem right,' I muttered.

'We mustn't fall out, must we?' Vince continued in his smooth voice. 'If it makes you happy I'll put Charlotte's name on this time. We wrote a few papers together in the past. One more won't make too much difference. You're a lucky girl. I haven't posted it off yet.' He leaned forward to pick up a manila envelope, which lay on top of an untidy pile of folders and papers. With a jolt, I realised they were Mum's, the one's I'd given him the night of the dinner. Mum would be horrified to see them in such disorder. I watched Vince open the envelope and withdraw a manuscript. He scrawled something on the corner of the top page. 'Happy?' he asked, settling himself back in his chair.

'Thank you,' I said, feeling subdued. What I wanted was Mum's name on the paper, and that was what he was offering. I should be pleased. Why did I still feel so cross? Because of Gareth?

Maybe it showed. Vince stabbed a finger at me. 'Promise me you'll keep out of Gareth's hair. He's working very hard, you know. Can't have him getting upset.'

His threat was a bit unnerving and the last thing I wanted was to talk about Gareth. 'I was only going to . . .' I started, but thought better of it. No need for Vince to know I had been rude to Gareth. '. . . ask more about Mum's work,' I finished off.

Vince relaxed back to his former position with his hands behind his head. 'That's all right, then. But, with no disrespect, I saw the other night that what we are doing is way beyond you. It's nothing to be ashamed of, of course.'

'I'm willing to learn,' I said, as calmly as I could. Mum's research was above me, I knew, but he could help me to understand, couldn't he?

'I'm delighted to explain anything. Just don't bother Gareth with silly questions. What would you like to know?' Vince settled himself more comfortably in his chair.

'Anything about neurons and brains,' I said uneasily.

'Fine. Forgive me if I cover familiar ground.' His voice changed to the booming tone he had adopted in the restaurant.

My heart sank, as they say. I should have known he would like to lecture. I was in for it now and I'd have to make the best of it. I sighed inwardly and put my hands in my lap. At least here, alone in his office, I needn't worry about other people sniggering.

'You know that all cells are made of a soft jelly-like substance, called cytoplasm? And that this is covered by a delicate, oily membrane, called the plasma membrane?' Vince was gazing at a point behind my head, as if he were talking to a group.

I did want to learn so that I could understand Mum's work. I had to if I was ever going to get the hang of how it would help Alicia. So, although he was intensely irritating, I felt I had to concentrate. We had drawn cells in high school biology classes. It was quite an effort to drag my mind back to them, but I did. Cells were usually round, with a cell membrane enclosing the cytoplasm and the nucleus. I couldn't see the connection with neurons.

Vince must have read my thoughts. His voice dropped. 'Neurons are the same as any other type of cell. They're covered by plasma membrane. The difference is in their shape.' He paused and looked at me. 'I noticed, in the lab, Gareth had drawn a neuron with a round cell body and a long thin axon.'

I wished he wouldn't keep mentioning Gareth. I felt uncomfortable enough about him as it was. 'Yes,' I said, thinking how I had to sneak along to Gareth's lab once Vince had finished. Despite Vince's warning and Gareth's offhandedness, I was determined to make amends.

Vince's voice, which had reverted to lecturing mode, brought me back to him. 'Electrical messages pass along the axon. You know that, don't you?'

I nodded.

'Right. Now I'll explain how that happens. Listen carefully.'

I listened.

'Sodium is essential. Sodium ions, to be precise.' Vince paused.

'Sodium ions?' I asked, not quite following this jump. The symbol "Na⁺" for sodium leapt into my mind.

'When a neuron is resting - not sending a message - sodium ions cover the outside of the plasma membrane.' Vince looked at me, his voice softening again. 'I'll give you an analogy. Imagine the corridor being like an axon, a long passageway with lab doors all down it. Now imagine the sodium ions being like little men, working away inside the labs. With respect to the corridor, where would they be?'

'Outside it,' I said, hoping that was what he meant.

'Of course, and they couldn't easily get into the corridor if the doors were closed. When we came along just now, young Gareth tried to get into the corridor.'

So, he'd seen? His bringing Gareth into the conversation startled me again. It seemed like he had a fixation with him.

'Thought I didn't notice? Not much escapes old Vince, you know.' Vince brought his hand forward and tapped the tips of his fingers lightly together. 'Now tell me. Why couldn't he get into the corridor?'

'The door was locked?' I didn't know what he was getting at. His explanation was taking a most unscientific turn.

'Exactly. Same with sodium ions. The only way Gareth could get through the wall is by a door. If it's locked he can't get through.'

'Why do you keep bringing Gareth into it?' I curled one of the hands in my lap into a fist inside the other. It was the best way to control my irritation.

'You like him, do you?' Vince cocked his head in a way I can only describe as mockingly.

I felt my face redden. 'I hardly know him.'

Vince waited a moment. I felt my words hang in the air as my flush deepened. I stared ahead at the bookcase. I sensed a supercilious smile was spreading over his face. 'You are a sensitive girl. I want you to think about why he would want to get into the corridor.'

I was irritated with him for focussing on Gareth. 'Oh, really! What's this got to do with neurons?'

'Don't worry, Gareth's an analogy, nothing more. Opposites attract. Boy and girl. Positives and negatives. Sodium ions are electrically positive. They're attracted to anything negative. Gareth and Louisa if you prefer. Know what I mean?'

'Yes.' I glanced at his face and saw only a bland expression. He was playing games with me, I was sure.

'The inside of the neuron membrane is negative. So, sodium, which is positive, wants to get in there. To take my analogy a step further, imagine a lot of girls in the corridor. We'll call them the negatives. Wouldn't the boys, like Gareth for example, want to get into it?'

'I suppose,' I said, thinking that if he went on about Gareth much more, I would leave. This silly analogy seemed to have nothing to do with an explanation of how electrical currents passed along axons. If that even had anything to do with Mum's research, which I was beginning to doubt. I edged forward in my seat, ready to make a getaway.

Vince continued, obviously unconcerned by my growing irritation. 'It doesn't matter whether it's a wall or a plasma membrane, it's impenetrable unless the doors are open.'

I glanced at the door of the office, wishing it would open.

'Imagine it – a lab door flies open. The Gareths rush into the corridor,' Vince boomed. 'In the axon's membrane the doors are called sodium channels. When they open, sodium rushes in. Remember the sodium ions have a positive charge, which they take with them, like backpacks. The inside then becomes more positive. In other words, there's a change in electrical charge. That's what makes it electrical.'

'I think I see,' I said uncertainly.

'Channels open successively along the length of the axon, so sodium rushes in successively. That means there's a change in electrical charge along its length. That's how the electrical message is propagated. But it's called an "action potential" rather than electrical message.' He wagged a finger at me. 'You're undergoing a rush of sodium ions at this very moment.'

'I am?' The thought of sodium ions, or anything else for that matter, rushing anywhere inside me was a bit spooky.

'Remember, I told you electrical messages make your thoughts? They happen because sodium dashes in and out of neurons in your brain. It happens all the time. Think about it.'

I thought. 'Have I got this right? You're saying that every thought I have happens because action potentials race along the axons of neurons?'

'That's right. And they result from the movement of sodium ions.' Vince spread his hands out as he sank back against the tall back of his chair. 'Tricky business, this neurophysiology.'

That was a touch patronising. Did he really think I couldn't understand if he explained an action potential using scientific language? 'Yes,' I said somewhat stiffly. 'An action potential occurs because sodium channels open in the membrane of the axon. Sodium ions rush in through them.'

'Carrying a positive charge with them.'

'That changes the electrical charge across the membrane?' I wasn't too sure of this bit.

'Yes,' he confirmed. 'Imagine the Gareths with backpacks. The backpacks, the positive charge, would end up in the corridor. Analogies like that can help you visualise what happens, you know.'

Perhaps he was right, the image of men rushing through lab doors into the corridor was quite vivid, I had to admit. But Gareth would explain the mechanics of neurons in a friendlier way, I was sure. That is, if I could manage to see him and apologise to him. I felt the need to do that all the more urgently now. Probably I was spurred on by a desire to get away from Vince. I had definitely had enough of him, so I stood up, forcing a smile. 'Thanks for that explanation. I'd better be going.'

Vince stood up too and came round the desk. 'You're welcome, any time.' He walked with me to the door.

I glanced down at my watch. Too late for my lecture now, but not too late to see Gareth? I could, if Vince would just disappear back into his office. But he was right behind me. 'Not thinking of seeing Gareth, I hope,' he said, uncomfortably close to my ear.

'No. I'm going to the library,' I improvised.

He moved into the corridor, blocking the path to Gareth's lab. He pointed to a stairwell close by, edging me towards it. 'This is quickest,' he said.

'Thanks.' I could barely force a smile, but I did, despite feeling thwarted. Vince watched me until I started down the stairs.

As I tramped across the grass outside the science building, I looked at the window of Gareth's lab. No sign of him, but further along, through his office window, Vince was watching me.

8



'Bugger Vince,' I thought, over and over again. 'He can't stop me seeing Gareth, can he?'

But every time I decided that no, he couldn't and he didn't own Gareth, I thought about his face behind his window, watching me as I left the science building. Once I was in the trees, on the other side of the grassy area that separated the science and arts faculties, I had looked back. The pale outline of his face was still there, immobile. That sounds dramatic, and you'll probably think I've seen too many bad movies, but the way he was fixing on me was unnerving. Even though it was a warm day, I know I shivered.

I saw Susie, as usual, during the next couple of weeks. I could not get used to the way she was aging so fast. Each time she opened her front door to me, Alicia on her hip, the first thing I noticed was how the lines on her face were getting deeper. What shocked me too, although I would never say anything to her, was the way her hair was chopped. It's the only way I can describe it. Chopped. I'd always envied her long, shiny, blonde hair, and she'd always been proud of it, made the most of it, especially when there were guys around. Now it was short and spiky. You'd never call it lustrous.

And, every time that I saw Alicia I had to really fight back my tears. My eyes felt like they were made of water. Yes, she toddled around, all right, and

Susie was excited because she thought this was very normal, but I felt a real strain in my throat. It hurt, it really hurt my throat, listening when Alicia tried to talk. You could see her little mouth move, and hear the sounds coming out of it, but they were the wrong sounds. You can't understand little children anyway, but Alicia's sounds were different. They weren't the pre-language burbling of unformed words; they were guttural sorts of growls. Susie was wonderful. She gently repeated words over and over again, talking to Alicia with incredible patience. I admired her, I really did, but it broke my heart. Dramatic again, but true.

I knew I had to see Gareth and apologise. I felt so guilty every time I came away from Susie's house, thinking how silly I'd been. Even though I couldn't be involved in Mum's research, I wanted to know how it was going. And I felt uncomfortable, as if I might somehow have derailed the research with my stupidity, because I'd left Gareth in an argument. I'm that sort of person, you see. I hate arguments.

Bearing in mind Vince's warning, I thought I would pop into the science building quickly, run up to Gareth's lab and sort out the issue. It wouldn't take more than a few minutes. I'd be humble, and surely Gareth was a nice enough guy to accept that. Hadn't he been concerned enough to send me the draft of Mum's paper? I wasn't absolutely sure, after the way he'd disappeared along the corridor, but I had to give it a go.

Having argued myself into disobeying Vince, I had to wait two or three days to catch Gareth. Each time I went to his lab, there was only the hollow, inhuman sound of machinery humming. The flasks and beakers stood on the benches in their neat rows, as before. I knocked on the culture room door and peeped in. The warm air brushed past my face and the dim light shone on the stoppered flasks, but Gareth was never there.

Finally, when I hit the right time it turned out to be wrong. As I walked into the lab this time, I saw the door of the culture room was open. 'Good,' I thought, until I heard voices, Gareth's and Vince's. It wasn't just that Vince

was there that worried me, it was the tone of his voice. It wasn't booming, or soothing, or even patronising. It was angry.

'Don't bother with that crap,' Vince was saying.

'But we've got to,' replied Gareth.

I stood still, although I should have left and come back later, when Vince had gone. The tension in the voices held me. I had to listen.

'Don't mess about. That's the trouble with people like you, always throwing up problems,' Vince continued. 'If we don't get this paper off by Friday at the latest, there's no chance of it getting in *Journal of Neurophysiology* for months, if at all. That's what the editor told me.'

I held my breath, and felt my heart pounding for Gareth. The way Vince was talking to him was terrible.

Silence.

'But the controls. . .' Gareth faltered.

Vince's voice followed, swift and scornful. 'Make them up. My dear boy, use your imagination. You're bright enough.'

I waited and listened.

'I can't do that.' Gareth's voice sounded tense.

'Do you think people actually *do* control experiments?' asked Vince.

'Of course. You've got to, or the results are meaningless.'

'Where have you been living? This is the real world. Forget the bullshit about hypothesis, testing, repeating experiments and all that other textbook crap. Went out with the ark, if it was ever in. What you've got to do in today's world is publish results that sound convincing.'

'I can't do that. Results have to come from proper work.' Gareth's voice rose with indignation.

'Who said anything about not doing the work properly?' Vince's voice had a brittle innocence. Then it fractured, returning to its angry tone. 'Just get on and do as I say.'

I panicked then as I heard the shuffle of footsteps. Either Vince or Gareth was coming out and I didn't want to get caught. Hastily, I tiptoed to the lab door, pressed the handle down slowly and quietly, and crept out. I was starting to feel relief that I had made it to the head of the stairs, when Vince emerged from the lab. I realised he would see me, so I pretended that I had just arrived in the corridor.

Vince hesitated for a moment, but then he smiled and held his hand out to me. 'Louisa. Just the person. I'm dying for a coffee. Come on over to the caff.'

Bugger, bugger, bugger. It was almost as if fate were conspiring with him to prevent my seeing Gareth. And I'd almost been caught out disobeying Vince. I couldn't see anything for it but to go with him.

Usually the sunny courtyard of the *Currawang* was a pleasant, relaxing place to be but, even under the canopy of a large green umbrella, I felt hot. I was itching to know more about what I had overheard but I couldn't very well ask Vince.

While I was thinking how to phrase some sort of question, he started on at me. His voice was calm, with that soothing quality he'd used earlier. 'You're a persistent young lady. Can't keep away. Well, I suppose it's natural. Fascinating things, neurons. Perhaps I should yield to your curiosity and tell you a bit more.' He threw back his head and laughed as if he had made a joke.

Much as I wanted to learn more about neurons, I didn't want to learn this way. I was irritated already, with him having lured me to the cafe, and I

didn't want a lecture as well. Couldn't he stop patronising me? I shuffled my feet and glanced around. There was a young woman with a toddler, about Alicia's age, sitting at another table. Alicia. Poor Alicia. I should listen to Vince and learn.

Already, I realised, he was reminding me of what he had said last time. That the electrical current, the action potential, sped along the membrane of the axon from the cell body to the axon terminals, which formed a tuft at the end. Yeah, yeah, I remembered that. He reminded me that this depended on the opening of sodium channels in the membrane, so that sodium flowed in. I remembered that, too. The sodium carried a positive electrical charge with it. His voice was booming. I glanced at the other tables. To my relief, Vince wasn't attracting attention like he had in the restaurant. Students are used to lecturers!

As I focussed back on him, he was, at last, concluding. 'So, you see, the inside of the membrane becomes positive. That's the signal for channels to open up one after another along the length of the axon. Once that's started it can't stop. What happens? Sodium rushes in all the way along. This goes on until the last channel in the axon has opened.'

'You told me that the other day,' I said. I wanted to show, without actually being rude, that I'd heard enough. I thrust my chin forward. What interested me was the snippet of conversation between him and Gareth, not this stuff about action potentials.

Oblivious to my subtlety, he continued. 'Ah yes, but what I didn't tell you was that when the last sodium channel in the axon has opened, the message can't go any further. It's like the last door in the corridor has been opened. Then what happens? How can the message be sent on?'

He wanted a response, so I shook my head. I wasn't concentrating. I was turning over in my mind that other conversation. Could Vince be fiddling the results? Committing fraud? Or had I misunderstood?

He took my movement as encouragement to continue. 'That's where the chemicals come in. They take the message to the next neuron.'

'Good,' I said, for want of anything better.

Vince pressed the palms of his hands together in front of his lips. 'Something wrong?' he asked.

I looked straight at him, while I decided how to respond. For the first time I noticed tiny purple lines on his nose. It must be the sunlight. 'I don't understand,' I said, my thoughts still on my eavesdropping in the lab.

'What in particular?'

'Why the papers are so much more important than the research itself?' I blurted out.

Vince blinked a couple of times and stirred his coffee very deliberately. 'What are you talking about?'

'Mum's research. The experiments Gareth's doing.'

'Oh, that. You wouldn't understand.' He dismissed me with a shrug.

'Shouldn't the research be done properly?' I persisted. Now I'd asked, I wasn't going to give up.

'Wasn't it? Your mother was highly regarded, as I recall.' His features tightened, the smile vanished and his face looked pasty and lined. The sun again?

'I mean now. What Gareth's doing.' I was determined to continue.

Vince's face creased into a smile again, but his voice was still patronising. 'These days aren't like the '60s and '70s or even the '80s, when we could afford lab staff and new equipment. Now we get by with what we can. This stem cell work is hellishly expensive. Combine that with gene

targetting and our budget goes through the roof.' He tapped his cup with his spoon. 'Money, my dear. Not enough of it around.'

I felt my shoulders tense. Vince seemed to be saying that without money, the project would slow down. That would mean that Mum's work wouldn't get done in time to save Alicia. 'Doesn't the Uni pay you?' I asked.

'Me, of course.' Vince laughed. 'But not people like Gareth. They depend on government grants.'

I hadn't given a thought to how the project would be funded. Vince had been so enthusiastic about it, after his initial reluctance, that I'd assumed the university would just keep it going. How stupid of me. 'What'll happen?' I asked.

'Don't know.' Vince shrugged. 'If Gareth's too lazy to apply for a grant, I suppose he'll have to find another job.'

The possibility that Gareth might go hadn't occurred to me either. I stirred my coffee as I grappled with this new idea. Gareth seemed to be the one who was actually doing the research, and he was the one who knew most about Mum's work. If he went, Mum's work might stop altogether. Then there would be no hope of Alicia being helped. I looked across to the toddler at the nearby table. She was babbling away to her mother, who was smiling at her and feeding her pieces of cake. Mum's research just had to continue. 'What will happen to the project?' I asked Vince.

'Find some money, my dear, and all your problems will be solved. I've used what bits of the research I can and I'm not wasting more time chasing money.'

I took a moment to absorb this statement. Me find money? Vince couldn't be serious. I couldn't raise funds for scientific research. Me, a student, who was getting increasingly behind with her studies? I drank my coffee, as he chatted on. He didn't seem worried that I wasn't listening. I felt it was even more urgent that I speak to Gareth. I had to find out what the

situation was. He couldn't abandon the project. My mind went over and over what Vince had said. I was really unnerved. Finally, I was aware of him saying it was time to leave.

He walked with me to the car park, giving me no chance to double back to Gareth's lab. 'What are you doing on Saturday?' he asked, as we ambled through the campus.

'Catching up on study, I guess.' I said. I was so far behind with my assignments.

'Oh, Louisa! A beautiful young girl like you sitting at home when you could be out having fun. . I can't have that. Our departmental fun day is on then. I need your support.'

'But I'm not part of your department,' I replied, suddenly conscious that he was uncomfortably close to me.

'I organise the thing and I'm inviting you. It's the best event in the university. Everyone gets as pissed as buggery. You'll love it.' He moved closer.

'It doesn't sound like my scene,' I said, turning my shoulder away to put some distance between us.

'Not a boozer?' Vince raised an eyebrow. I didn't like this. He seemed to be mocking me. 'Abstemiousness is very admirable at dinner but you must go wild occasionally.'

'Not really,' I said, feeling quite affronted now.

'You can't turn me down just like that. I'm devastated. Or have I said something?'

I barely heard those last words, because we'd almost reached the car park. Gareth was unlocking the door of an old orange VW beetle. I watched

as he climbed in. I heard the engine hum. So that was that. No point returning to the science building, even when Vince was out of sight.

'Will Gareth be at this fun day?' I asked, as lightly as I could.

9



'Hey, Louisa. Come over here and give me a hand,' Vince beckoned me from under the awning of the organisers' table. He was dressed in a pair of white shorts and a T-shirt. He looked better than the other times I'd seen him, and he was in a bouncy mood, shouting orders in a jolly way and joking with everyone. The middle-aged man had come to life.

I quickly scanned the people milling about and was stung by a little pang of annoyance. I couldn't see Gareth. Foiled again. I approached Vince slowly, hoping that I wasn't in for another lecture on neurons. His track record wasn't good. I wanted to know about Mum's research, sure, but I didn't like the way he talked down to me. He wouldn't do that here, would he? Or talk about funding?

After I'd returned home the other night, I'd rung Susie. I'd wanted to tell her about the funding matter, but she sounded so exhausted that I told her about the fun day instead.

'Half your luck,' she said. 'I could do with a day out.'

I realised then that I should offer to look after Alicia sometimes and give Susie a break. I used to baby-sit before the accident. It had been fun playing with my little niece. Me, an aunt! It was ridiculous. Things had

changed. I'd been so busy chasing Gareth, dodging Vince and thinking about Mum's legacy, that I hadn't thought about practical help for Susie.

'I'll come and baby-sit. I don't care about the fun day,' I said.

'That's sweet of you, Lou,' Susie replied. 'But she really needs me. The doctor said she mustn't get upset. She goes hysterical if I'm not here. Go and make up with this Gareth guy. That's much more important.'

After that, I knew I had to go to the fun day. If I could just see Gareth and apologise; spend long enough with Vince to be polite; then I could slip away and get on with some study.

Yet, here I was, kicking myself for letting Vince get the better of me again. 'How are you at blowing up balloons?' he asked, tipping a packet onto the white cloth covering the table.

'What's this, a kids' party?' I asked.

'I'm just a big kid at heart. Didn't you know that?' He shoved a yellow balloon at me. 'Go on. Blow.'

I blew. Nothing happened. I'm hopeless with balloons. My cheeks puffed out and I felt my face go red. The balloon bulged but wouldn't inflate. Vince grabbed it and stretched its neck to loosen it up. This time it inflated as I blew into it.

He had a go at another one. His puffs were powerful and he looked at me, eyes wide, over the top of a sphere of expanding green rubber. He looked funny. A professor, half-hidden behind a balloon. I giggled as he tied off the neck and let the balloon bounce lightly onto the table.

'Let's pin them up,' Vince said when there was a pile of balloons bobbing around us. He clambered onto a stool in front of the tent, and I handed him the balloons and drawing pins.

When we'd finished, Vince climbed down from his stool and, shudder, shudder, put his hand on my back. 'Not bad. We make a good team, don't you think?' His hand was hot through my T-shirt and I squirmed.

Suddenly, I heard Gareth's voice and I jerked away. Vince gave a little huff.

Gareth was approaching the tent but he didn't respond when I called out to him. His cap was pulled down and I couldn't see his face.

This wasn't the moment for an apology, so I just said something mundane. 'How do you like our decorations?' I waved at the balloons.

'They're OK,' he said, stopping a short way away.

He didn't want to speak to me. That was it. Making contact with him would be every bit as difficult as I had expected. I had to say something or he would wander off. 'I've been puffing like crazy all morning. I thought they looked pretty cool.' Even to me, this sounded pathetic. Gareth probably thought the same. He barely glanced at the balloons.

Vince was standing beside me. 'You're awake, are you?' he asked Gareth.

'Not exactly,' Gareth replied.

There was a brief, uncomfortable pause as the three of us looked at the tent. 'Louisa's ace,' Vince said, giving my shoulder a gentle squeeze.

I hastily wriggled free again, but Gareth was starting to walk away. 'See you later,' he said, flatly.

That got me going. 'Hang on,' I said. 'I'll come with you.'

'Sure,' Gareth threw over his shoulder. Hardly encouraging, but I couldn't let him go.

Vince changed. He stomped into the tent, grabbing the balloons we hadn't pinned up. I felt the vibes radiating from him. He wasn't too pleased, I can tell you. 'Is that OK, Vince? You don't need me any more do you?' I asked, gathering up some balloons as an appeasement gesture.

'Don't worry about me. I'll manage.' Vince thrust a box at me. 'Just put those balloons in this before you go.'

'I'll stay if you want,' I said, not liking his mood, although I was desperate to follow Gareth. He was almost at the oval. If I didn't catch him soon, he'd start chatting and I'd have Buckley's of talking to him alone. Vince was such an unpredictable man, I didn't want to upset him. Besides he'd invited me. I sort of owed him.

'Go and enjoy yourself.' Vince had turned his back already. His T-shirt strained over his rounded shoulders.

I hesitated a moment, then sprinted after Gareth. He looked surprised when I spoke to him.

'I thought you were busy,' he said, dully.

'All done,' I said with a brightness I didn't feel. This day was turning into a disaster and I felt now I'd made a big mistake in coming. I should have trusted my first instinct. It was my own silly fault for thinking I'd catch Gareth. Best to make my apology and leave. I'd find out later about his position and the project. 'Look, I wanted to apologise for being a bit rude the other day. I shouldn't have snapped like that.' I played with my fingers nervously. That habit of mine again.

'Oh, that. Forget it. Right now, I've got much bigger problems to think about,' said Gareth, taking his cap off briefly and running his hand through his hair. The sun lit his face and for the first time I noticed dark shadows under his eyes.

This seemed like the opening I needed, although I was a bit bruised by his rebuff. 'Funding?' I asked.

'Funding?' Gareth looked surprised. For the first time that day, I got a reaction.

'Isn't it a problem?' I watched his face. I could have misunderstood Vince.

'Could be.' Gareth thrust his cap back on with a sigh. Obviously that wasn't the problem bothering him.

I felt a flutter of panic. He didn't seem concerned. Yet the whole project could collapse if he lost his job. 'You're not worried?'

'I'm too tired.' He rubbed a hand across his eyes.

This was worse than I thought. Nobody seemed to care, except me. Yet Alicia's whole life depended on this project. I, Louisa McLean, Alicia's aunt, couldn't let that happen. 'Can't we get money from somewhere?' I accidentally said it out loud. I meant to think about it more first.

'I dunno.' Gareth blinked and sighed, as if thinking about funding was too much for him at the moment. 'If I had a house I could mortgage it, I suppose.' He gazed across at the oval.

I followed his gaze. A group of people was clustering at one end. Vince was there, with the whistle in his mouth, waving his arms and organising groups for a game. The carton of balloons was beside him. I hadn't noticed him leaving the tent with it.

I knew hardly any of the people. They were shouting and laughing as they threw and kicked the ball around. It didn't matter, because my mind was racing furiously. Our house must be worth a bit. Could I mortgage it? It was a possibility. Susie didn't want to sell, I knew, but I could mortgage my half

interest. That might get enough to keep the research going. 'Let's sit down,' I suggested, thinking I might be able to talk to him about it.

Gareth sank onto the grass and clasped his arms round his knees. They were rather knobbly, I noticed irrelevantly. 'Sorry. I didn't mean to be rude. I'm whacked. Your friend Vince has been working me about twenty-four hours a day. He said we can't afford to get the hospital offside. Not with the possibility of clinical trials one day. If they give us fresh tissue, we've got to use it. That means, instantly.'

My mind swung off the mortgage issue. It would have to wait till later. 'Wasn't Vince doing any of it?' He'd seemed fresh, not exhausted like Gareth.

'Are you joking? Vince hardly ever comes into the lab.' Gareth tugged at a blade of grass. He wrapped it around his index finger like a small green bandage.

'But he's so keen on the research.' I was puzzled and leant forward, so that I could see his face.

'Keen, yes, so long as I do the actual experiments. Great to be head of department like him, sitting on your bum all day. Just a bit of admin stuff to do, nothing serious. Don't get your fingers dirty in the lab or anything.' Gareth tossed the blade of grass away.

'He's like that?' I was astonished. I'd already got the idea that Gareth did most of the lab work, but I didn't realise it was that bad.

Gareth looked at me quickly, then fixed his gaze on the oval. 'I shouldn't have said that. Forget it.'

For a few moments we sat watching the people on the oval. I didn't mind the silence. It gave me time to think. Vince was obviously pushing Gareth, but was doing nothing to help him. Vince was doing nothing about funding either. Yet Gareth didn't seem to have even thought about the future. What did it all mean?

It was only when I turned round to ask him that I saw he had lain back on the grass and was fast asleep.

His shoulders were broad and his chest and tummy flat. I couldn't help but imagine firm muscles under the T-shirt and the shorts. You have never seen such a gorgeous body. For a few moments I watched his chest rise and fall rhythmically. There was a part of me that sympathised. He must be exhausted to fall asleep when there was so much activity and noise around us. But, I have to admit, a little niggle of annoyance edged into my mind too. Neither my presence nor the future of the project were enough to keep him awake?

My daydreams were rudely interrupted as a roar went up from the oval. I looked over and saw people running, jumping and hugging each other. Vince was blowing his whistle and waving. He seemed to be cheering, but nobody was taking any notice of him.

The commotion woke Gareth, who sat up, rubbing his eyes. 'Sorry,' he said. 'What's happening?'

'The game's finished.' I nodded towards the people who were milling around Vince. He was throwing back his head and laughing at something a young woman was saying. 'He's really in his element, isn't he?'

Gareth followed my gaze. 'You get on well with him.'

His comment was unexpected. It wasn't how I felt about Vince at all. 'He's patronising,' I said.

'You're not really good friends?' Gareth sounded surprised.

I couldn't have him thinking that. 'No way. He's been good about this research to save Alicia. But actually he's a bit of a pain. I want to understand neurons, but I don't want them rammed down my throat all the time.'

'I'd better keep my mouth shut,' said Gareth, with what I'd describe as a wry twist of the same mouth.

I'd done it again. Said the wrong thing. 'Not you. I loved the way you explained about a neuron. That was great, but the way he goes on really puts me off. The other day it was action potentials. He gave me a silly sort of analogy to explain how sodium ions moved into a neuron. He said a corridor was like an axon, and the wall was like its membrane. Something about how the sodium ions had to go through channels like people had to go through doors.' I stopped as I remembered the analogy had included Gareth. Rather lamely, I finished. 'Not that there's anything wrong with analogies. It was just Vince. I loved your explanation.'

'Are you saying you want another crash course?' Now that Gareth was awake, he was laughing. His brief sleep seemed to have refreshed him.

'Would you?'

'Why not?' He smiled at me. 'What can I tell you about?'

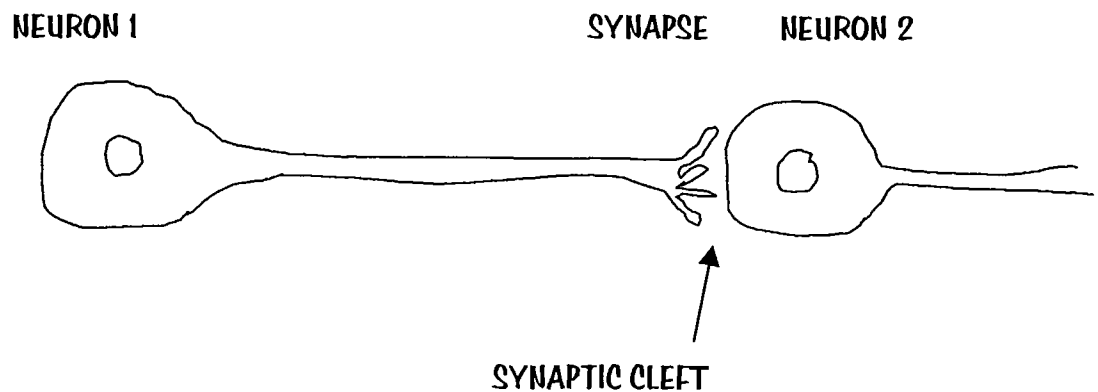
'You say.'

'If you've done action potentials I'd better move on to neurotransmitters,' he said, idly picking up a stick. 'Have you heard of them? Dopamine, norepinephrine, acetylcholine, serotonin. That sort of thing?'

'Actually, I haven't. Arts isn't exactly about chemicals.'

He grinned at me. 'Right. Let's start with a bit of revision. Remember there's a gap between neurons? The synaptic cleft, it's called.'

I watched him scrape a picture in the dirt by his foot. It was similar to the one on the whiteboard, with two neurons not quite touching.



He glanced over his shoulder at me, smiled, and continued. 'When the action potential, remember that's the electrical impulse, reaches the end of the axon, it can't go any further.' The stick skimmed over the long, thin part of the neuron. It hovered over the synapse. 'Time for the chemicals, the neurotransmitters. They carry the message on to the next neuron.' The stick jumped across the gap. 'There are easily a hundred different types of these chemicals but no matter what they are chemically, as neurotransmitters they all work in the same way.' He paused for a moment, glancing across to the oval.

Involuntarily I glanced that way too. Vince was pulling balloons out of the carton. For a moment I wondered what he was doing and if somehow I should be helping. I'd blown up those balloons after all. Vince didn't even glance at me. He seemed to be organising everyone with great enthusiasm, so I happily stayed where I was.

Gareth continued earnestly. 'It doesn't matter which neurotransmitter it is. When an action potential arrives at the end of the axon, neurotransmitters are poured into the gap.'

'Well, good for them,' I said. It was a bit silly, but he sounded so serious that I couldn't help it.

Not surprisingly, Gareth looked at me sharply. Then his intent expression relaxed. 'Oh! Am I being a bore?'

We looked at each other and burst out laughing. It was one of those spontaneous moments when you just seem to click with someone. It was fleeting, of course, and anyway it was broken by Vince's voice. 'Louisa! Come and join a team.' I looked towards the oval again. Several people were holding balloons and now Vince was beckoning me. It was so irritating. I was feeling relaxed and happy. I didn't want to go down there and be put on display in front of people I didn't know. I shook my head.

Vince turned abruptly away and I realised I'd offended him again. Too bad. I wanted Gareth to continue his explanation. I was a bit irritated that he was now intently watching the oval. A whistle blew and people started running, each carrying a balloon.

'It's a relay race with balloons instead of batons,' said Gareth.

'Incredible!' I watched the balloons being handed on to successive racers.

'Can I use one tiny analogy?' He leant towards me and whispered.

'If you promise it's only one very tiny one,' I whispered back. He was delightful to tease.

He laughed. 'Neurotransmitters are a bit like those balloons. They're a signal between two messengers. One neuron passes neurotransmitters on to its neighbour, and that starts the neighbour off.'

'I like that analogy,' I said. 'It's cute. A racer can only start when he or she gets a balloon and a neuron can only fire when it gets neurotransmitters from the neuron before.'

'Glad you like it. Can I use another *teeny, tiny* one?'

'All right.'

'Neurotransmitters plug into receptors on the second neuron, just like those balloons pass into the hand of the next racer. It sort of switches them on.'

'The neuron or the racer?' I asked, although I knew what he meant.

'Both. Neurons work as a team as much as those racers do.' He watched the race for a moment. 'There's a sequence of runners and balloons. It's sort of the same with neurons. There are electrical and chemical messages repeated as many times as there are neurons in the chain of command.' He held my eye for a moment. There was definitely a twinkle.

I twinkled back, if you can do such a thing. His explanation had been much more fun than Vince's. As we relaxed back into what you might call an amiable silence. After a few moments of thinking about balloons, neurons and Gareth, my mind went back to the funding issue. It was incredibly important but I didn't know how to bring the subject up again.

I lost the opportunity anyway, because when the race was over Vince came puffing up the slight slope to us. I could hear and see people bursting balloons on the oval behind him. Red, green, yellow or whatever colour they were, they shrivelled into flaccid dots on the grass. Vince was smiling and he held out a hand to me. He ignored Gareth. 'I've got a job for you,' he said to me, drawing me to my feet.

Gareth scrambled to his feet too and hovered behind me. 'I'll be off then.' His voice had lost its life.

'Don't go,' I turned and implored him. I hadn't even mentioned funding again. He yanked his cap down and moved away from me. I had to think quickly. 'There's something I want to ask you. Come for dinner. Tomorrow?'

10



'It's called VivoTech,' said Gareth looking at me, across the dining table. Shadows from the candlelight flickered across his face. 'Charlotte was thrilled by the prestige of them being interested in our research. I never thought about them giving us money now she's gone.'

I hadn't either. The serving spoon I'd been holding clattered against the side of the glass bowl. 'That letter. It was from a biotech company with a name like that,' I said. Gareth probably thought I was really rude, because I just stared at him. I was thinking how I'd taken the letter out of my backpack, the day after dinner with Vince. I'd lain it back on Mum's desk in the garage-lab, thinking I must reply to it sometime. After that, I'd forgotten all about it.

'A letter? What did it say?'

'Don't get too excited. I showed it to Vince and he was interested in what it said about Mum's research. That was all,' I replied, drawing my mind back to my first interview with the man.

'That's typical of academics. They hate anything commercial.' Gareth said this as a statement of fact, rather than as anything critical.

'And you don't?'

'Research is research whoever pays for it. We have to move with the times. I don't see the problem, although Vince says government funding is the only thing. He doesn't care that I might not get a grant next year. It's all right for him, with his tenure, but it's my career we're talking about. I think we have to be open to any offers.'

I was relieved that he was concerned about his future now, not like yesterday when he'd been too tired to discuss the matter. He must have had a good sleep. In fact, he had been quite animated all evening. I hadn't thought about private as opposed to government funding until then and I was glad he didn't worry about the difference. Maybe VivoTech could be the way to keep the project going.

'Let's get this letter, right now.' I stood up and held out my hand to him, which seemed the right thing to do, although it's not like me to be so demonstrative. 'It could beat mortgaging my house,' I joked, to cover my embarrassment.

'You were going to do *that*?' Gareth looked at me in astonishment, as he rose from his seat.

I felt a bit of a fool then. 'Remember, you suggested it?' I said lightly.

'You took me seriously?' He laughed and took my hand.

'Of course not,' I pretended. 'But I'm deadly serious about doing anything I can for Alicia.' His fingers were warm, and I felt a tingle of excitement as I led him through to the kitchen. The contact was brief because I quickly released his hand to collect the key to the garage-lab. He was close behind me as we went outside.

Once inside the lab I went straight over to Mum's desk. My hand trembled as I picked the letter up and scanned it. Gareth stood behind me. I felt his breath brush my neck, as he read over my shoulder.

'You've got to ring them,' he said, close to my ear. 'This could be my salvation.'

'We should talk to Vince first,' I said, suddenly afraid of making a rash move. 'He's in charge of the project.'

Gareth took the letter from me and read it again. 'You're right. So will you go and ask him about it?' He handed the letter back to me, with a big grin.

Vince had been a little chilly towards me, after Gareth left the fun day festivities. I wasn't sure about approaching him. Anyway, I was feeling uneasy about Vince generally. 'It would be better if you did. You know what the project is about and the funding would be for you,' I said, hoping I could get out of going to Vince.

'He wouldn't listen to me,' Gareth replied, hesitantly. 'But he likes you.'

There was only one thing to do. 'Let's go together, then,' I said.

* * * * *

I had lunch with Susie and Alicia next day. It wasn't one of the best occasions. Not that any were good these days. This time, Alicia was throwing her food everywhere. I could see that Susie was at the end of her tether. She jabbed the baby spoon that Mum had given Alicia into the jar of baby food. As soon as she scooped up some mushy stuff and thrust it towards Alicia's mouth, the little fist grabbed it and forced it away, splattering the high chair with slops. Alicia made that funny sound she makes now, a sort of growl. Several times Susie had to tug the spoon away from her and have another go. I felt in the way, so I got a sponge and wiped up some mess. By then Alicia had got the spoon and was thumping it against her bowl, gurgling with glee each time she hit it. Finally, Susie's patience gave out. She unbuckled Alicia from the high chair and whisked her out of it. Alicia screamed and kicked all the way to her bedroom. Uncharacteristically, Susie shut the door on her and let her howl.

I was completely confused by this change in Susie. I just stared at her. Tears were bursting from her eyes and rolling down her cheeks. It was so unlike her. Just awful. All I could think to do was to give her a great big hug. I ran over to her and held her tight. I wiped her eyes, as if she were the baby. Finally, she calmed down and blew her nose. 'Sorry, Lou,' she snuffled, her face red and tear-streaked. 'Sometimes it gets too much for me.'

We chatted for a while until she calmed down, and when I left I knew she'd be all right till Josh got home.

But as a consequence, I wasn't in the best mood for tackling Vince in the afternoon, even with Gareth's support. It didn't help that Vince didn't seem in a good mood either. He was shoving papers into a box on in his office when we went in. I could have been being oversensitive, but I found the way his jowls wobbled was most unpleasant. Was he cross because I was with Gareth? I wondered. He hadn't liked me talking to him at the fun day and he'd seriously warned me off Gareth earlier. All the same, I didn't see why I shouldn't come with Gareth. It was funding for him we wanted.

We waited a few moments while Vince re-arranged some books and fussed around. Eventually, he went behind his desk and sat down heavily in his chair. With a brief grunt, he waved us to the other chairs.

'I'd like to follow this up,' I said, handing him the letter from VivoTech. I was apprehensive about asking him, given his mood, but I didn't have an option.

With only a cursory glance at the letter, Vince tossed it across the desk to me. 'You showed me that before.'

'They might give us funding. For the project. For Gareth to continue,' I persisted. I wouldn't give up that easily.

He gave a big sigh. 'Funding? Louisa, my dear, you are delightful but a little naive. Those people aren't interested in academic research. They're after money. Put a little in and get a lot out. That's their game.'

While I was sitting there, furious at Vince's patronising tone, Gareth said quietly, 'Wouldn't it be worth a call to them?'

'Then what? They'd come in and poke their noses round. Tell us what to do and what not to do. We wouldn't be left in peace for a moment. And all for what? A bit of money.' Vince picked a pen off his desk and rolled it rapidly between his fingers.

'But isn't money what you need?' I asked. I was so cross by now that I even forgot to fiddle with the strap of my bag. Vince was the one who had first mentioned funding as a problem.

'But not money with strings attached. It's happened before, you know. Con artists. They see dollar signs and their eyes light up. Promise you the earth but walk all over you. If we get tangled up with them, we'll have nothing but trouble.' Vince leant back in his chair and tapped the pen on its arm.

I wanted to leave. I'd expected Vince would tell me that I was foolish, but we were really rubbing each other up the wrong way. This was the resistant Vince I'd met when I'd queried Mum's authorship.

Unlike that time, Gareth spoke up beside me. 'Shouldn't we just make some enquiries?'

Vince shot him down too. 'Dear boy. Academics aren't business people. We should stick to what we're good at. Research.'

Gareth stood up and was beside Vince's desk. 'But it's the way of the future. If we got private funding, I could do really good research. Some people have done very well with biotech companies.'

'Look, young man.' Vince stabbed the air with his pen and Gareth stepped back. 'I went through Uni with a very bright young guy. Benny Zeki. He was like you, thought he would change the world with his research. Benny talked to a biotech company. Before he knew it, he'd signed a contract with them. Two years down the track, his career was in ruins. Not a single

publication. Given the boot by the department. Benny was out in the street, without a dollar to his name. And where was the biotech company? Laughing all the way to the bank. They'd taken out a worldwide patent on his work and he wasn't entitled to a cent.' Vince tossed the pen down. It skidded across some papers.

I sat up straight. This wasn't relevant. It didn't mean VivoTech was untrustworthy. 'Mum wouldn't get involved with a company like that. She was meticulous about everything, not just her research.

'I don't deny that Charlotte had a keen mind for scientific research. Indeed, I'm using her results.' Vince tugged at his earlobe. 'But with all due respect, Louisa, a biotech company was not one of her best ideas.'

'What if the research collapses because there isn't any money? What about Alicia?' I could hear myself shouting, but couldn't do anything about it.

'Alicia?' Vince hesitated for a moment. 'Your sister's baby, of course. A tragic situation. But that's not the issue at the moment.'

I felt my heart thumping. It was the size of a football inside my ribcage. 'Isn't it what it's all about? Saving Alicia? You told me you need money. Now you dismiss this biotech company, who might give us funding. Don't you want this project to go on?'

'Louisa. I don't think you understand.' Vince spoke with quiet calm. 'You don't want Gareth to waste precious time answering silly questions, do you? You want the work done, don't you?'

I nodded. Of course, I wanted that. My mind was being muddled by my own anger and by Vince's arguments.

Gareth chipped in again. 'I'm working flat out, sure. But I still think we should trust Charlotte and follow up her contact.'

Vince gave an exasperated sigh. 'I'm telling you, we don't want outsiders coming in. Just get on and do your job. You know what I mean.' He fixed Gareth with a stare until he looked away.

I looked at Gareth, and I sensed a change in him. He avoided me. A faint flush spread up his face. Vince seemed to have hit a raw nerve.

As Gareth remained silent, I turned to Vince. 'I'll have to reply to that letter. What will I say?'

'That's your business. You decide.' Vince pushed back his chair and stood up.

11



I was in a real state by the time I got home. It was so unlike me to get worked up like that, but I suppose the combination of Susie's outburst and Vince's antagonism had got to me.

Every time I thought about what Vince had said, I thought about Alicia. And Susie. She was going to pieces. Her outburst wasn't surprising. I didn't blame her. I just felt devastatingly sorry for her. She had given up work, and was spending her days visiting doctors, physiotherapists, child psychiatrists and other health workers. There was so little I could do. It was really frustrating. As for me, I was getting way behind with assignments and it was worrying me. Mum and Dad would have killed me if I got a fail on my record. I didn't much want it either. But I was determined that I'd do everything I could to save Alicia. She was far more important than my degree. I could always repeat my year. You have to get your priorities right.

It didn't matter what Vince had said, how negative he was. If funding was all that stood in the way, I told myself, I had to follow up the biotech company option. The question was, how?

I was scared about approaching them on my own. I have no idea about biotech companies and they could run rings around me, like Vince had implied. The only person I could think to ask for advice was Gareth. He

wanted to continue Mum's work and had been keen about VivoTech initially. I wondered why he had gone quiet at the end of Vince's interview, but it didn't seem that important. He had tried to convince Vince. That was what mattered.

After such an unpleasant encounter with Vince, I didn't want to go near the science building in case I ran into him. I seemed to be a master at that! And I didn't much like the idea of ringing Gareth, because I didn't know him that well. Besides, he might be in the middle of an experiment or something and not want to be interrupted. So, I waited a day or two, until my annoyance and frustration got the better of me, to pick up the phone. Of course, I didn't have his extension number, but I went through the switchboard and got to him eventually.

He sounded pleased to hear from me. 'I could do with a break from the lab,' he said. 'Are you interested in going to a movie this evening?'

It came as a surprise, but I thought it would be nice to spend the evening with him. Certainly better than meeting him on campus. Although it would be another evening not spent on assignments, I could do with a break myself. The strain of everything was wearing me down. The thought that Gareth might be interested in me flashed through my mind, but I dismissed it as ridiculous. Our meeting was only to talk about Mum's work and VivoTech. I wasn't sure how I felt about Gareth. He seemed a nice guy, but more than that? I didn't think so.

I set myself the task of finishing one essay during the day. I was very strict, forcing myself to concentrate. It was hard because my mind kept wandering over to my wardrobe. What would I wear to go out with Gareth? I was very good. I didn't decide until I shut my textbook at the end of the day.

Then I went to the bedroom and flung open the wardrobe door. Perhaps I was a little bit interested in Gareth, or I might not have been worried. I laid some combinations of tops, skirts and trousers out on the

double bed. Finally I chose my black trousers and black top. They would look nice but not too sexy, I thought.

Under the warm spray of the shower a few minutes later, my mind went back to VivoTech. I decided that if Gareth, on his own, was no longer enthusiastic, I would drop the idea. It was bad enough going against Vince's advice, but to go against the person who would do the research would be plain stupid. I know I can be stupid, you've seen evidence of it in what I've told you, but I'm not that stupid! I wouldn't be helping Susie, or saving Alicia, if I blew this funding issue on top of the other blunders I'd made.

Gareth looked good when he arrived, I thought. He wore dark blue trousers and a pale, checked blue shirt. His hair shone in the evening light but the bags still showed under his eyes.

Inside the cinema a short time later, we settled in to watch the movie. I was conscious of his leg near mine and his arm on the armrest. Was his leg deliberately there? Would he take my hand? I wasn't sure what I would do, if he did. I wasn't ready for anything like that. At one point, he leant towards me and whispered something I didn't quite catch. I felt the warmth of his breath in my ear but his hand stayed firmly on the armrest. A little time later, as I leant to whisper something to him, I saw his head was lolling and realised he had fallen asleep.

As we walked out of the cinema, Gareth laughed. 'I'm sorry. What a thing to do! Suppose I'm just whacked. A coffee? It'll keep me awake while we chat about the other day.'

We went to *Romano's*, which was probably the wrong place for a chat. It was crowded and noisy and the wrought iron seats they have are uncomfortable. We were jammed at a table in the corner. But, I noticed, Gareth didn't sit sideways to avoid our feet touching.

Once we were settled in, I asked him about VivoTech. 'What's your honest opinion?'

To my disappointment, his reply was not what I hoped. 'Best forget it,' he said, shrugging.

'What's the story?' I kept as bright as possible despite my feelings. His lack of enthusiasm could be just due to his eternal fatigue. 'You were the one who reminded me of it.'

As he answered, my disappointment increased. 'Vince is right. A biotech company wouldn't work.' He ran a thumb along the edge of the table. 'Though I wish it could,' he added, softly.

He had been so keen the night he came to dinner and now he had changed. I had to find out why. It wasn't time to give up on the VivoTech push yet. I wondered if Vince had said something more to him after I'd left the other day. Then I remembered the eavesdropping episode. 'Is there a problem with Vince?' I asked.

'What do you mean?' There was a sudden edge in his voice. His thumb stopped its rubbing, and he looked intently at me. I felt him draw his foot away under the table.

'I felt he was getting at you, that's all,' I said, stirring the froth of my cappuccino to avoid looking at him. I didn't know what to make of his response. It seemed there was a problem, and one he didn't want me to know about.

There was an uncomfortable silence and I wished I hadn't asked, after all. If he wanted to tell me about Vince, he would. 'Not really. Nothing I can't handle.' He rubbed his hand across his eyes, then smiled at me. 'With a bit of sleep.'

That was it. Too much work. And I wasn't helping by prying. I should be more considerate. 'Is there anything I can do?' I asked, eventually.

'Come as my assistant?' He laughed, lightening the mood that had enveloped us.

I joined in the game. 'Would you really trust me after seeing how little I know about neurotransmitters?'

'Maybe not.' Gareth laughed. His teeth looked white. 'The balloons in the relay race. That was fun but promise you'll never tell my colleagues how I explained it. They'd expect me to say . . . ' His voice changed to mimic, in a low key way, Vince's booming, lecturing tone, '. . . that when an action potential reaches the end of the neuron it causes calcium gates in its membrane to open and calcium to flow in.'

Remembering my embarrassment when in the restaurant with Vince, I looked around. Despite his loudness, Gareth was not attracting the attention Vince had. 'Go on,' I said, suppressing a smile. He did a good impersonation.

He continued in his false voice. 'This in turn causes release of neurotransmitter into the synaptic cleft. The neurotransmitter binds to receptors on the surface of the next neuron. Ion channels open in its membrane. Ions flow across the membrane. The membrane potential changes and a new action potential starts in the postsynaptic neuron.' Gareth's voice returned to normal. 'They would expect that sort of thing. Not talk about balloons.'

'I love it. You do Vince brilliantly, but I'd have taken off if you'd used long words to start with,' I laughed. 'Your balloons certainly grabbed my attention.'

'In that case, I'll stick with simple explanations.' Gareth's face split into a wide grin.

'Are you going to tell me more then?' I wriggled back in my chair, surprised and pleased that the evening was going well, again. 'Like what neurotransmitters do.'

'If you want me to.'

'Please,' I said.

'Right. Here we go. Remember I told you there were lots of different types of neurotransmitters? There are the ones like serotonin and dopamine, which people have sometimes heard of. They're kind of "feel good" chemicals and if they're out of balance, you might get depressed. Another one people have often heard of is noradrenaline, or norepinephrine. You need it to keep your body working normally. Your heart beat, breathing, sweating and such like are always changing a little. A bit of balance, you know. A bit faster for this, a bit slower for that. Norepinephrine's the one that speeds them up when necessary. Then there's. . .'

'Whoa!' I said. He was going a bit fast, especially after a mind-relaxing evening at the movies.

'Am I too serious?'

'On the way,' I said, reaching over and pressing his hand lightly. I don't know why I did that. It just seemed right. I meant to reassure him, that was all. He looked at my hand and then blinked at me, with a smile. That made me feel a bit funny. He might have taken it the wrong way. 'Go on,' I said, levelly. 'Just take it easy. Remember this little arts brain doesn't know much science.'

He pulled his hand away gently. 'Point taken. I'll give you a concrete example. You saw in that movie how scared the girl was when the man drew a knife on her?'

'You weren't asleep through the whole film then?' I asked.

'You're teasing me.' Gareth smiled.

'Me? No way,' I laughed. The mood had eased again. 'Sorry. I didn't mean to distract you. Continue.'

'That was a pretty scary scene. The girl looked terrified, but I bet your heart was racing too. That was because of norepinephrine. When you're scared it pours out of neurons, into synapses. Gets your heart going. But that's not all. You need to get back to normal once the danger has passed. So, you have another neurotransmitter that does the opposite. Dampens things down. It's called acetylcholine.' Gareth stopped and looked at me. He seemed to be asking if he was going slowly enough. When I nodded, he rounded off his explanation. 'The two work together to keep everything in balance.'

'We're complicated beings, aren't we?' I said. 'All that just to stay alive.'

'Neurotransmitters are involved in everything, even in your holding that cup.' He was watching me sip my coffee.

I held the cup away and looked at it. 'You don't think of it, do you? Neurotransmitters involved in drinking.'

'But they are. Molecules of acetylcholine tell your muscles to move so that you grip the cup. Then they tell other muscles to move, and you raise the cup. And so it goes on.' Gareth drank some of his own coffee and then put his cup down carefully. He became serious again. 'But this is a long way from our research, which is what you wanted to discuss.'

With a jolt my mind flashed back to Alicia and the original purpose of meeting Gareth. I had been getting a bit carried away. 'Will it really stop at the end of the year?' I asked, feeling my heart speed up. Norepinephrine, I thought briefly, but really I didn't want to hear his answer.

'It could do. The new dean might take it on, but he's not been appointed yet.'

'Is the present dean interested?'

'Professor Mole? I don't know if he knows anything about it. Vince talks to him, not me.'

I think it was then that the idea came to me. It was just a dim, vague thought at first, but I chased it. I couldn't finish the evening without one more try. 'We need a bit of lateral thinking,' I said, stirring my coffee.

'Like?' asked Gareth, as I fell silent.

I rubbed my cheek, not sure if I could voice my thought. I'd been brave in approaching Vince with my original idea, even if things had gone off track now. I could be decisive again. Gather up my courage and approach someone. 'We could tell Professor Mole about VivoTech. See what he thinks.'

Gareth's hands rubbed the edge of the table nervously. 'I can't go against my boss.'

'I'm not responsible to Vince. He can't tell me what to do.' I clenched my hands under the table.

'Meaning?' Gareth's eyes met mine. They were so brown.

'I can talk to whoever I like. The Dean. The Vice Chancellor, even.' I kept my eyes steady, watching for his reaction. I'd made a bold suggestion. If he hesitated, that was it for VivoTech. I'd give up.

'Don't ever say I was involved.' Gareth leant towards me and this time he put his hand on mine.

12



The Dean, Professor Mole, was very interested in VivoTech's letter. Very interested indeed.

'This could turn our faculty round,' he said, after reading it carefully several times. 'Funding's hard to come by, these days. Government grants are drying up. This could be my legacy to the faculty. I retire next year.' He called his personal assistant on the intercom. 'Get me Mark Krueger of VivoTech, please.' He read the number off the letter.

I watched him nod several times during the conversation. It seemed to be going well, because he occasionally smiled at me. Then I heard him make an appointment.

'That'll be fine,' he said to me, as he put the phone down. 'You can leave everything to me.'

I stood up. It was a brief interview, quickly over. And it had gone better than I expected. There was just one thing. 'This won't involve Vince Langslowe, will it?' I asked. I'd convinced myself that Alicia was more important than Vince, but I knew he'd be angry if he discovered what I'd done.

Professor Mole looked at me over the top of his half moon glasses. 'Vince? No. Any arrangement will be between the university and this biotech company.'

* * * * *

My stomach alternated between being a clenched knot and an unfillable chasm over the next few days. Yes, I know I'm being melodramatic again, but I was worried. When I thought about Vince and Gareth, as I did frequently, I wondered what they would think of my action. I desperately wanted to tell Gareth what I'd done and how well Professor Mole had taken it. After his warning, though, I didn't like to contact him. I didn't want to compromise him in any way, not just because of the project, but because in a funny way I was beginning to like him. I thought he might have rung me, but he didn't. Maybe his reasons were the same as mine.

Vince was a different matter. I knew he would not be pleased by what I had done. I only hoped that Professor Mole kept his word and didn't tell him. All the same, I wanted more than ever to keep out of Vince's way. Just in case.

I saw Susie, of course, and told her.

'That's great,' she said. 'At least Mum's work will go on.' Alicia was climbing onto her knee.

'Things could move fast. Honestly. This guy, Gareth, is dead keen. If he gets funds, Alicia will have a chance,' I replied. I'd expected her to be more thrilled. After all, I had taken a big gamble in seeing Professor Mole.

'Lou, you're a sweetie but get real. Nothing will help this little one.' Susie kissed Alicia gently on her cheek and nestled into her hair.

I felt flat. Susie's mind was obviously on Alicia herself. That was often the way when toddlers were around. I'd noticed it with the few of my friends who had babies. You couldn't have a decent conversation with them any

more. The little ones were always interrupting in some way. I comforted myself that, with Susie so absorbed by the everyday care of Alicia, my responsibility was to see the research through.

More days passed, and I heard nothing from Professor Mole, or indeed anyone. The phone never rang. There were no emails or letters. I kept thinking of Gareth. He must know by now if something was happening with VivoTech and he could tell me in secret, couldn't he? Once or twice I rang his number, but there was no reply. I decided to throw away my caution and go and see him.

Here I was again climbing the stairs of the science building. I made it up the stairs, the one's nearest Gareth's lab and furthest from Vince's office, without meeting Vince. That was a relief. I was pretty quick opening the lab door and nipping in. Just in case. The lab had changed. It was empty, no sign of Gareth, but what struck me immediately was how untidy it was. Before, books had been lined up on shelves, papers and journals stacked neatly on the bench below. Now, some books lay open on the benches, with others askew on the shelves. The papers and journals were scattered amongst the books and flasks, and other glassware littered the benches too. Gareth's fatigue must be affecting his usual tidiness, I thought.

Before I gave up on meeting him, I decided to look in the culture room. I didn't notice the heat this time, probably because as I opened its door I saw I had made a mistake. Vince, in baggy brown cord trousers, was bending over a bench. In a gloved hand he clutched a pipette. An open flask stood on the bench.

He straightened up immediately. 'My God. Louisa. What the bloody hell are you doing here?'

'Looking for Gareth,' I stuttered, watching as Vince put the pipette in a plastic container and stoppered the flask with blue cotton wool. I knew that would annoy him, but there was no point lying.

'He's not here.' Vince pulled off his disposable gloves and tossed them into the open mouth of a black plastic bin. 'But I need a word with you, young lady.'

His tone was enough to turn me to ice. My heart pounded as I backed into the lab, with him following. When he'd pushed the culture room door to, he leant against it, glaring at me. 'You 're a little so-and-so. You went to the dean, did you? Thought you'd outsmart me?' His expression was harder now than I'd ever seen it, even than that time I'd confronted him about Mum's authorship of the paper.

'It's not like that,' I said. My voice sounded like a squeak.

'But why, Louisa? Why did you go against me?' Vince's cheeks tightened, their usual flabbiness disappearing.

'I didn't.' The lie popped out. I gripped the edge of the bench. It was hard and gave me some support.

'You call sneaking behind my back and going to the dean nothing? And you've been talking to Gareth too. You are a selfish, manipulative little girl who has to get your own way. Do you know what you've done?'

My hands had become sweaty and they slid round the contour of the bench edge as I gripped harder. I could feel sweat on my forehead and under my arms, too. 'Yes. I've tried to get money to continue the project,' I said, as steadily as I could.

'Why can't you leave things you don't understand alone? Meddle, meddle, meddle, that's you.' Vince thumped his fist on the door. 'You may have got money, but now this stupid VivoTech company is coming to investigate. My work! My future!' He drew in a deep breath. 'I hope you're pleased with yourself.'

I took a few steps backwards keeping my grip on the bench. He was making me angry now, and that was getting stronger than my fear. 'It's

Mum's work, not yours.' I met his gaze, but my heart hit my ribs so hard I swear you could see it.

Vince's mood seemed to change. He stepped forward, throwing back his head and letting out a snort. He continued in a quieter tone. 'My dear Louisa, this isn't your mother's work any more.'

For a moment I didn't take in his words. Like I told you, I can't think straight when I'm angry and I couldn't keep up with his change of direction. Not Mum's work? What did he mean? 'It is Mum's. Whose was all that stuff I gave you, if it's not hers?'

Vince looked at me for a moment. 'Your devotion to your mother is touching, but it's my work now. I don't want outsiders upsetting it. Do you get that?'

I got it all right. He was angry, but so was I. 'I don't care. I had to do it, whatever you thought. There's more of Mum's work at home. Perhaps I should give it straight to VivoTech.' I was making this up completely, but he wouldn't know that. I wanted to stick a knife into him.

'Over my dead body. You give it to me.' Vince stabbed a finger at me. It was a short, stubby finger. 'You've done enough damage.'

I decided I'd better get out of this one quickly, before he physically attacked me. Yes, for a moment, I really thought he might. Overactive imagination, you might say, but when you hear what happened later, you might change your mind. 'Why shouldn't someone look at Gareth's work?' I asked. I had more faith in him than in Vince. He certainly seemed genuine to me.

'Oh yes, him. Why are you so interested in him?' Vince did what I can only describe as leer at me. 'Have you got a crush on him or something?'

I went rigid. 'I hardly know him.' This was true.

'That's not how it looks to me.' I caught a whiff of Vince's breath, he was now so close. He must have had a drink at lunchtime.

I was frightened now. There was nobody around and his flushed face, with its web of blue veins across his nose, was so close that I involuntarily turned my head away, expecting a blow. It didn't come. My overactive imagination again. When I opened my eyes, I saw him shuffling away, his head bowed.

He stopped at the end of the bench and stood, working his lips as if he didn't know whether to say something or not. 'I'm trying to protect everyone. This is a mistake. A big mistake. I know what can happen when strangers come in.' He no longer sounded angry, just sad. He kicked an imaginary particle on the floor and then looked at me with a wan smile. 'You're young. Let's not fall out.'

My trembling hadn't subsided, but my heart was slowing down. Do you know, I didn't think about norepinephrine and its effects just then. Reasonable, under the circumstances, I think. My mind was on Vince. I almost felt sorry for him. He seemed dejected now he had spent his anger.

'Come along to my office,' he said.

You may think me foolish, after what had just happened, but I agreed. I wanted everything to work out right. I don't like conflict.

He unlocked his office door and ushered me in. Instead of going to his high-backed, maroon, swivel chair, which seemed to be such a favourite of his, he heaved himself onto the corner of his desk. I sat in my usual chair, the low, grey one. He let one of his legs dangle, and I realised for the first time that he looked like his office, messy.

'I've been looking for old results to give to this wretched company,' Vince picked up some papers off his desk and waved them at me. 'Can't find a bloody thing that will satisfy them.' He threw the papers down, so that the pages scattered. 'Could they still be in Charlotte's quaint little study?'

'I doubt it, but tell me what you want. I'll look for it,' I said, cautiously. No way did I want him poking around there. In fact, no way did I want him near the house.

'My dear, you wouldn't have a clue.' Vince rubbed his chin. 'If you don't even know how neurons send messages, how could you find information at the level I'm working at?'

'I've learnt. I can find things.' I was forgetting my bluff about Mum's fictitious results. There was nothing to find, except a few scraps of scribbled notes and her old diaries.

Vince wriggled further back onto the desk, cleared his throat and reverted to his patronising voice. 'So, you know all about neurons now, do you?'

Inwardly, I groaned. Here we go again, I thought. But I wouldn't let him get the better of me. 'A fair amount,' I said.

'Good, good,' said Vince with irritating condescension. 'Tell me about them.'

Now I was in a spot, but I had my pride. I thrust my chin out to show I knew what I was talking about. 'Adjacent neurons never touch. The message passes to the next neuron by the first one sending chemicals across that gap. Those chemicals are called neurotransmitters and the gap is called the synaptic cleft.' I sent some silent thanks to Gareth.

'You have learnt a bit since I last spoke to you,' Vince raised an eyebrow. 'I suppose lover boy told you that? Did he tell you also that on the other side the neurotransmitters latch onto receptors on neuron number two? Yes? And that they start an action potential in the second neuron?'

I resented the way he made insinuations about Gareth and me. As if. Still, I had to keep ahead of him, or at least up with him, on the neurons, so I thought harder about what Gareth had told me at the fun day. He'd explained

about neurotransmitters passing from one neuron to another in a rather colourful way, using the balloons as an analogy. And Gareth had done it gently, with concern, not like this pompous man.

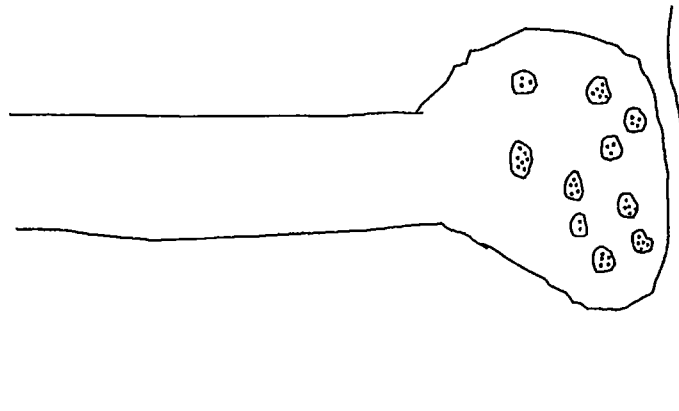
Vince was continuing, his voice approaching that irritating, lecturing tone of his. 'What's more, neurotransmitters are as specific as keys. They only fit onto matching receptors, so acetylcholine binds to cholinergic receptors and no others. Norepinephrine binds to adrenergic receptors only. "Adrenergic" is easier to say than "epinephrinergetic". Scientists like to make things easy.' He laughed.

I laughed too, but only because I couldn't think what else to do. I desperately wanted to get him off the topic. I wondered why he'd wanted me to come to his office. We didn't seem to be making any headway there. Maybe he just wanted to ease the situation between us, after the frightful row we'd just had. 'Was that what you're working on?' I asked for want of anything better.

'No, my dear. That's ancient history.' Vince rubbed a hand along his cords. He smiled. I seemed to have touched the right spot because he started to reminisce. 'I did some work years ago on neurotransmitter release, using the EM. Electron microscopy was a new toy in those days. We had great fun looking at axon terminals - to find how the neurotransmitters were stored when they weren't in use.'

'And what did you find?' If I could keep Vince talking like this, we might get off neurons and the dangerous topic of Gareth or the equally dangerous topic of Mum's fictitious results.

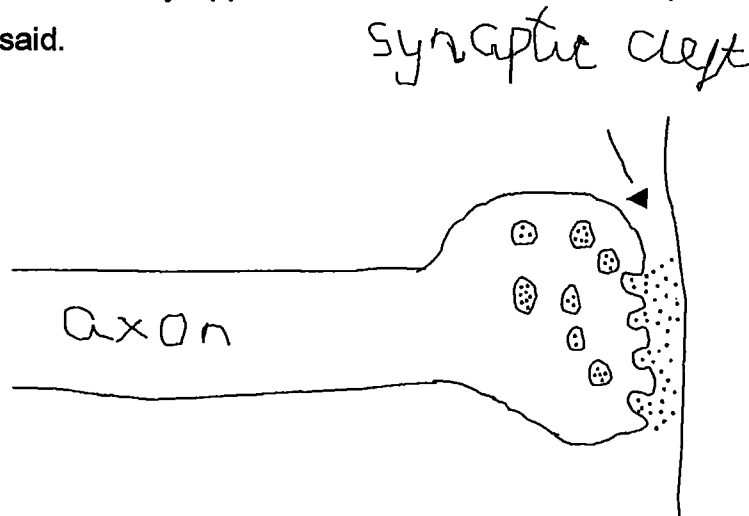
'They're stored in tiny sacs, clustered just inside the axon terminal. They're called synaptic vesicles.' He reached for a piece of paper from his desk and drew something that looked like blind-ended tube, with several circles inside it. He slid off the desk and handed it to me.



'What's this?' I asked, not having a clue what this bulbous tube thing was.

'That's an enlarged axon terminal. They are lots of them, like a tuft on the end of the axon.' As I looked at what he had drawn, Vince continued. 'Those spheres, the vesicles, are enclosed by a membrane that is all oily like the plasma membrane that covers the neuron. When the action potential arrives, they fuse with the plasma membrane and the vesicles burst. Here, give it back to me.'

I handed the paper back to him and he bent over the desk, altering the drawing. Now it showed some of the circles connected to the outside. The surface of the tube had a lacy appearance. 'Neurotransmitters pour into the synaptic cleft,' he said.



I studied the drawing. Vince's handwriting was shaky and childlike, I thought. I was mildly surprised because he was such a well-educated person. Maybe it was the grog. 'I hadn't thought about where the neurotransmitters were inside the neuron,' I said.

'They've got to be kept safe when they're not in use, haven't they? Can't have them sloshing around in the synapse, or even inside the neuron,' he said, taking the drawing back from me, laying it on the desk. 'But, look, this a long way from the cutting edge research we're doing today, which is what the biotech company is interested in. That brings me back to Charlotte's results. I need them.'

'I'll look for them,' I said, lying again.

'Not good enough,' he said. 'I know what's important. You don't. I'll come round and get them.'

I was in a real fix now. I decided it was best to be honest. In the end, he'd find out there was nothing anyway. 'There aren't any results. I gave you them all.'

'You're saying that because you're still cross with me.' He looked at me with such a hurt expression, I felt I was wrong.

'No. Of course, not. But, honestly, there isn't anything.'

'Pull the other one,' Vince said. 'Til come round this evening. Maybe we could have a drink?'

13



Driving home I kept asking myself the same question. Why had I said yes to Vince? He was coming round to my house, which frightened me after his tirade this afternoon, and he wanted more of Mum's results, which didn't exist. I had got myself into a real corner. It was no use ringing Susie for advice. She'd just say I'd been silly. Anyway, I didn't want to offload any more problems on her. I had to sort this one out myself.

I still hadn't seen Gareth and I still didn't know what was happening with VivoTech. Obviously, Professor Mole had had a successful meeting with them and they were sufficiently interested to come and look at the project. I wanted to know what this meant. Would they fund it? Would it continue? No way would I ask Vince, and I hesitated to ring Professor Mole too. His status was awesome to a student like me. He'd said someone would contact me, and I was sure they would, eventually. That only left Gareth for me to ask, but where was he?

I had not resolved these questions by the time I got home. I had an essay due in three days, so I spent a couple of hours studying. It was difficult because my mind kept returning to Vince. I should have refused him, I knew. Somehow, I had to spend an evening with him, avoiding the one subject that interested me; preventing him from rooting around in Mum's garage-lab; and

keeping him politely at a distance. Quite a challenge for you, Louisa McLean, I thought.

Thinking about what to do, I decided that I could best make my point by staying in the jeans and T-shirt I had been in all day. The drink would be as brief as possible, and preferably non-alcoholic. For both of us. Fat chance of that, I thought. Me telling a professor what he was to drink. But I'd do my best, and I'd stick with the orange juice.

When Vince eventually rang the bell, I was still brooding. Opening the door, I felt a wave of dismay because he was dressed in neat trousers and an open-neck shirt, with a cravat tucked in. A strong smell of aftershave wafted towards me. Even worse, though, was the way he looked me up and down. It sent shivers up my spine, as you might say.

'Louisa love, you look divine.' He gave me a peck on the cheek, as he stepped into the hallway.

I wasn't prepared for this and I didn't like it. I definitely did not look divine. Scruffy would have been a better word. I closed the door, without saying a word.

With a cheeky grin, that would have been fine on a young guy, but looked smug on him, he pulled a bottle of wine out of a bag. 'Point me to your corkscrew,' he said, heading for the kitchen, without waiting for an answer.

Already he'd taken control, and the evening had barely started. I was out of my depth. He was like an action potential in a neuron – unstoppable. There was nothing for it but to follow him. I was irritated at the way he made himself so much at home, and just uncorked a bottle without a word. But, I told myself, it was keeping his mind off Mum's fictitious results.

Still with the air of being the host rather than the guest, he took the open bottle and gently guided me into the living room. I sat on the edge of the couch, as he put the bottle on the coffee table and went over to our jarrah dresser. He opened it and took out two glasses. When he poured wine into

one and handed it to me, I refused politely, with a shake of my head. 'I'll get myself an orange juice,' I said.

'Come on. Half a glass won't hurt you.' He poured wine halfway up the other glass. 'You can't let me drink alone.' He held it in front of me. I felt I had to take it. 'That's better. You are a funny thing,' he said, putting the bottle down.

I sat very stiffly, looking at the pale wine in Mum's crystal. Holding his own glass, Vince sat down next to me, letting his free arm rest along the back of the couch. 'Relax,' he said. 'Sit back. I'm not going to hurt you.'

I forced myself to smile at him and eased into the cushions, still clutching my glass. He seemed to have got over his anger of the afternoon. I was just being oversensitive.

We sipped our wine and chatted for a while, and my unease gradually dissipated. Vince wasn't so bad, after all. I might have taken the opportunity to find out more about Mum's research and the project, but I kept well away from the topic. I couldn't risk it, despite his mellow mood. Looking back on this time later, I realised Vince must have filled my glass up at least once. I can't take much, and the wine disorientated me. I wouldn't have let him touch me otherwise.

At first, Vince playfully twirled a lock of my hair round his fingers. 'I love the silkiness,' he said. To be fair, the sensation was quite pleasant. After a while, he edged closer and ran his fingers down my neck. That was quite pleasant too.

Then, quaffing the last of his wine - that's the best way to describe it, quaffing - Vince put down his glass and took mine too. His hands ran over my shoulders and he gazed at me. Although I edged away, he took my hand and stroked my fingers. 'You must learn to relax, Louisa, my dear. An intelligent, interesting and, as I've said before, beautiful girl like you, spoils everything by being too tense.' He looked at me with doleful eyes.

He wasn't thinking about Mum's results, but this was worse. I hoped Susie would appreciate what I was subjecting myself to for Alicia. Of course, I'd never tell her, but the thought that I was in this situation for her kept me from freaking. I pulled my hand free and put it firmly on my lap. 'Thanks for the drink, Vince,' I said. 'It's been a good evening.'

He didn't take the hint. 'It's young yet. We've got a lot to talk about.'

'Oh, yes?' I said, feeling my pulse accelerate. Would he make another pass at me, or was he going to ask about Mum? Either way I felt trapped.

'These results you've got hidden away out there. Let's go and get them, when we've finished this.' He held up the bottle, checked its content and poured the remainder into each of our glasses. I wasn't quick enough to stop him.

I left my glass on the coffee table, but through the haziness the alcohol had already induced in me, I desperately searched for a lie to cover up my earlier lie. I'm not a good liar and this was a terrible strain for me. Truth is always the best way, I thought. 'There aren't any results. I made it up.'

He threw back his head and let out a guffaw. 'You do tease a man. Come on. Get serious. I need all I can get for VivoTech. You started the ball rolling there. You've got to play your part now.'

I felt very uneasy and wriggled further into the couch. 'Honestly, I've given you all there is.' I suppose I could have taken him out to the garage-lab, and proved my point, but I was worried about any move. I felt apprehensive at the thought of going outside in the dark with him. He'd already made a pass at me. I wasn't taking any risks.

He still didn't believe me. 'I don't understand you, or Gareth for that matter. Both so full of youthful enthusiasm. You've no idea what a dangerous and unethical course you've embarked on. First, I've had to get into the lab and sort him out. Now you won't give me Charlotte's results. What's with you both? What more can I do?' He shrugged and drank some wine. 'It's your

funeral. You wanted VivoTech, not me.' Another sip. 'And talking of that, who persuaded you to go to the dean?'

There was a terrible pause, which I filled by taking a large gulp of my own wine. It didn't help the fuzzy state of my thinking, but it gave me time. My voice, even so, sounded false. 'No-one. I just decided to.'

The next moment he had moved round and was pressing against me. He rubbed his cheek against mine. 'Why do you lie to me?' he whispered. That startled me to action. This man, whom I didn't even want to be with, was lying half across me like a lead weight. I twisted under him, but he was alarmingly heavy. Before I could budge him, his mouth was on mine and his tongue rasped my lips. My revulsion gave me renewed strength. I pushed as hard as I could, my hands jammed against his ribcage. I felt the soft layer of fat covering them. Miraculously, he rolled back and ended up sitting on the edge of the couch. 'By golly, you're beautiful.'

'It's time you went, Vince,' I said, shaking.

'You'd throw me to the breathalyser wolves?' He lay back, his legs splayed and his arms loose against the cushions. 'You can't do that. I've drunk too much.'

'I'll call a cab.'

'No,' he said. 'I'm fine. Just teasing. Think I can't take my drink, do you? Hardly had a drop.' He stood up, checked the bottle again and then took it and the glasses out to the kitchen. I could hear him run the tap. I supposed he was rinsing the crystal, but I didn't want to go out there with him. There were sounds of him moving around and then he came back.

He stood in the doorway, his bulk silhouetted against the light of the kitchen. 'I've worked it out. It was young Gareth's idea that you go to the dean.'

I felt myself blush and I stared at the coffee table, wishing he'd just go.

He came and stood in front of me, holding out his hands. 'You can't trust him. I tried to keep you away from him, because I know what he's like. Louisa, why won't you listen to me?'

I refused to take his hands but he leaned over and clutched my wrists. Reluctantly, I stood up to avoid a struggle and the risk of having him on the couch again. He pulled me to him and I felt the horrible resilience of his belly. Before I could think of kicking him, he let me go. 'No,' he said, almost to himself.

14



What should I have done? I felt sick from the wine, and I staggered through to bed after Vince left. The ceiling spun as I closed my eyes, but it didn't stop the effect of the alcohol taking me on a roller coaster ride. As I soared out of it, I decided that I had to stop poking around in things I didn't understand. This business with Vince was frightening me. If I stopped fussing about the project, he'd leave me alone, wouldn't he? The project would survive without me.

I didn't know what Vince meant about Gareth not being trustworthy. Was that why he, Vince, had been in the lab, when I'd visited? He'd taken over the experimental work. Gareth wasn't a good researcher? He'd seemed so dedicated, I couldn't believe that. It could be just that he was tired, I told myself. I wanted to know. I wished I dared go to the lab again.

To my surprise, Susie called round in the morning, with Alicia. 'It's time I got my act together,' she said. 'We've got to go out sooner or later, so I thought I'd start with you.'

This cheered me up no end. Susie was getting through her grief and starting to cope again. That had to be good and I wasn't going to spoil things by telling her about my evening with Vince. Unfortunately, she went straight

through to the kitchen to get Alicia a drink. Immediately, she saw the two glasses on the draining board.

'You had company last night, you sly old thing?' she said. 'I didn't know you drank. Must have been someone special. Using Mum's best crystal, too.'

I'd rather she hadn't found out but I was glad she was cheerful enough to tease me. 'You won't guess who it was,' I said, feeling acutely embarrassed.

She mistook my hesitation and my tone. 'I know. That cute guy from the lab you've been on about. Gareth!' She put Alicia on the kitchen bench and went to a cupboard to find a cup.

'As if,' I said. 'He's not interested in me. He lives for his work, that's all.'

'Come on then. Tell!' She swung round from the cupboard, with a plastic cup in her hand.

Since she was pressing me, I supposed I should tell. It might help me get over the revulsion I felt too. I sidled up to Alicia and took her hand. Her little fingers curled around mine. I smiled at her and avoided Susie's gaze. 'It was Professor Langslowe. Actually it was awful. He's gross.' Susie was running the tap and filling the cup. She didn't say anything, so I continued. 'I'm staying right away from him. VivoTech will have to run the project now. It's not as if I know anything about Mum's work. I just wanted to get it going, so that Mum sort of helped Alicia.'

Alicia giggled. I made a funny face at her and she laughed some more. Susie said, 'Now, Alicia. Behave yourself. Mummy's getting you a drink.' She brought it over, and held the cup to Alicia's lips. She smiled at me. 'Don't worry, Lou. You've been great. Mum would be pleased. Though not about you using her best crystal.'

'It's ours now, Susie,' I said.

'I suppose it is.' She laughed.

Not long after they left, the phone rang. To my surprise, it was Gareth. He sounded strained. 'Can you come over? I have to show you something.'

My heart beat fast. I didn't want to go anywhere near the lab. My scuffle with Vince last night was far too fresh in my mind. The lab would be a dangerous place. In the end, we arranged to meet at the Currawang at eleven. I might see Vince there, but it was less likely.

When I arrived, Gareth was sitting at an outside table, his face shaded by the umbrella. Even so, I could see he was worried. His head was down and he was toying with his cappuccino.

'A disaster,' he said, after greeting me. 'A total disaster.' His spoon clattered on the saucer.

'What?' I asked, as I sat down. I couldn't see his face, because his hair was flopping in front of it.

'Everything's ruined. Vince sent me off for a few days. Said there were some visiting Americans I should meet,' he mumbled.

'That's a disaster?' I asked, thinking it didn't sound like one. Americans might be helpful.

'No. It was a waste of time, but that isn't the problem. It's my cultures. They've all gone cloudy.' He picked up his cup, fiddled with it and then put it down again without drinking.

I still didn't follow, but I didn't know enough about what he was doing. All I could see was that he was agitated. I remembered what Vince had said about Gareth not being a good worker. Was Vince right, after all? 'What does that mean?' I asked.

'They're contaminated. That's months of work destroyed. I can't do it again. There isn't time. I'll never get a grant now. It's the end of my career.' He was running his hand through his hair, then holding his face in his hands. He was in a terrible state. 'What am I going to do, Louisa?' Then he looked at me, his eyes wide open and anxious.

I didn't know. My own mind was in turmoil. What with Vince's anger yesterday, then his sleazy behaviour in the evening, and now Gareth's agitation, I felt my world was collapsing around me. At least, the world of the project to save Alicia. It was as well that she and Susie had cheered me up earlier on, or I don't know what I'd have done at this point. But now it looked as if all my efforts to help Alicia had suddenly been for nothing. 'Does that mean the project is destroyed?' I asked, barely able to get the words out.

He looked away from me, running his hand across the back of his neck. His mouth screwed up at one side and he nodded slowly. 'Totally.' He paused. As I said nothing, he continued after a moment. His hands were now on the table, rubbing the edge of it fiercely. 'Charlotte set these cultures up and I've kept them going. We wanted to turn on MHC genes, see how they affected the surface proteins. She was always bouncing ideas around, but she never wrote them down. I'll have to go back to basics. Getting fresh cultures will take months and then I'd have to continue by trial and error. If I go on. I'm not sure it's worth it. Especially if Vince chucks me out at the end of the year.'

His tension was getting to me. I didn't know what to think. I felt for his agony, but his comment about the cultures alarmed me. It was beginning to sound as if Vince were right. Gareth wasn't the hot shot researcher I had assumed he was. The whole project could be a failure, which in itself was a disaster. Worse, I realised, I'd been to Professor Mole on Gareth's advice. Advice that I'd taken without a moment's thought that it could be wrong. What a fool I had been. Again. 'What'll happen with VivoTech?' I asked.

Gareth's hands were still. I saw how drawn his face was, as his brown eyes stared directly at me. 'What do you mean, VivoTech?'

'You don't know?'

'You did something?'

'I did what you suggested.'

'And?'

'VivoTech is interested in the research.' I couldn't believe no-one had told him. Then I realised that if he didn't know even that much, he wouldn't know of Vince's reaction either. At that moment, I didn't care whether he was good at his experiments or not. I'd worry about that later. I liked the guy and I didn't want him attacked like I had been. I had to warn him. At least he could be on his guard when he next met him. 'Vince is furious.'

A shadow fell across the table. 'What am I furious about?' Vince's voice boomed out behind me.

15



'Don't bullshit me around. I see it all now. You two have got a little thing going.' Vince moved to the side of the table, which he leant on with both hands. He looked from one to the other of us. 'I knew I could never trust you.'

My heart was thumping with surprise and fear, but I felt more confident here, in a public place. 'How can you say that?' I stood up and faced Vince, forgetting that he was a professor. Despite the feeling of weakness in my legs, I was furious.

'I suppose you hop between the two of us.' Vince leered at me, his cheeks taut with an unpleasant smile.

'What?' I almost exploded.

'That's a terrible thing to say.' Gareth flared up, in a way which surprised me. Except where his research was concerned, he'd always been gentle and quietly spoken. Now he was standing up, too. The two of us were glaring at Vince.

'He was telling me about the disaster with his cultures,' I said, defensively.

Vince laughed, a gruff unamused bark. 'So, he's got to you. You believe anything he says, do you? Like you go to the dean, against my advice, because he says so.' He turned from me to Gareth. 'And you. Don't think you can outdo me. I've been around a long time and I'll be around for a lot longer.'

'What are you on about?' Gareth's knuckles lost all colour as they gripped the edge of the table, I saw. 'I've done nothing. Anyway, if the dean does think a biotech company could help us, that's good, isn't it?'

'The dean retires next year, don't forget.' Vince's finger jabbed towards Gareth. His leer had turned to a sneer. 'There'll be no protector for you then. Quite the opposite, I expect. Had you thought of that?' His face returned to flabbiness as he lowered his hand. With a huff, he pulled out a chair and sat down. 'Bring me a flat white,' he called to a waitress.

I was shocked by Vince's behaviour, but I didn't know what to do. One thing I was relieved about was that we were all sitting down and were quiet. There had been a sudden silence around us, now the chattering at neighbouring tables started up again. Neither Vince nor Gareth spoke for a few moments. I fiddled with my coffee cup, hoping Vince might just go away. But he turned to me and patted my hand. 'That was a good evening last night, Louisa love,' he said

I withdrew my hand as fast as I could, but not before Gareth had seen the contact, I thought. He would think I was hideously deceitful. I didn't have anything going with him, but I couldn't bear him to think I was interested in Vince.

But, to my relief, Gareth hadn't seemed to notice. At least, not for the moment. He must have been thinking, because he started to talk. 'That's all the more reason to get the dean to support us now. If I can get new cultures going, and I don't know if I can without Charlotte, we could get the gene trapping technique with GFP sewn up by the time the new dean's appointed.

That is, if VivoTech helps us. A new dean would keep an existing project going, surely?’

‘Don’t get smart with me,’ Vince picked up a salt cellar and waved it at him. ‘Leave all that new stuff alone. You can’t get the hang of it overnight. We need publications. Get it? Publications. And we need them fast.’ He thumped the salt cellar down so hard some salt shot out of it. ‘Where’s the bloody sugar?’

I went to a nearby table and borrowed their sugar container. The girls there looked at me sympathetically, but I ignored them. I don’t like rows and I hated the fact that they were conscious of my embarrassment.

‘Publications aren’t so important if we get VivoTech on side.’ Gareth persisted. Once he got stuck into an idea, he didn’t give up easily. I was admiring him for that.

‘The hell they are. The number you’ve got is what impresses people - biotech companies, government bodies, or promotion panels. Publications. Publications.’ Vince poured sugar into his coffee. ‘If you want to make your mark, you’d better get some work done.’

‘I’m trying to. But now my cultures are. . .’

‘What?’ Vince stirred his coffee, with a slightly smug expression on his face.

‘Something’s happened to them,’ Gareth concluded.

Vince turned to me. ‘Like I said.’

Something didn’t make sense to me. ‘You said you were helping him. What’s happened to his cultures?’

‘See? He’s useless. Can’t even keep his cultures alive for a few days. I did my best, but you can’t grow good cultures from poor stock. How can he think VivoTech will give him funding? He makes shocking mistakes.’

'They won't find anything wrong in what I've done,' Gareth said, surprisingly forcefully.

'I wouldn't be too sure,' Vince winked at me over the brim of his cup, as he took a sip.

Even if Gareth weren't as good a researcher as I'd thought, I wasn't going to let Vince sneer at him like this. 'Don't pick on him. Just give him a break. He works really hard. Maybe the cultures went wrong because he's been so tired.'

'What's he been telling you?' Vince's cup clicked on the saucer, as he put it down. 'He makes mistakes all right. Remember, I told you that last night.' He leant across and took my hand. This time he held it so tightly I couldn't free myself. 'We had a nice drink together, didn't we?' I felt almost sick as he winked at me and gave my hand an extra squeeze.

I was so disgusted that I managed to yank my hand free. I could see red welts appearing on it from where his fingers had pressed in.

To my horror, Gareth scraped back his chair and stood up. The look he gave me sent a cascade of tiny pebbles through me. 'Oh, Louisa,' was all he said, as he turned his back and marched across the cafe courtyard.

Oh, no. Did he think I was lying? This was terrible. Vince had twisted the truth, not me. As I thought that, another thought came into my mind. About Vince. About lies, but not mine, this time. His.

'Hang on. Let me see your cultures,' I shouted to Gareth, but he kept walking.

'Don't you go and meddle,' said Vince, angrily.

'Try and stop me.' I ran after Gareth. As I reached the edge of the courtyard, I saw the back of his jeans disappearing around the corner of a building.

16



I caught up with Gareth as he went up the stairs to his lab. These stairs were becoming quite familiar to me. His legs were long and unlike Vince he ran up, two at a time. I was quite puffed when we reached the top.

'What's actually happened?' I gasped.

'You really want to know?' he asked, flinging open the lab door.

'Yes,' I said.

'I'll show you, then.' He strode to the culture room, and I followed. I was hit by the familiar wall of warm air as we went in. Only this time, it didn't strike me so hard. I must be becoming used to the tropical heat of the room, I thought.

He pointed to the flasks, which were in a row on the bench. 'Look at them.'

In the dim light, I couldn't see anything different from before. 'What?' I asked.

Gareth picked one, with a green cotton wool stopper, up and swirled the fluid round inside it. I saw then that it was murky instead of clear. 'So much for my interleukin experiment.' He put that down and picked up a flask

with red cotton wool. The fluid in that one was straw coloured. 'This should be colourless,' he said.

He moved around the benches of the small room, examining the flasks with different coloured stoppers. 'My neurons, my neurons. All at different stages but all dead,' he said, in a shaky voice. When he got to the last flask, which had blue cotton wool, he put it down. He turned to me, his mouth drawn in a hard line. I didn't know what to say. He paced across the short length of the room, running his hand through his hair. It stood up in spikes. 'I can't work it out.' One length. 'They were fine when I left.' Another length. 'Should have survived while I was away.' Turn. 'What's happened?' His knuckles were white. With one foot he kicked the base of the bench. 'They're useless. I doubt I'll even have one stem cell left.'

I felt claustrophobic in that warm room. 'Let's go outside,' I suggested.

'Why not,' he said, moving over to the door, which he opened for me.

I went out, but he didn't follow immediately. He was looking at something on the wall by the door. 'What's the matter?' I asked.

'The thermostat's down.' His voice sounded puzzled. 'You didn't touch it?'

'Of course not,' I said, indignantly.

He pulled the door to behind him, lurched across to a bench and sat down heavily on a stool.

I sat on another one nearby. 'It's really bad is it?' I asked.

'Oh, yes. Temperature's critical. Cultures are incredibly sensitive,' he replied. 'That could be what's done it.'

I didn't understand the technicalities and I didn't know who to believe, him or Vince. Vince could be right, that Gareth wasn't a good worker. He could be blaming the equipment for his own faults. But inside me the thought

I had had at the Currawang was growing. Besides, Vince had been so obnoxious I would take a gamble on Gareth any day.

'I saw Vince in the culture room,' I said.

'When?' Gareth stared at me for a moment, then clutched my arm. His touch was light, not like Vince's.

'Yesterday.' I shivered again. The evening that had followed was very fresh in my mind.

'He was here? When I was away?'

I nodded. 'I wanted to ask you what had happened with VivoTech, so I came looking for you. But, the only person here was Vince.'

'No-one else?' Gareth stared at me. His eyes were so deep brown.

'No-one.' I looked at his spiky dishevelled hair, and had a sudden urge to smooth it down. He was so distraught.

Gareth let my arm go and stood up. He started pacing and thinking aloud again. 'Did he turn the thermostat down? Has he tampered with my cultures? It doesn't make sense. Why would he do that?'

I couldn't work out the answer but I had seen the nasty side of Vince. Remembering my eavesdropping episode, I thought Gareth had too. Various matters were gradually connecting in my mind. 'Something to do with VivoTech?' I suggested.

'But why? Why? He didn't like the idea, sure, but that's because he's such an academic snob. Things going wrong like this would be a disaster to his academic reputation. He's really sensitive about that. You've seen how desperate he is for publications. They're what counts for him.'

I didn't care about Vince and his academic reputation. I cared about Alicia, the project, and VivoTech. 'How will this affect you?' I asked, thinking about the inspection that was coming.

Gareth sat down on a stool, resting his chin on the palm of his hand, his elbow on the bench. 'He's had it in for me, ever since Charlotte died. I think I'll give up. Look for another job.'

I was aghast. I'd been worried enough about the lack of funds available for Gareth to continue, but I'd pursued VivoTech for that. Gareth couldn't give up now. He just couldn't. He looked so dejected, sitting on that stool, with his head bowed. Although he and Vince didn't get on, and much as I no longer trusted Vince, I had to keep them together - until they'd developed the project enough for Alicia to be helped.

'You can't do that,' I said, longing to put my arm around his shoulders. 'I need you. We need you. You've got to go on.'

'I can't keep battling with Vince. It's all right for you. He adores you but it's a different story with me. You keep working on this project with him if you want, but I'm quitting.'

This was my moment to explain about Vince. It must have looked bad to Gareth, the way Vince had leered at me just now. The way he'd squeezed my hand and said those disgusting things. 'He's so awful.'

'Awful?' For the first time since I'd arrived in the lab, Gareth's attention was fully on me, not himself or his cultures. 'But aren't you and he . . . ?'

'I told you before, he's disgusting! Did you really believe him?' I closed my eyes and leant back against the bench. Its hard rim dug into my back but I couldn't bear to watch Gareth's expression.

When he said nothing, I opened my eyes. Gareth was fiddling with a fingernail. Then he raised his head and looked at me. 'Sorry, but I did.'

'Yesterday was ghastly,' I started.

Then, seeing that he was listening, and urging me on with the occasional, 'Go on,' I told him the whole story of how Vince had attacked me, changed moods and conned me into a drink at home in the evening. I saw his eyes widening as I revealed the full extent of Vince's unpleasantness.

'How have I got into such a mess?' I blurted out finally. 'All I wanted was to keep your research going.'

'Poor Louisa,' he said, standing up and moving in front of me. He held his hands out. 'First my cultures, and now this. But what do they matter compared to what you've been through?'

'They matter,' I said, taking his hands and rising to my feet. 'Don't throw them out. There might be a way to resurrect them. Remember penicillin? Discovered by accident.'

'You think I might have a few stem cells left? Mmm,' he said, pulling me to his chest. His arms enveloped me. Tightly. Comfortingly. To my consternation I felt my eyes moisten and then great shuddering sobs overtook me as I buried my face in his sweatshirt. It was warm and clean. A waft of spicy aftershave mingled with the smell.

Looking back on this moment, I couldn't tell how long we had stood entwined like this. All I remembered was the long, deep, sweet kiss that followed.

17



After the events of the last two days, I was exhausted. I decided not to ring Susie and tell her what had happened. She deserved not to have her happy feeling of the morning destroyed quite so soon. I couldn't think how she would take hearing that the research possibly was never going to go anywhere. We had pinned so many hopes on Mum's work being used to save Alicia. At least, I had. Susie was always more concerned about Alicia as she was now, I had to admit. She had to be. Looking after Alicia was a demanding and exhausting business. It was my responsibility to see that the research continued.

I fell into bed, but Vince and Gareth were chasing each other through my mind. Vince was gross. No doubt about that, but Gareth's kiss had been such a surprise. The way I'd yielded to him was even more of a surprise. I knew I had been growing to like him, but not like that. Now it was like that. He was gorgeous. In the warmth of my bed, and with the warmth of the memory, I drifted off to sleep.

I drowsily woke later in the night. The sound of a car purring, slowing and stopping drifted into my consciousness. Then I heard the sound. Footsteps crunching on the gravel. Stealthy footsteps. In my driveway. My heart lurched. I shot up in bed, drawing the doona up round my neck. I

listened as the steps went right along the driveway and then stopped. You can imagine how my heart thudded more as I listened to the silence.

When I heard nothing more, I slowly climbed out of bed and tiptoed through to the kitchen. I felt sure the intruder was round the back of the house. That's where burglars come in, people say. They don't usually open the front door. One of the sensor lights was on outside. I twitched the blind to look out and saw a figure hunched over the garage door. I let the blind flick back as I stood in the dark kitchen. I remember how my fingers shook as I took another look around the blind. I hoped the man would be gone.

He wasn't. He had half turned towards the house and was holding something up to the light to look at it. I could see his face now. It matched a familiar body below. Vince.

I was both relieved and angry. What was he doing here, in the middle of the night and frightening me like that? I marched over to the back door, wrapping my dressing gown around me tightly. I'd tell him to get lost. As I tugged open the door, I looked up at the hook where the garage-study key lived. It was empty. A hollow moment of panic overcame me, but didn't last.

It made me even angrier and I stomped down the steps, across the yard and over to the garage. By this time Vince had the door open and was inside. The harsh fluorescent light was flooding over him. I stood in the doorway and watched him. He was tearing books off shelves, roughly flicking through them before he flung them down. Some landed on the bench, some on the floor. He even threw Mum's diaries down before going to the filing cabinet and jerking open a drawer. He rifled through the folders in there, scanning the contents and discarding them. In what seemed like no time, the room was in chaos. Papers, books and disks littered the floor, around a stool that stood in the middle.

I should have gone back to the house and phoned the police, but I was transfixed. Although it seemed to take ages, I watched every action as if it were happening in slow motion. Then, as Vince turned and swept some

glassware off a bench, he noticed me. He pulled himself up straight and came over. I backed out the door, but he was too quick for me. He was only a couple of steps away in that small room.

Vince grabbed my wrist, forcing me to stagger towards him. I felt fragments of glass under the thin soles of my slippers, but that was nothing compared to my fear. As I struggled, he closed the door and locked it. I can still hear the rasp of the key. It sounded so loud in the silence of the night. He slipped the key in his tracksuit pocket. I was trapped. Physically trapped.

He pushed me forward and shoved me onto the stool. I desperately thought how I could get the key from him. Not by force. He was far too strong. I hoped that what had worked the previous night would work again. I had to be firm and remain calm.

'Give me the key, please.' My voice sounded steadier than I felt, and I was aware that I was trembling.

'All in good time,' he replied, releasing my wrist. Then, without looking at me, he ambled to the easy chair in the corner. I was too stunned to move.

My wrist stung and I rubbed it to soothe myself while I thought. Already Vince seemed in control and to have got the better of me.

'What have you been telling young Gareth about me, you naughty girl?' he asked.

'What do you mean?' I replied sharply.

'Gareth has accused me of tampering with his cultures, fiddling with the thermostat. Could that idea have come from you? You prefer him to me, but do you have to make up lies about me?' He wriggled his bulk further into the seat. 'Who else have you been talking to? Spreading rumours about Vince is not a good idea, Louisa, love. It's not on.'

I swallowed hard. I hadn't expected this. The thumping of my heart must have been visible through my night clothes. My impulse was to defend myself, deny having said anything. Of course, that would not have been true, and as I've said, I'm not a good liar. Then I thought, with consternation, that maybe I had jumped to wrong conclusions, or suggested wrong ideas to Gareth. 'What were you doing the other day, with Gareth's cultures?' I asked.

'If you must know, Miss Stickybeak, I was checking them. Gareth's so sloppy. Impossible. I told you that.' Vince shook his head, running his hand along the arm of the chair. 'It's a battle getting papers out, when I have to contend with his shoddy work.'

'He's meticulous, like Mum was.' I didn't really know if he were or not. I only had my gut feeling to go on, and the fact that Mum had appointed him. Yet Vince infuriated me. I pulled myself erect on the stool.

'Say sorry to Vince and he'll forget all about it,' he wheedled.

Any thought I had of staying calm and firm evaporated. Instead, my anger escalated dangerously. 'Sorry? Did you say I should say sorry?' He had no right to break into my garage in the middle of the night, ransack it, and then imprison me. I spread out my arms to encompass the chaos of papers and books. 'Look what you've done here. You should say sorry to me.'

My attack didn't seem to faze Vince in the least. He continued, a smile on his lips. 'Relax. Don't make such a big issue of it.' He put his hands together in front of his face, palms pressed flat. He eyed me over the top of his fingers, as if deciding how far to push me. 'You forced me. Not giving me what's rightfully mine.'

I didn't think I could get any angrier, but his arrogance made me rotable. Rightfully his? What rubbish! Or, as he would say, what bullshit. 'Breaking into my place! I forced you?' I stood up and took an unsteady step towards him, clenching my hands to stop them shaking.

'Don't get smart with me, young lady. Your shed maybe, but my property. Charlotte worked in my department, you know. Her results belong to me. Remember how you begged me to carry on her work? Such seduction! How could I resist? You won. Be grateful. I've helped your useless project. Now you have to help me.'

I ignored his comment about the project being useless, and focussed on the bigger issue. 'You help the project? Muck it up, more like. I got you money and you're angry. You've run Gareth into the ground. And now you've ruined his experiments. How can you say you've helped?' I clenched my fists until my nails dug into my palms.

'Such an excitable girl.' Vince leant back in the chair, his hands still clasped together. A pained expression settled on his face. 'Why won't you listen to me?'

'Oh, I've listened all right.' I looked down on his bald head with its few wisps of hair. His face looked haggard in the fluorescent light. 'You've tried to patronise me with your science, but it had nothing to do with the research.'

Vince leant forward, deliberately taunting me. 'You don't even understand how living neurons work.' As he spoke I caught the familiar smell of stale alcohol on his breath.

Although I should have known better, I rose to the bait. 'I do so,' I said defiantly. Now, you'll think I was being stupid again to argue about synapses and neurotransmitters in the middle of the night. You'd be right, but I did. 'Action potentials and sodium channels,' I went on. 'And I know what happens when the action potential reaches the end of the axon.'

'Good, good,' Vince smirked. 'What does happen?'

I'd got myself into deep water again, but I had to swim. I couldn't let him drown me. 'Neurotransmitters pour out into the synapse - the space between the end of the axon and the next neuron.' As I tossed my head back, I felt my unbrushed hair shake. I thought how stupid I must look.

'You're doing well for an arts student.'

'I'm not stupid,' I said viciously, although feeling some of my courage drain away.

'Did I say you were, my love?' Vince clasped his hands together.

'Leave me alone, Vince. Just go away.' I suddenly felt conscious of standing in front of him in my dressing gown.

Vince's voice went on relentlessly. 'Louisa, you are an intelligent girl. You must understand that nothing happens when a neuron dies. Don't listen to Gareth with all his talk of interleukins and green fluorescent proteins. It's all garbage. I'm saving you from false hopes. That's all he's giving you.'

I'm sure I clenched my jaw, because my words came out stiffly. 'There's nothing you can do about my hopes.'

For a moment there was silence as Vince dropped his hands and again ran them along the arms of the chair. He looked up at me with eyes that I saw now were red rimmed and watery. 'Your hopes are destroying me,' he said, quietly. 'Don't you care about me?'

Like I just said, fluorescent light does not help an aging face. His looked deeply lined and mean now. He seemed like a really old man but that didn't make me sympathetic to him. Quite the opposite; it boosted my courage. 'You've destroyed yourself, Vince,' I said boldly. But, even as I said it, I realised I was still trapped. He had the key.

'This project is my last chance. You should help me.' With amazing alacrity for such an unfit man, he heaved himself out of the chair. Although I was half expecting this, he had the advantage, being so big. I felt his hands on my shoulders and I froze. I caught another unpleasant whiff of his breath. 'Louisa, Louisa. I love you so much.'

He was pathetic, like he'd been the previous night after I'd pushed him off me. I felt I could regain control, but I wasn't sure. 'Go home, Vince.' I stared him out, although every muscle in my body was tense. 'You've had too much to drink.'

'Let me stay,' he whined, releasing me. For a moment he stood forlornly looking round the garage. 'Please? I'll clear up in the morning. Promise.'

Slowly and deliberately I held out my hand. This time it was steady. 'Give me the key,' I said firmly and calmly.

I heard my own release of breath, as meekly Vince brought the key out of his pocket and handed it to me.

18



If I hadn't been able before to tell Susie what had happened, I was less able to now. She'd be so upset, but worse than that, she'd think I was stupid. I'd made basic mistakes. I'd let Vince come to the house the other evening and then I'd gone into the garage after him in the middle of last night. You didn't have to be a genius to know you shouldn't do that.

I couldn't risk Susie seeing the mess in the garage-lab either. She hadn't been in there since Mum died, and she'd freak. But, with my luck being the way it was at present, she'd probably want to for some reason. On the other hand, I was so revolted by Vince, and what he had done, that I couldn't bring myself to tidy it up. It took me two or three days to get enough courage even to open the door.

I distracted myself with assignments. I went to Uni, spending hours in the library. You will not be surprised to hear that I kept well away from the science faculty. Pride and fear kept me away from Gareth's lab, although I wanted to know what was happening with the project, and especially with VivoTech. If Gareth wanted to see me, or tell me what was happening, he would. I didn't want to think about Vince. Even so, I hoped that a miracle would happen and that Gareth would show up. I daydreamed about chatting in the *Currawang* or going to the movies with him, but they stayed as dreams.

He didn't ring me or materialise. That kiss must have been a one-off, was all I could think.

Finally, having submitted the assignments, there was nothing for it but to tidy up the mess. So, I armed myself with dustpan and brush, rubber gloves, and a large black garbage bag, and marched to the garage-lab. My stomach churned at the sight of the papers and disks littering the floor and the books flung open on the benches. I felt a prick of anger that Vince had created such havoc, which I had to clear up, and all for what?

I stacked the books and Mum's diaries back on the shelves, then turned my attention to the floor. As I gingerly picked up papers, shaking glass shards into the bag, I wondered what he was on about. Hadn't he wanted the project to succeed, the same as I had? Apparently not. How could he possibly think he was saving me from false hopes? Didn't he realise that I'd do anything for Alicia?

Roughly I smoothed out bits of paper, but they were so torn it would be a nightmare to piece them together. I shoved them into the garbage bag. What was it Vince had been after? Then I remembered the lie I had told him about having more of Mum's results in here. Was that it? He thought I was being obstructive and that the only way to get them was to steal them? Well, I certainly wouldn't trust him any more. Not that I did now, anyway.

I was getting angry, but I had almost finished cleaning. As I gave a final fierce sweep with the brush, I saw a something glinting under the desk. I knelt down and grovelled for it. It was a ring with several small gold-coloured keys on it. The keys to Mum's diaries! At last.

Pulling the rubber gloves off my sweaty hands, I scooped up Mum's diaries and went to her desk. Reading them would calm me down, I thought. Anyway, I was excited to think I would find out Mum's secrets. I sat down in her chair and fumbled with the keys in the tiny locks. I completely forgot about Vince. Whatever I'd expected, I was disappointed. There was nothing personal in the first diary, just scientific notes. Nothing about me and Susie,

or Dad. Nothing about Mum's feelings, just incomprehensible writing. Admittedly, some words, like "action potential" and "sodium channels", did now look familiar but that wasn't what interested me. I wanted something personal. I turned the pages of each diary in turn. More words like "synapse" and "neurotransmitters" sprang out at me but the pages were covered in flow charts and diagrams. Boring.

I sat with the most recent diary open in front of me, annoyed with myself that I didn't understand more. Even though Vince, Shudder, and Gareth had explained to me about neurons, I now only knew that a neuron worked by sending an action potential along its axon and then releasing neurotransmitters into the synapse between it and the next neuron. That was a long way from my original hope of quickly learning how Mum's research could be used to repair the neurons in Alicia's brain. I had learnt that the action potential depended on the movement of sodium ions across the axon's membrane, and that neurotransmitters were chemicals called "serotonin", "dopamine", "acetylcholine" and suchlike, but that hadn't brought me any closer. I should have learnt how a living neuron worked before I had got involved. I had been too ambitious. Foolish, perhaps was a better word, but one I didn't want to think about. I had done rather a number of foolish things since the accident. The thought was painful, but my idea that Mum's work could help save Alicia was foolishly ambitious. Then I'd jumped into a situation between Gareth and Vince that I didn't understand, and stirred up a nightmare. I was foolish all right.

I flipped through the pages of this latest diary again. It was both good and sad to see Mum's writing. I stopped at a page with a very neat flow chart. How very like Mum to have written her thoughts down so logically. They looked logical to me, anyway. Those rectangular boxes around each word. It occurred to me then that my lie to Vince might not have been a complete lie. Even if I didn't have any more of her results, I did have some of her ideas. They might not be much use, but if that's what he'd wanted, he'd missed them when he broke in. Ridiculous man. I wouldn't give them to him now.

Before I closed the diary, I took a final look at a flow chart. In the middle of it I saw words like "MHC genes", "surface proteins", and "interleukins". I re-read them. It wasn't the first time I'd heard of these words. I closed the diary and thought.

Weren't these the words Gareth had used at some stage, when explaining about his work?

19



'I've something to tell you,' I almost shouted as soon as Gareth answered the phone.

'What?' he asked, without interest.

I felt as if I had been hit in the stomach. Perhaps I was being foolish again, rushing in without thinking things through. 'Something that might help you,' I said.

'I'm beyond help.' Gareth sounded really flat. 'Talk about disasters. Everything's going wrong.'

'Not again. Shall I come over?' I asked, suppressing my fear of meeting Vince. Gareth sounded terrible. What else could have gone wrong?

'Please,' he said.

When I arrived, Gareth was sitting on a stool, shoulders slumped. He raised his head to give me a weak smile.

'This could cheer you up.' I waved Mum's last diary at him. I didn't know if it could, but I couldn't bear to see him like that.

Gareth took it, but didn't open it. He just stared at the cover. 'An old diary? So, what?' He offered it back to me.

I felt deflated again and refused to accept it. 'They're Mum's ideas,' I said, possibly a bit petulantly. I had been so excited by my discovery.

Gareth dropped the diary onto the bench and shook his head. 'Look. It's good of you to bring them but no old diary can change the fact that my cultures are dead.' The pages made a soft sound as he flicked their edges.

'Please look at it,' I pleaded. 'There's stuff in there about MHC genes and surface proteins. Things you were on about. It could be some use?'

Gareth glanced down at the diary. My heart ached, or some such rubbish, as he looked across at me. He was so dispirited. 'It's all right for you. It's your hobby. For me, this is real life.'

'A hobby?' He certainly slugged me that time. How could he think that? Confronting Vince was a hobby? I crossed my arms, defensively. 'This is real life all right. My little niece's life. Alicia. Remember? It's not for me but for her.'

'It's a lovely idea and I wish I could help.' Gareth slid off his stool and gently unfolded my arms. He took my hands and held them, as if trying to reassure me. 'The reality is, we can't save her.'

I didn't want to hear that. I pulled my hands away. I looked at his face, hoping, really hoping to see that he was teasing. All I saw was sadness and concern. 'Can't save her?' I whispered.

'Didn't you know that? We're still a long way from finding a cure for anything,' Gareth replied softly, his eyes avoiding mine.

'You're the one who convinced me we would.' I sank onto a stool. It felt hard under me.

He kept his eyes cast down. 'Did you think I said that? That's terrible,' he muttered. He picked up an empty beaker and stared into it. Then he raised his face to look at me. 'One day this may lead to something really great. I hope it does. But it's not going to happen overnight. Helping real live individuals is a long way down the track.'

I felt betrayed. I had been told Mum's work would help Alicia but now, after all my battles to keep the research going, I was being told it couldn't. I had been having doubts, but I had so hoped I was wrong. I felt angry and hurt, sort of boiling inside, and I felt tears in my eyes. It would be best to leave with dignity. I stood up, but dignity left me. I reached behind him, grabbing the diary. 'So there's no point in any of this? Mum's ideas can't help a bit? Not with your cultures, not with VivoTech and not with Alicia?' I bit my lip and looked at the floor, knowing that was an unnecessary outburst.

I felt, rather than saw, Gareth hold out his hand to me. I ignored it. He was wonderful. He spoke gently. 'Even if we convince VivoTech to back us, there'll have to be corroborative work and then clinical trials and so on. It'll take years.'

'You might have told me earlier.' I thumped the diary on the edge of the bench, and turned away. I hate to admit it, but I was snuffling like someone of Alicia's age. My disappointment was overwhelming. The door was not far away, and I knew I should leave. My legs refused to move. I dabbed my eyes, feeling completely foolish and hoping Gareth wouldn't notice. How could he not?

The next minute his arm was around my shoulders, giving me a comforting squeeze. His voice was close to my ear. 'I'm sorry. I keep upsetting you but I don't mean to. Honestly, I thought you understood.'

My cheek pressed into his freshly washed sweatshirt and my tears soaked into it. He would have to wash it again, I thought, but I stayed with my head buried until I could trust my voice. 'I guess I'll get used to the idea. Poor

little Alicia.' Rubbing my eyes, I looked up at him. 'Isn't there anything we can do? You and Mum put so much work in, it can't be for nothing.'

'I can't see VivoTech being interested, when I've got nothing to show them, and Vince is so against them. I'm so sorry.' Gareth's warm fingers wiped the tears from my cheeks. I felt his hand smooth down my hair. Then he gently kissed my lips.

'Will you look at Mum's diary, just to please me then?' I asked, as he stood back to look at me.

He leant past me to the bench, and picked it up. 'How can I refuse?'

He laid it open on the bench and started to read. After a few minutes, he bent over to read it more closely, turning back pages to reread sections. I heard an occasional intake of breath. He scribbled some notes on a notepad I hadn't noticed before. I hardly dared to breathe as I watched him.

'This is incredible,' he said, turning the last page and shutting the book. He stood up, drumming his fingers on its cover, while gazing over my shoulder into the distance. 'If I've still got stem cells alive. . .' He held out his hand to me and locked his fingers through mine. I felt his gentle pressure as he led me to the culture room. 'Let's have a look.'

Inside the room, we bent to look at the flasks. To me they looked just as they had before. 'You kept them?' I asked.

'Your comment about penicillin,' he laughed. 'And I couldn't bear to tip them down the sink. You might say I've had them in intensive care.'

Gareth reached for a pipette and a rack of small test tubes. Inserting the pipette into the culture fluid, he gently drew some up. Carefully he placed a few drops in each of a few test tubes. He added some colourless fluid from a glass bottle and then put the tubes into a piece of equipment on the bench. He flicked a switch and the instrument vibrated. 'Keep your fingers crossed,' he said.

I listened as the click and chug of the instrument broke the silence. Gareth kept his eye on lights that flashed on the dial panel. As they settled to a steady glow and the rhythm eased to a constant hum, he drew me to him and bent to kiss me again. 'You're wonderful, Louisa.'

'Was that for me or for the cultures?' I asked, as we separated, his arms still around me.

'What do you think?' he said, swinging me off my feet. 'I love my cultures, of course.' I felt his lips find mine again. Then his tongue ran over and between them.

20



'Vince is in hospital,' Gareth said, rushing in to the lab to meet me a couple of days later. Every spare moment between my lectures and tutorials was spent with him there, watching as he checked his vials, test tubes and flasks. I no longer worried about meeting Vince. Somehow things had changed and he seemed unimportant. I hadn't seen any sign of him since the encounter in the garage the previous week.

I did feel relieved, though, that he was out the way. Then I realised that was a bit callous. 'What happened?' I asked.

'Had a car accident.' Gareth gave me a quick kiss on the cheek. 'He's not badly hurt. A broken leg or something. He drove into a tree. Drunk, apparently.'

I remembered then that his car had not been parked by my house the morning after his break in. He'd been drunk and I'd let him drive again. Awful though that might be, I only felt a moment's guilt. We were frantic to get ready for VivoTech's visit the following week and there was a lot to do. 'It's a terrible thing to say,' I blurted out. 'But it will keep him out of our hair until VivoTech has been.'

Gareth pinched my arm gently. 'You're a shocker. But you're right. I can talk to them freely.' Grabbing both my hands, he twirled me around. 'What a relief. And I might get some sleep for once.'

'You might too,' I said. 'I still don't understand why he drove you so hard at first. He seemed so keen. Now he's so obstructive. Is it the grog?'

'Search me,' said Gareth, still holding my hand and pulling himself up to perch on a bench. 'Maybe he fancies himself as dean next year, when Paul Mole retires. He made jokes about being dean. Nothing serious, I thought, but he could have been.' Gareth held my hand up and admired it. 'You have such beautiful fingernails.'

'You're mad.' I laughed, feeling secretly pleased at the compliment. 'I don't follow you.'

'He needs publications. He was always on about them. Publications get you promotion. I see now that for Vince, who's a lazy so-and-so, that involved you and me.'

'Me?' I couldn't see how I, a total non-scientist, could be in this.

'Think about it.' Gareth lifted my fingers one by one, counting off the points. 'You arrived on the scene, and drew his attention to Charlotte's work. Secondly, VivoTech were interested, so her research must be well respected beyond the confines of academe. Thirdly, Charlotte died suddenly, presumably leaving unpublished work. Next, if he could get hold of that, he could publish it in his name. Instant papers. Instant kudos. And finally, a bloated list of publications for his CV. Pretty neat, eh?'

'But that's theft! They were Mum's,' I said. Despite Vince's insistence, I felt sure the research results weren't his.

'Exactly,' Gareth paused, allowing me time to digest his point. 'So he had to be nice to you. Get you on side and get the stuff he wanted, without your realising what he was up to.'

'He left Mum's name off that first paper. I wasn't much on side then.' I remembered my first hostile encounter with Vince. His change in personality had come as a shock.

'A bit of blunder but he put it right. Calmed you down so that you'd still co-operate. He's cunning, is Vince.'

'He sure is.' I was starting to realise that he was a worse character than I'd thought. How naive I was to think that I had persuaded him. All the time he had been looking for advantages for himself.

'Then he could continue Charlotte's work to get more publications. But for that he needed me. His slave.' A hint of resignation entered Gareth's voice.

He was right, Vince didn't have to be nice to Gareth. As a junior member of the department, Gareth could be bullied by Vince in a way that I couldn't be. So, Gareth always tired because this monster had pushed him, not, as I had thought, for the sake of saving Alicia, but for his own ends. 'So my poor Gareth got dragged into his little scheme, too.' I squeezed his fingers to reassure him that I was sympathetic. 'I'm sorry. I never thought about the effect on you.'

Gareth returned the pressure. 'Not your fault.' A mischievous look flashed into his eyes. 'I'm glad, 'cos otherwise I'd never have met you.'

'Oh, you!' I rocked his hand and laughed. I could tease him now. 'You were always falling asleep. You never even noticed me. Remember the fun day?'

'Don't remind me.' Gareth groaned. 'That was when I really thought you liked Vince. It hurt, because I knew he was a bully. Do you know, he'd whisk my results away before I'd finished experiments?'

Now was the moment to learn the true story from Gareth about the argument I'd overheard. 'Why did you go along with him?' I asked quietly.

'I had to, or he'd have got rid of me. As it was, he threatened not to support my grant application for next year. Nobody else here would take me on if Vince told them not to. It would have been the end of my career. But I couldn't make up results. I couldn't do it. So I worked round the clock to catch up. It wasn't Vince's fault really. Just my perfectionism.' Gareth smiled down at me, letting his hands slide down my back. 'He's not that bad. Just a little warped. There's no use worrying now.'

'How can you say that, when he's done such awful things to you?' I took his hand and rubbed it tenderly. 'You're too nice.' I thought of Vince as a nasty old man, but Gareth was more forgiving than me. I felt a bit humble. He'd suffered as much as me but in a different way.

Gareth continued, smiling at me. 'We've got the chance of VivoTech funding us. That's the main thing. I've worked out what Vince was up to. He wanted to discredit me to make himself look good. VivoTech might blow his cover on shaky results. He had to do something so that he could blame me if he was found out.'

'He interfered with your work, for that?' My mind still found it hard to believe that Vince had deliberately sabotaged Gareth's experiments. It sounded ridiculous. Professors don't do that sort of thing. 'You'd think he'd want it to go well.'

'You might, but not Vince. No dean's job. Possibly no job at all, if he was up for scientific fraud. He's a frightened man and frightened men are desperate men.'

'Shouldn't you tell someone?'

'Who would believe me against him?' Gareth shrugged.

21



Although the hours I spent in the lab with Gareth absorbed me, I hadn't forgotten Susie and Alicia. How could I?

I decided I wouldn't tell Susie about the dramas with Vince, Gareth and the cultures. Instead, I gave her a potted version of there being setbacks. 'Everything's on track now,' I said, as cheerfully as I could. Gareth and I still didn't know how his cultures would work out. 'How's Alicia?'

'She did better on the tests this time,' said Susie enthusiastically, and launched into details of what the doctors had said. I could hear Alicia playing in the background. She sounded happy, but it made what I had to tell Susie more poignant.

Even if VivoTech came good with funding, I now knew that the research was unlikely to benefit Alicia. Gareth had given me more details of how laboratory research is converted to clinical use. I don't think he knew all that much himself at that stage, but he certainly was more realistic than I had been. It would take years. The work had to be repeated, tested clinically and pass all sorts of legal and administrative hurdles. By the time all that was worked through, Alicia would be a teenager, I thought.

Hesitantly, I told Susie. To my surprise and relief, she laughed. 'Oh, Lou. Didn't you realise that?'

'You knew all along?' I asked. 'Why didn't you tell me?'

'I tried to, but you didn't listen. Beside, I thought it would help you get over Mum and everything,' Susie said. 'It's been hard for you.'

'It's been harder for you and Josh. I really wanted Mum's work to help Alicia.'

'One good thing's come out of it, though,' said Susie, with a confidential titter. 'You've met a spunk.'

'Gareth?'

'Don't deny it,' she said.

With us both laughing, we rang off.

* * * * *

It was such a relief that Vince was in hospital when VivoTech came for their inspection. It gave Gareth freedom to discuss his work. Although I hadn't wanted to be there, not being part of the scientific team, both Professor Mole and Gareth asked me to be. I was introduced to Mark Krueger as Charlotte's daughter, and after a brief superficial chat, I withdrew to a corner of the lab, while Gareth explained his experimental work.

He was open and honest with Mr. Krueger, telling him about the unexpected results of the cultures Vince had tampered with. He told him there had been a problem, but he didn't say a word against Vince. I would not have been that generous.

I could hear the excitement grow in Gareth's voice as he explained how he believed that the lowered temperature of the culture room had been ultimately beneficial. I still didn't understand all the talk about MHC genes and surface proteins, let alone the role of the interleukins, but I knew that the notes in Mum's diaries had given Gareth ideas to help him continue. I knew he'd found that some stem cells had survived and could be used to promote

the growth of neurons. It was still a long way beyond me, but if Gareth thought it was going well, that was enough for me.

Mark Krueger listened intently to everything Gareth said, frequently nodding his head in agreement. Professor Mole had left, after the initial introduction. He was a busy man, and this was not his area of expertise. I was pleased that Mr. Krueger stayed a long time. It seemed like a good sign. He jotted down notes as Gareth told him his predictions, and plans for future experiments. Green fluorescent proteins and gene trapping got a mention, I heard.

We waited anxiously to hear the outcome of the meeting. Over the next few days, Mr. Krueger rang Gareth once or twice to check details, and he returned for meetings with Professor Mole. To stem our nervousness, if you'll excuse the pun, Gareth and I concentrated on his experiments. With his stem cells growing again, he had no difficulty in occupying time. In fact, he was so busy he was getting tired again. I had to force him over to the *Currawang* even to get a sandwich.

Once I'd got him there, he'd tease me mercilessly about my understanding, or lack of it, of neurons.

'Come on then,' he'd say. 'What does a neuron look like?'

I'd grab a paper serviette, he'd hand me a pen, and I'd draw a circle with a smaller one inside. Then I'd draw a long, thin arm out to one side, and put a tuft on the end of the arm.

'There you are,' I'd say. 'The round bit's the cell body. This thing inside is the nucleus, and this long thing is the axon with axon terminals at the end.' Then I'd draw another circle next to the axon terminal tuft but not touching it – I always remembered there was a gap. 'This is the second neuron in a chain of them, and the junction between the two is the synapse.'

He'd laugh at me and make a funny face. 'You have done well. Who did you say taught you that?'

'I wonder.'

'Of course, what I told you is a very simplistic representation of neurons,' he'd say with a bit of a frown. 'Actually they have processes called "dendrites" as well, which are tiny branches coming out of the cell body.'

I would lean across the table to him and put my finger across his lips. 'Don't confuse my little brain. This is enough for me at present. I'm going to tell you now about action potentials – the electrical messages that run along the axon.'

He'd take my finger and kiss it. 'Ooh, goodie. I can't wait.'

Then I'd go on with a description of action potentials. It would be something like this: 'The membrane covering the neuron is soft and oily and has things in it called sodium channels. When the neuron is not sending an action potential - that is, it's resting - the sodium channels are closed. But, if the neuron is stimulated, they open at the beginning of the axon, close to the cell body.'

'Excellent,' he'd say encouragingly but not patronisingly.

We'd laugh, and I'd continue. 'Sodium ions are sitting on the outside of the membrane, so when some sodium channels open they can move inside. And they do that because they have a positive charge. We call them ions because they have a charge.'

Gareth would nod to me to keep going.

'Things are more negative inside the membrane, so the positively charged sodium ions are attracted in there. They rush in through the open sodium channels. The result is that their positive charge balances out the negative charge on the inside. For a moment there's no longer a difference in electrical charge between the inside and the outside of the membrane.'

'Again, a simple explanation, but it does.' Gareth was always apprehensive that he'd over simplified the physiology for me, but I was glad.

'This causes adjacent sodium channels to open, so in the end sodium is rushing in all along the axon's membrane. Of course, it has to stop when the end of the axon is reached. Enough?'

'You're great. You should have done science, not arts,' Gareth would say.

'No way. I'll stick with my own subjects, thanks.'

If we had time, he'd make me explain what happened at synapses when the action potential reached it. We didn't always have time for that bit, as we often had to rush back to his lab to check on his experiments.

I got quite a thrill out of it all. You'll think I'm talking about Gareth, but actually I got a thrill out of thinking I understood a bit of Mum's work now. Not the real brain repair bit, Gareth said I'd need a few more crash courses and revision sessions in the *Currawang* before I'd be ready for that, but just understanding how neurons functioned. And, yes, I did get a thrill from being with Gareth.

'Synapses?' I'd say.

'Go on. Astound me.'

'Chemicals, called neurotransmitters, are stored in tiny vesicles in the axon terminals. When an action potential arrives, these vesicles move to the surface, fuse with the membrane and the neurotransmitters pour into the gap between two neurons, which is called the synaptic cleft.'

He'd keep nodding, waiting for me to continue.

'The neurotransmitters cross to the membrane of the adjacent neuron, where they latch on to receptors. Neurotransmitters and receptors match each other exactly. They're very specific. The signal for an action potential to

start in the second neuron is when the neurotransmitters plug into the receptors. Have I got it?’

Gareth would grab my hands, press them together between his, and give them a big kiss. ‘Brilliant,’ he’d say. ‘When we get time, I’ll give you another crash course or three, and tell you a bit more.’

‘Hang on a minute,’ I’d say. ‘I’ve got exams coming up soon. I might have to do some serious study on my own subjects.’

‘When that’s over?’

‘When that’s over, definitely.’ I’d take his hand, because usually by this time we needed to get back to the lab, and we’d go to the science building hand in hand.

* * * * *

When the news came through that VivoTech would support Gareth’s research, the whole department celebrated. Professor Mole told Gareth, of course, and then sent a message around the department for everyone to meet in the staff room. I was thrilled to be invited too. I had accepted by then that the project could not help Alicia, but I was pleased that Mum’s work would go on. One day, maybe, other people with brain damage might benefit from it. Someone bought casks of wine and nibbles, and even decorated the room with balloons. They struck me as soon as I walked into the room with Gareth. I’ll never see a balloon again without thinking of neurotransmitters. I smiled to myself as I remembered the fun day, the day I first felt something for Gareth.

Then I saw Vince. He sat in the corner with his leg, which was in plaster, propped up on another chair. His face looked pale and a little shrunken even. In his hand was a glass of orange juice.

I couldn’t ignore him, so I took a deep breath and went straight over to him. Best to get it over with. I was so euphoric about VivoTech that I could

forgive Vince his nastiness. After all, I did have a small debt to him for his initial interest, even if his motives were not compatible with mine.

When I reached him, he took my hand and kissed the back of it in an old-fashioned, gallant way. I was a little startled but Vince just smiled at me. 'I'm sorry,' he said. 'I didn't mean to hurt you.'

'Of course not,' I said, not sure how to respond. I thought of Gareth and his forgiving nature. I had a go at being forgiving myself. 'Everything has worked out all right in the end.'

Vince took a deep breath. 'Louisa, my dear. People get the wrong idea sometimes when two people have a lot to do with each other. They think one person's leading the other on.'

'Oh, yes?' I hesitated. This had nothing to do with VivoTech.

'Now, I know you're a good girl, very dedicated and all that.' Vince leant forward and caught my hand. 'But others might put a different interpretation on what you've been doing. They might think you were a bit naughty.'

'What are you getting at, Vince?' I was a little alarmed. How could anyone misunderstand me? I had been foolish, perhaps, but I'd done nothing wrong.

'I'd hate to see you hurt by careless gossip. You understand my drift?' He raised an eyebrow as he looked up at me.

'Gossip?'

Vince blinked a couple of times and gripped my fingers harder. 'Let's say, things could rebound on you if people heard unfortunate things about me.'

I looked down at him, with the light shining off his scalp through his thin wispy hair. He had a twisted mind all right. How could I ever have trusted

him? He wasn't worth bothering about any more. 'I'm not that sort of person, Vince.' I pulled my hand free, and with a courtesy nod, left him.

Professor Mole led Gareth and me over to the front of the room and hushed the crowd. Time for speeches. He praised Mum, which gave me a wonderful feeling of pride; he praised Gareth for his meticulous work, especially in difficult financial circumstances; but he did not mention Vince. I felt a blush developing, though, when I heard his final comments. 'I have to particularly congratulate Louisa, without whose perception and persistence this project would never have come to fruition.'

The clapping was embarrassing. I didn't want to be singled out. After all, I had refused to listen to people when they told me the project wouldn't succeed. I had had no understanding of it. It was Gareth who had that. He was the one who really had faith in the project and Mum's ideas. I looked at him, standing next to me, his dark hair flopping forward as he stared at his feet.

Despite his nervousness at speaking in front of people, Gareth replied to Professor Mole. What stood out in my mind later was that he was generous to Vince. He acknowledged that without his interest, the project would have collapsed. He stretched the truth a bit, I thought, saying Vince's input had been valued. By chance, his meddling had helped, but valued? I would have chosen a different word. But that was Gareth. Never saying a bad word about anyone.

After the celebration, I persuaded Gareth to come home for a meal, instead of returning to the lab. We bought some take-away, and sat together on the couch, eating it. The fateful couch that I had sat on with Vince. This occasion was altogether different. So totally different that I only briefly thought about Vince. Gareth was beside me, not tired, excited.

'There is one thing left to do,' I whispered, as we finished and put our bowls on the coffee table.

'No. I'm not going back to the lab for an all night stint.' Gareth teased, running his hand through my hair.

'You know, I never really went for that sleepy, scientist bit. I actually prefer my guys a little more alert.' I leant over and tickled him. When he curled up, clutching his arms across his chest, I tickled him harder. Finally, he fell off the couch, pulling me onto the floor with him.

Gasping through his laughter, he begged me to stop. 'I'm alert! I'm alert!' he shouted. 'What did you want to do?'

'Finish telling me about neurons.'

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