

Twisted Genius

The news of Phillips's death arrived in Bali at 14:42 local time, breaking into a local radio program playing soporific gamelan music. Martin Howe, a stockily-built man of 32 was lying sunbathing on a deserted beach, his cheek pressed against a silky brown stomach.

He didn't understand a word.

He reached out in irritation to change the station but a slim hand restrained him.

'Attends,' said Yvonne. He raised his head to look at the slightly Oriental face of his 26-year old companion. Her velvet brown eyes were focussed into the distance and her small white teeth pressed into a full lower lip as she listened to the guttural Bahasa-Indonesian. The announcement finished and the monotonous plunking returned.

'Well?' said Martin.

'It just said John Phillips of PHILROB has disappeared, presumed dead. He was flying his private jet over the sea near Florida but it's long overdue with no reports of landing anywhere else,' said Yvonne with her slight French accent.

He sat up and looked down at the slender completely sun-tanned body stretched out on the sand beside him, her head on their backpack. Clever as well as beautiful. He reached out to ruffle her short dark hair, but she pulled his hand away.

'That's your job isn't it?' she said. 'You're a "free-lance journalist". You could write a - how do you say it - "une notice nécrologique"'.

???

'Oh, an "obituary",' he grinned, amused at how pompous French could sound. 'Yes, me and a hundred others.'

'But you know Harold Blackwood. He used to work with Phillips. He could help you. You would be famous.' Her velvet brown slightly slanting eyes looked up at him admiringly.

H'm, the first bit at least was true. Ten years ago Harold had been one of his instructors at the Oxford School of Journalism and had subsequently accepted a position in the publicity department of PHILROB, the fantastically successful robot manufacturing company founded by Phillips. However -

'He's on holiday on,' said Martin, leaving the sentence unfinished. Harold had been talking about nothing else for the last month.

'Mars,' completed Yvonne. 'But you're always telling me how wonderful your new notebook PC is.'

And the second bit was true too. If he got an exclusive on the enigmatic, notoriously secretive Phillips, his name would be made. He reached over and unbuckled their backpack, pulling out his new computer. He carefully laid it flat on the hot sand, its inbuilt antenna pointing skywards, and extended the camera lens.

Lying on his stomach, he switched on and shading the screen with one hand, dialled up Harold's home number. A soft warm shape slid onto his back and fine hair tickled his cheek.

'See,' said Yvonne looking over his shoulder. A long fingernail pointed to a line on the screen. '"Absent until 2 Feb 2057. Forwarding calls to Mars 542."

Jeez. It was a hell of a forwarding address. The finger moved to the 'Dial' button.

'Just one tiny minute,' said Martin, pushing the finger aside and keying in 'Toll Charge'. A sum came up which was fifty times bigger than anything he had ever seen

yet. He turned over onto his back and the soft shape gently moved to accommodate him. He looked into dark eyes from about two inches.

‘You realise that five minutes costs a day’s pay!?’ he said.

‘You can say a lot in five minutes,’ Yvonne said, licking the tip of his nose.

‘And I bet you’re the first one to have thought of it.’ Her body moved slightly. Bloody French women - they manipulated you so obviously you didn’t mind.

‘Not as much as you, but you may be right,’ said Martin. ‘Ah, well, what the hell.’ This was the last but one day of their surprisingly cheap backpack holiday. Groaningly he turned over and again the soft shape followed.

His PC warned him of the cost of the call, required confirmation twice and after a pause where it was no doubt suspiciously checking out his financial credibility, told him that the present round-trip delay to planet Mars was 7.4 minutes.

Several logos in quick succession and a line marked in minutes appeared on the screen growing from left to right. They watched it in silence until after 8.2 minutes Harold’s surprised face appeared, shimmering slightly. He was wearing an undershirt and was unshaven.

‘Martin?! Is that really you? Your call must be costing an arm and a leg. I thought you were off to Bali with Yvonne. I don’t mind telling you that twenty years ago I too would ...’

Martin cursed and scrabbled for the ‘Cancel’ command. He didn’t have to finance this waffle. He found the line and reached out for ‘Return’ but his hand was pulled aside.

‘Patience,’ said Yvonne. And just in time as Harold paused and said:-

‘Sorry. I mustn’t babble on. I didn’t expect any calls. What can I do for you?’ His face froze and ‘SPEAK NOW’ appeared. ‘Ah, there you are Harold,’ said Martin. ‘Glad I caught you.’ No one was going to out-cool him. ‘John Phillips has died and I thought I’d have a stab at writing an obituary and sending it to “Life”. As you used to tell us, “Audacity is All”. Actually Yvonne here suggested it.’

He was about to continue when Yvonne moved her face up to the camera. He hastily checked to make sure it was not looking at any more of her than her face.

‘Zat’s right `arold,’ she said. ‘You knew John very well and I thought you would be able to geeve Martin some informations. Some eenteresting personal informations.’

Martin swivelled the lens back to himself.

‘Well, that’s it Harold. I’ll give you another call in half an hour. See if you can dig up something. It’s as hot as hell here. One day I’ll be able to do like you. Till then.’ He cut the connection.

‘He’ll help you,’ said Yvonne confidently.

‘How can you be so sure? He’s more likely want to write it himself.’

‘Feminine intuition,’ said Yvonne. He rolled on his side and looked at her in surprise.

‘I didn’t expect to hear that expression from you.’

‘It’s true. Surely you know about the bilateral brain? She looked into the distance: “The male brain is sharply divided into logical/speech in the left hemisphere and non-verbal/spatial in the right. The female brain is similar but much less sharply differentiated”.’

‘You’re trying to tell me the female brain is more diffuse, less focussed than the male brain,’ Martin said.

‘Less blinkered, you mean.’ She waved her hand in the air, thinking of an example.

‘Oui. When I talk to you, you just listen to what I say,’ she said.

``Just''?! You don't know how privileged you are. Most men I know ...'

``But when I listen to you,' she continued, `I hear what you are saying, but also the tone in your voice and the language of your body. I hear what you really mean.' She ran her fingers fondly through his thick blond hair.

``So why will Harold help me?'' said Martin, bringing the conversation back on the rails.

She rolled over on to her stomach and laid her head on her arms. ``It was clever of you to quote him,' she said, ``and I think he likes me,' she added, smirking at him over her shoulder.

Martin looked down at her, the pale bikini marks on her slim body almost completely disappeared. Yvonne had a PhD in psychology from Oxford, but as far as men were concerned it was quite unnecessary.

``And in any case, as senior staff, his original contract with PHILROB will have had a company non-disclosure clause,' she finished.

``Right then,' said Martin, turning back to his PC. ``Half an hour to wait. Did I ever show you the new 3-D chess game in my computer?''

Yvonne straightened her arms distractingly to look around the wide beach. They were alone.

``I love 3-D games,' she said demurely.

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And so it was almost an hour before Martin recalled Mars, to find a recorded message. In the meantime Harold had shaved and put a shirt on.

``Martin and Yvonne,' he began. ``I've been able to find out that John is missing, almost certainly dead. The radar plot of the light aircraft he was piloting disappeared over the Atlantic near Florida. His return to Sarasota airport is long overdue and there are no reports of his landing at any alternative airports within his fuel range.'' He grimaced. ``They are saying he is another victim of the ``Devils Triangle''. He looked down at a piece of paper.

``I've been searching through my files and I find the little I have on his background has already been published long ago so you'll find it in ``Who's Who'' or ``Time'' or whatever. I did see John a few times in the course of my work, but less of him than viewers saw on that TV interview he gave. He was just as he appeared - slow moving and speaking, coming out with a occasional remark accompanied with a slight smile that showed he knew instantly why I really wanted to see him, whatever the reason I had given his secretary.'' His face floated off to one side, then returned.

``Sorry,' he said, ``I haven't got used to this point one G yet.'' Martin made a rude noise.

``He had his famous accident here on Mars of course,' continued Harold, ``and I've been able to find the name of the driver of the emergency services buggy that picked him up and also the doctor who first examined him. The doctor's name was Frederick Miller, now working as a surgeon in a hospital in Chelmsford, England. The driver was Albert Humbolt and he has retired to Munich, Germany.'' He paused.

``I can't think of anything more at the moment. If I do, I'll let you know when I return Earthside next month.'

The image froze and Martin snapped off the PC.

````Earthside''!'' he said, folding the screen down. ``We're going to be hearing that word a lot when he gets back.'

``I think he's been very helpful,' said Yvonne with a reproachful look. ``He must have gone to a lot of trouble to find out about the driver and the doctor.'

``Old guys are always trying to impress young girls,' said Martin.

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They dressed and returned to their bungalow further along the island where Yvonne took the PC to search through the 'Who's Who' file. She read it out as Martin boiled water for tea.

"John David Phillips, born 2026 in Llanelli, Wales. Father Gwilym Phillips, mother Edna Hudson, both deceased. Second class honours degree in Computer Science from London University then worked for IBM on Marsbase. Invalided back to Earth 2051 after a serious accident.

His accident spurred him to patent and build a prosthetic robot for his own use. The radically new design principles involved were refined and deployed in a line of domestic and industrial robots sold by PHILROB Ltd., of which John Phillips was CPO and principal shareholder. Estimated turnover of PHILLROB in 2060 in excess of 50 billion dollars (before taxes).

PHILROB Ltd. is the principal financial backer for the "Eastern Learning Research Foundation".

John Phillips is retired and lives on Key Largo, Florida, where he devotes his life to "Eastern Studies". Unmarried, no children."

'Kee-rist, I never realised PHILRROB was so big,' said Martin, the teapot poised in the air. 'I'm sorry,' he continued, 'carry on.'

'That's all,' said Yvonne.

'That's all?' said Martin incredulously. 'Fifty billion bucks turnover and that's all there is about the bossman?'

'There's a picture,' said Yvonne helpfully.

Martin moved to look at the posed picture of a small dark man with a slightly irregular faintly smiling face, standing by a framework of aluminium struts labelled 'Helper Mk. I'.

'He's said to be a recluse but this is ridiculous!' said Martin, unbelievingly reading the few lines of the biography. 'And before his Mars accident he was just a geek with a crummy second in Compsci! If I write an obit I've got to find out more than that.'

'Yes. It's your big chance. Munich is on the way home.'

'It's winter there now,' said Martin gloomily, pouring out the tea. 'Well, I guess we had most of our holiday.'

'We'll be able to have a much longer one if you can find out something new,' said Yvonne, touching his arm consolingly.

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Seventeen hours later they found themselves on the other side of the world, sitting in a fast clean train heading towards the small town of Starnberg south of Munich, after a quick pause in the city to buy a pair of anoraks. It was blindingly bright in the carriage, partly because of the low angled sun, but mostly because of reflection from the snow.

They got out at the station and from the high platform looked down at the big lake. Petite and sun-browned, Yvonne looked very exotic amongst the large white-faced Bavarians as she hugged her anorak to herself against the icy wind. Martin hailed a taxi which quickly found Humbolt's lakeside villa.

'Not bad for a ex-emergency service driver, even though he was on Mars,' commented Martin, looking round. 'He must have saved up every pfennig of his pay there.'

Mr Humbolt ('call me Al') was at the door to receive them, smiling and clasping Martin's hand warmly. He was about 65, 6 ft. tall, wore a blue silk shirt open at the

neck and had a leather thong around his right wrist. He was bronzed and looked very fit. They were shown into a spotlessly clean room beautifully furnished in the heavy Bavarian style, with tastefully arranged pictures on the wall and two new candles glowing on a gleaming polished oak table. Martin looked around doubtfully and was glad he had brought Yvonne. They accepted coffee.

'It was a long time ago but I'll never forget it,' said Al in a deep voice with an American accent. 'I got an automatic distress call from one of the inter-dome shuttle buses and took off immediately. I found the bus half way between two domes. It was on its side with the roof sliced off and blood everywhere. Peter, the driver, was obviously dead but John had been tossed out. I put him under an oxygen tent and called for back-up.'

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Behind Dome 1 a red sandstorm was twisting and rising. John raised the camera to his eyes but the indicator signalled 'Full'. Damn. He pulled a new card out of his pocket, thumbed the packing off and was about to insert it when the buggy lurched and it fell between the two seats.

He bent down to retrieve it and ... *reality fissured, folding into impossible Escher perspectives. Mandelbrots opened like gaping maws, their multifid interiors twinkling and multiplying in brilliant colours. The smell of newly-baked bread as non-Euclidean cubes twisted and reflected each other to infinity in parallel mirrors.*

*And then all the brain's A-delta nociceptors fired in a silent brilliant flash of pain. A half second respite as mottled purple and green spheres slowly turned themselves inside out and planes slid through each other to the multi-octave rising yet not-rising howl of wideband Shepard tones. A crystal snapping of dendrites parting and pivoting away, axons falling like sleet in a rush of white noise.*

*The curtains parted and for an instant he saw extended reality.*

*Then abruptly a splintering blue scream of pain as parallel pulses from the C-deltas simultaneously hit the somatic-sensory cortex and all neurones fired in one single shattering volley. Open mouthed, eyes starting from his head, his body convulsed in an arc of nightmare agony infinitely worse than anything contrived by the subtle torturers of the Inquisition.*

*The blessed numbness of overload shock.*

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'What do you think caused it?' asked Martin.

'It looked like a laser had sliced off the top of the buggy and taken the driver's head with it.' He made a gesture with his hand across his throat. 'They think John escaped because he had been bending down at the time.'

'A laser? Were there any burn marks?' asked Martin.

'No, and that's what worried the scientists. The metalwork and the plex were just kinda separated and the driver's body was not cauterised - it was still bleeding.' He looked into the distance.

Christ, it must have been pretty gruesome, thought Martin.

'The buggy was towed into one of the domes,' continued Al, 'and I know they spent weeks looking over it, but they never found anything. The rest of us thought it must have been some sorta meteor.'

Martin waited, but Al was silently looking at internal images.

'What was John like?' asked Yvonne.

Al pulled his attention back to the present and shrugged. 'I saw him sometimes, mostly at meals, but I don't think I ever spoke to him. Even then, Marsbase was quite big with about 200 people in two domes. He was a just a small quiet dark guy, something in computers.' He took a fastidious sip of coffee.

They asked a few more questions, but Al knew no more. They absently looked at the magnificent view of the sun setting across the lake, politely declined an invitation to dine and made their way back to the airport. From there a Eurojet to London and then on to the Essex County town of Chelmsford, 35 miles to the north east.

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Frederick Miller, the doctor who had first treated Phillips after his accident, was quickly located at the Chelmsford County Hospital where he was the Chief Surgeon. Martin was rather dubious about setting up an appointment, thinking Miller might not be as willing to speak as Al had been. He was wondering how he could arrange an ambush interview but in the event it turned out to be quite easy as Yvonne knew someone at the hospital.

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At Reception they were met by small dark Petra Davidson, the pleasant staff psychologist who had studied at Oxford with Yvonne. Martin was introduced and the two women chatted animatedly for a moment about mutual acquaintances.

Petra led them along bright corridors faintly smelling of antiseptic and showed them into a small warm darkened room. Lining one wall was a window looking into a brightly lit operation theatre. A form was lying on the tilted table, surrounded by the gleaming white arms and tubes of the remote controlled surgeon robot. The theatre was otherwise empty.

Before them a bulky man with a small beard and dressed in a white smock was sitting between two nurses at a computer console. His head was mostly hidden by a viewer and he was wearing remote control gloves. He said something softly and his hands stopped moving. There was a click and he sat back.

'Right,' he said to the two nurses, similarly attired, 'Sew him up and give him 20cl Acerbon 4. Then into post op. Tell the duty sister I want plus 5 minus 10 percent surveillance limits on blood sugar.' He had a deep voice with a harsh edge.

He slipped the headviewer down around his neck and tugging off the gloves rubbed his eyes with the heels of his hands. Turning round to pick up a cup of coffee he noticed the two visitors dressed in street clothes.

'How did you get in here?' he asked sharply.

'Dr Yvonne Delorn is an old friend from my student days at Oxford. She wanted to meet you,' said Petra rather nervously.

Dr Miller looked at Yvonne, then switched his gaze to Martin.

'My name is Martin Howe,' said Martin, stepping forwards and handing Dr Miller his card. 'You will have heard that John Phillips has had a fatal accident.'

'Yes, I have,' said Dr Miller. He looked down at the card.

'I am writing an obituary ...,' began Martin.

'Another!' said Dr Miller annoyed, tapping his lapel phone. 'I spent half an hour this morning talking to reporters.'

Shit! The competition was moving faster than he had thought possible.

'John was a famous person,' said Yvonne placatingly, 'and he was your patient after his accident on Marsbase. Anyone who knew him that well is bound to be ...' she shrugged.

'Everyone seems to be very well informed,' said Miller, 'but as I told the journalists, the report I made is confidential.'

'We do not ask to see ze report,' said Yvonne. 'All we want is les grandes lignes, how you say ze "overall impressions".' She smiled disarmingly. 'Your report will surely be made public now 'e is dead.' Dr Miller looked at her consideringly and stood up. He was very tall.

'Yes, I suppose you're right.' He said something to the two nurses and turning, opened the door into a small comfortably furnished side room. He gestured to chairs, put his coffee on a table and sat down himself.

Martin laid his PC on the table and inconspicuously switched it to 'Record Voice'.

'I'm not likely to forget him,' began Dr Miller, looking down at his hands, 'When I first saw him isolated in the oxygen tent in Reception he was conscious but shaking, as though in a fever. I thought I would have to restrain him but his wilder movements quickly stopped. I tried to talk to him as his eyes were open but I could see he didn't understand what I was saying.'

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*He fought his way up through a choking clinging sea of warm slime. A gasping breath of cold air as consciousness returned with a surge, pushing him into a geyser of conflicting emotions. He had returned alive but with an overwhelming sense of loss. For a golden moment he had been in the Garden of Eden! Hot salty tears trickled down his cheeks.*

*He staggered as his sensory cortex was battered with a flood of inchoate raw data - multicoloured smells from excrement to flowers of the valley, ringing green flashes resonating hollowly, arpeggios of taste running from sweet, salt, sour to bitter and back. Whorls of time-multiplexed aliasing spectrum-folded retinal images. In one corner, a smooth cold red-orange plasma pumping a hundred times per second. In the background an enormous blue worm slowly expanding and contracting. He cowered back terrified, hormones pumping.*

*Block! Block! Stop! A mental overload snapped and in the hissing silence, he looked inwards and took a deep breath. A calm pool of sensory deprivation, translucent underlit water in an underground cavern measureless to man, slowly flickering light reflected off the rough walls. He forced himself to contemplate it as his racing pulse slowed.*

*Facts. He had visited Dome 1 to replace a monitor. On the way he had seen a wonderful towering red windstorm against the pinkish grey Martian sky. He had wanted to reload his camera but the card had slipped from his fingers. He felt the rough carpet of the shuttle under his hand as he reached down ...*

*And then it had occurred! A glorious sensation of expanded awareness, of freedom, of orgasmic insight before pain struck. End of sequence. Methodically he scanned backwards. All the threads of past life and personality were unchanged.*

He was not mad.

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'We did tests, of course,' continued Dr Miller, 'but there seemed nothing physically wrong. It was like he was in shock except that pulse rate, skin temperature and breathing were rather high. After our tests I remember him laying on the bed still having small spasms in the arms and legs and I almost gave him sedation but after a while he closed his eyes and slept.' He sipped at his coffee.

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He was an electronic engineer not a doctor; he knew almost nothing about his body. But he guessed the myriad feedback loops that control heart rate, respiration, swallowing, blood circulation, pH, etc. etc. were closed and stable. Otherwise he would be dead.

*A sudden irrational moment of mad desperation - alive but blind, deaf and dumb! He was a prisoner inside himself! He wildly sent out bursts of commands - 'open eyes!', 'reach out!' 'Shout help!' and again a tempest of chaotic taste, sound, smells, feelings and images lashed at him. He froze and the data froze.*

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Yvonne asked a question about EEG tests.

'Yes,' he answered, glancing at her. 'We should have, but we just didn't have the facilities. Marsbase had only a small medical group.'

'How long did you have him?' asked Martin.

'The next shuttle from Earth was fortunately already underway. I decided he was fit to travel so he left on it.' He paused, realising he hadn't answered the question. 'We had him just over two weeks.'

'How did his condition evolve during those two weeks?' asked Yvonne. Martin noticed she had forgotten the French accent.

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Cautiously he looked out again and again the storm raged about his head. But this time he was prepared. With a gush of relief he realised he was not blind! He could move his eyes around and see. He was lying on his back in a white room.

But vision had changed. He could only move his eyes slowly. Move quickly and everything blurred as though seen on a monitor with a delay phosphor. But if he held an image, detail flowed in, layer on layer, detail like he had never seen before! A thick richness of texture, discrimination of colour, precision of dimensions.

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'I was expecting trauma but he improved quickly. First the eyes. They moved to follow you, but only slowly. If you moved too quickly he would close them. And the same with his hands. He could slowly find and touch things in his field of vision, but if you moved them more than a fraction of an inch he had to search for them again. The nurses had to feed him like a baby.'

'He knew immediately when I entered his room but it took about two seconds before his eyes swung round to register,' he continued. 'Yes, now I think of it, "register" is a good word. The way his head moved reminded me of the way those heavy mining lasers servo into position.' His pointing finger moved round slowly.

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And the same with his hands. He could move them quickly over the bed coverlet but felt nothing. Stop and the tactiles flooded in: the texture of the fibres, their length and the number per centimeter of the pile. He could even estimate their colour by their relative temperature.

Sounds. Someone was speaking but it was a thin monotonous drone.

A ancient routine was re-activated. A routine written millions of years ago when a distant precursor had first crawled up out of a salty sea. A routine re-run briefly when he had exited from his mother's womb. He began painfully to construct a new hypothesis of perception.

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'We diagnosed brain damage; something delaying the motor control nodes. After ten days or so he was able to get off his bed and walk around, but still only slowly. Slowly and carefully. In fact everything he did was slow and careful. He would sometimes get into a temper and flail his hands around but then he would close his eyes, freeze and master himself. It was fortunate he was still on Mars with its low gravity or he would have hurt himself more as he fell around.'

'Did speech return?' asked Yvonne.

'Not during the time we had him. But if we spoke slowly, he seemed to understand everything we said.'

'How did you know that?' asked Martin.

'Facial expressions and gestures. Some inarticulate sounds. He must have been trying hard to communicate as I allowed an acquaintance to see him over remote and he said he was normally very impassive and not given to gestures.'

'Do you know what happened to John when he returned to Earth?' asked Yvonne.

'I heard he'd gone into a hospital at NASA but I lost contact. It was a long time before I knew that the John Phillips I had attended to at Marsbase was the same John Phillips who started PHILROB.'

A nurse appeared at the door and he looked up.

'Yes, very well,' he said to her.

'One last question,' said Martin as they all stood up. 'Can you think of anything out of the ordinary about the patient John Phillips, anything that marked him as apart from other patients you have treated?'

'Yes,' said Dr Miller immediately. 'He always knew exactly where he was and never misplaced anything. And now if you'll excuse me.' He hastily shook hands and left them, shepherded out by the nurse.

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'So he was physically untouched by the accident that decapitated the driver a meter away and drenched him in his blood,' said Yvonne.

They were lying in bed in "The Tudor Hotel" Chelmsford, after a deep sleep to catch up with jetlag. Martin had just played back the recording.

'It's bizarre,' continued Yvonne, hands behind her head and looking up at the ceiling. 'I've never heard of anything like it. His whole personality was changed by the accident. From a quiet computer engineer to one of the world's leading industrialists.'

'H'm,' said Martin after a while. 'Well, we've collected some information. But I don't see how we can put it in an obit.'

Yvonne turned her eyes towards him.

'I think you should forget the obituary,' she said.

'What? After you persuaded me to call Harold, to break off our holiday, to ...'

'You should write a biography,' said Yvonne. He looked at her. She was right!

'Your holistic right brain,' he said admiringly. Phillips the man was virtually unknown. It would be a much bigger project than an obituary, but with a much bigger professional reward if published. 'It means tracking his life from the time of the accident,' he continued slowly. 'I must find how an ambulatory dysfunctional cripple managed to start up the biggest robot manufacturing concern in the world.'

'A neurotic secretive cripple,' added Yvonne. 'It's not going to be easy.'

Martin looked down at her appreciatively - neither of them had taken pyjamas to Bali and had had no time to buy any since. At journalist school he had learnt of the advantage of a pretty female partner during interviews, but no one had talked of their benefits between interviews.

'I can't do it alone. Will you help me?'

For answer she took a hand from behind her head and ran it through his tousled hair. He lent forwards and gently kissed her on the forehead.

'We must find someone who worked with him and can tell us how he did it,' said Yvonne. 'That may give us a idea as to how his personality changed.'

'And quickly,' replied Martin. 'Those damn reporters are on the same trail.'

'Yes,' said Yvonne. 'Perhaps it would be best if you carried on telling everyone you are just doing an obituary.'

'You're a devious Latin,' he said fondly.

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They decided they must get back to their apartment in Oxford, not only because they were still only wearing light holiday clothes in an European winter, but also because they had friends there who could help them in their quest for John Phillips.

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He was a practical pragmatic engineer. He'd had an accident of some sort which had left him with a damaged brain.

He had found a way to understand speech. In his own terminology, he couldn't understand it "on-line". He had to memorise it and internally play it back slowly. But with his need to think out every movement, he was almost a cripple. At the hospital at NASA he had tried to use the various electrically driven aids to mobility, but they were not intelligent enough - they needed control and his damaged brain was simply too slow. His engineering training told him what he wanted. He felt strange and almost reluctant to think about it. But he must do it. Inside himself all his physical senses had slowed down but somehow become more refined. And he was beginning to see things differently.

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Martin knew someone at the nearby PHILROB plant, and he and Yvonne were getting ready to leave their apartment.

'Who are we going to see?' asked Yvonne.

'Sue Ching,' replied Martin looking through the wardrobe and pulling out his jeans. 'I play squash with her.'

'I've heard of her,' said Yvonne, 'she's one of their top programmers, isn't she?'

'Right. Almost all PHILROB programmers are women. Funny that; something about the female brain being more adapted to programming robots.'

'We do it all our life,' said Yvonne, taking the jeans from him and handing him his dark suit.

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They drove out to the strange mosque-like PHILROB Research building, 22 miles outside Oxford. In the reception hall, decorated to imitate a Buddhist temple, were small groups of Oriental women standing around dressed in colourful saris. They were talking to each other or to business-suited computer salesmen - mostly Oriental too, it seemed. A faint scent of incense hung in the air.

Martin looked around in amazement. He had heard of Phillips's strange predilection for Eastern things, of course, but he had not known how far it went. He was eyeing two small girls, who could have well come from Bali, animatedly discussing a print-out in some fluting bird-like language, when he felt an impatient tug on his arm. Yvonne led him to the reception desk where a humanoid robot clad in a saffron caftan politely requested their business. Another similarly clad robot appeared and conducted them via the lift to a neatly furnished room on the tenth floor, with 'Dr Ching' on the door.

Martin knew that Susan Ching, born in Hong Kong, was about 35, but Chinese girls with their deceptively baby faces always looked younger. There was however nothing babyish about Sue. She was lithe and unsentimental. She stood up and they all shook hands. Martin explained about the obituary they were doing.

'But first,' he began, 'what was your impression of him, as a person?'

'Well, I only met him once, and that just for a moment at the end of my job interview.' Sue had a light voice and lisped 'R' as 'L'. It would have been touching in anyone else but her. 'He apparently spent most of his time alone, communicating with the outside world by computer.' She paused and looked into the distance.

‘Physically he was quite a small man, about 5ft 6, short dark hair with dark steady unblinking eyes that seemed to look right through you. Soft spoken, slow speaking, slow moving, very co-ordinated.’ She paused again.

‘And mentally?’

‘He didn’t come over as a happy man. Introverted, resigned. He didn’t ask me any questions, he just looked at me for a while and then shook my hand and hoped I would be happy here.’ She smiled. ‘It was then I realised I had got the job.’

‘Good,’ said Martin. ‘Now I wonder if you could give us some background information as to how PHILROB started, from the beginning.

‘Just talk,’ he continued, opening his PC notebook, ‘we can check up on any words we don’t understand later.’

\*

He needed an intelligent fast-acting robot to augment his body, and to his surprise he found out he knew exactly how to build one. It was going to be quite a lot different from how his previous mind cast had thought. And he would need a lot of money. But before he could even begin to look for a sponsor he found an unexpected difficulty in his way.

\*

‘Very well,’ she said. She paused to collect her thoughts. ‘One of the biggest barriers to building intelligent self-conscious robots was religious,’ she began.

‘Oh, c’mモン, Sue,’ said Martin.

‘Certainly,’ continued Susan. ‘To develop a new product you need to convince the money-men your idea is going to work. But at that time, we’re speaking of ten years ago, a debate was raging about if an “inanimate computer” could ever be self-conscious. You wouldn’t believe the arguments used.’ She raised a hand in amazement. ‘Whole schools of Western philosophy are based on the uniqueness of human consciousness. Cogito ergo sum. Recourse was even made by one famous scientist to “quantum effects in the brain”.’ She shook her head unbelievably. ‘But the fundamental problem was that mankind couldn’t face the idea that a computer could be as clever as he was.’

‘Yes,’ said Martin, noting the “Western philosophy” and “mankind”. ‘I’ve heard it said the PHILROB computers have self-consciousness, but I’ve never really believed it. Nor do a lot of other people,’

Sue waved her hands around impatiently.

‘That was Phillips’s first contribution.’ She pulled a piece of paper forwards, uncapped a marker pen and drew a thick black line.

‘Imagine I lay out in front of me all the life forms on this planet. Here we are...,’ she wrote “Humans” at one end of the line, ‘and here’s the simplest.’ She wrote “Virus” at the other end. She handed Martin the pen.

‘Draw me a line dividing the conscious from the unconscious.’ Martin held the pen.

‘Between us and the animals?’ he suggested, prudently avoiding drawing a line anywhere.

‘“Us”?’ said Sue. ‘Who do you include in the “us”?’ She stabbed at the end of the line. ‘Homo sapiens, us.’ She slid her finger along the line. ‘Here is Cro-Magnon Person, here is Neanderthal Person, here is some advanced form of monkey whose remains haven’t been discovered yet, here is ...’

Martin put the pen down. She was right - there was no obvious point where consciousness began.

‘You can’t draw a line because they are all conscious to a greater or lesser extent,’ said Sue. ‘As he said in his book, if you believe in evolution you can’t believe

in the unique self-consciousness of humanity.' She slid the paper to one side. 'Here we measure consciousness by the number of feed-back loops,' she said, almost to herself.

\*

Convinced in himself that the project was feasible he persuaded NASA to give him a lump sum rather than a disability pension. He used this to apply for patents which he wrote out in a week.

\*

Martin felt Yvonne stiffen by his side and he knew she wanted to say something.

'And his second contribution?' asked Martin, quickly. He didn't want to get involved in a philosophical punch-up.

'Once he'd got the funds he had to build. He already had a design. I've seen the original patents which were filed by Phillips after he left the hospital at NASA,' said Sue. She touched the tip of the finger of one hand. 'The first group of patents concern hardware implementation of synoptic junctions using lateral inhibition in competitive grouping. That covered the basic hardware.'

Sue touched the next finger. 'The second group cover a set of fundamental adaptive resonance networks in top-down forward-propagating expectation patterns. These first two patents defined the hardware necessary to implement a neural net computer, capable of being programmed by teaching.' Martin glanced at his notebook to make sure it was getting all this down.

She touched the third finger.

'The third group, hierarchically speaking, was a set of self-allocating algorithms to optimise intelligence distribution throughout a mobile self-conscious anthropomorphous robot.'

She looked at Martin's surprised face.

'Of course,' she continued. 'Like your muscles for walking are controlled from your backbone. So you can walk and talk at the same time. You see it in a chicken that can run around without a head.' She thought a moment. 'Yes, John seemed to intuitively know how our brains work and how intelligence is distributed in our bodies and just imitated it in his robots.'

'You talk of intelligence?' said Yvonne in a dangerously mild tone. 'How would you define that?'

Martin flinched. He had taken part in acrimonious discussions with Yvonne's friends on this subject.

'We equate it to data handling capacity,' replied Sue.

Yvonne drew a breath.

'You mentioned money,' interposed Martin quickly. 'Do you have any idea how Phillips raised it?'

\*

He had the patents; he now needed capital. He quickly discovered men with money were very conservative and he had no track record. Finally he found a rich man who had a problem, a problem he couldn't solve with money. John solved the problem and in gratitude the financier advanced him the necessary start-up capital.

\*

'That was before my time,' said Susan. She thought a moment, tapped on the screen set in her desk and scrolled through names. 'Joe McGregor may know. He used to be head of accounting. He's retired but sometimes drops by. I see he's in. Should I call him?'

'No,' said Martin. 'We'll just walk in on him.'

Susan shrugged, scribbled some figures on a piece of paper and handed it over. She talked with Martin a moment about squash, but Martin said the obituary was going to keep him moving around for a while. So Susan just wished them luck and turned back to her terminal.

\*

In the corridor Yvonne turned to him.

'You don't believe that simplistic nonsense?' she fumed. 'Has she never heard of Dennett's work on thresholds in cognitive hierarchical theory? And as for equating intelligence to data handling capacity ...!'

Martin looked at her. She was a different person when it came to her job. Or maybe the superabundance of cute Asians made her over-react.

'Your logical left brain is showing,' he said.

'And that's another thing,' said Yvonne. 'I thought the idea of using programmers from the mysterious East was to make for right-brain, intuitive programming. But after hearing that mechanistic ...'

Martin glanced down at the piece of paper which gave a room number on the top floor. Mahogany Row.

'The robots work. She can't be completely wrong,' he said mildly. Yvonne lapsed into sibilant scornful French.

\*

'Here we are,' said Martin, pushing open a heavy oiled-teak door. They had walked quietly down the carpeted corridor, past a room marked 'Secretary'. A grey-haired, bad-tempered looking man of about 65 was sitting at a desk, writing with what appeared to be a genuine ball-point pen.

John McGregor looked up in annoyance.

'Susan Ching tried to get through to you, sir, but the line was blocked,' began Martin glibly. Mr McGregor opened his mouth, probably to say his line hadn't been used in the last half hour, when Yvonne interposed:

'We're sorry to break in on you,' she said with a winsome smile, 'but Mr 'owe and myself have been commissioned to write an obituary on ze late John Phillips.'

'And as you were one of the founder members of PHILROB, we thought you could tell us how the original capital was raised,' added Martin respectfully.

'Dr Ching is a programmer and has got all her facts wrong. The company was already a viable on-going organisation when I was invited to participate,' he said in a harsh Scots accent.

'Then perhaps you remember something about the initial capitalisation, sir?'

'If you had done your homework, young man, you would know that PHILROB received start-up capital from Hiram Stark of the Stark Foundation.'

'Well, yes sir, I did know that, but twenty megabucks was a lot of bread to hand over to a young guy just out of hospital.'

Mr McGregor's face darkened to hear sacred subjects described in this flip fashion.

'I am not a medical doctor,' he said stiffly, and so I don't know the details but

...

'A medical doctor?!' said Martin. 'What's medicine got to do with it?'

'I thought everyone knew that Hiram Stark suffered from a rare disease and that John Phillips was instrumental in curing him.' That surprised the cocky know-all.

\*

Hiram Stark suffered from Snag's Disease and would be dead in six months. John read up on the symptoms of Snag's Disease and with the help of a medical dictionary and various friendly people on the Web, discovered what was wrong. He

was amazed that no one else had seen it long before. Searching the Web, he trawled through lists of doctors until he found one influential and intelligent enough. He visited him and told him how to cure Hiram Stark.

\*

'John Phillips cured Hiram Stark?' said Martin slowly.

'No, of course not,' said McGregor impatiently. 'He helped a medical doctor to cure him.'

'I don't suppose you would know the name of the doctor?' asked Yvonne carefully.

McGregor looked at the beautiful girl bitterly.

'It was the Nobel prize winner Eduard Legrange of John Hopkins,' he said finally. 'And now if you'll allow me to get on with my work after you so rudely ...'

They thanked him profusely and left.

\*

'Bad-tempered sod,' said Martin in the lift on the way down to PHILROB Reception. 'I bet Accounting could hardly wait for him to retire.'

Yvonne held Martin's arm and shivered. She had recognised the yearning in John McGregor's eyes. Why couldn't everyone be beautiful or handsome? She had thought once of writing a mono-graph on how character is determined by looks, but had abandoned it as being too self-evident and too cruel.

'Can you believe it though,' said Martin, 'Philips the engineer giving advice to a doctor? A Nobel prize-winning doctor at John Hopkins!'

As they passed the reception desk they heard the robot receptionist speak to two men who looked like reporters, standing in front of the desk.

'Yes, gentlemen. Mr McGregor is in. I'm sure he wouldn't mind seeing you.'

\*

They returned to their apartment in Oxford and Martin looked meditatively at John Phillips's 'Who's Who' entry again.

'So what next?' asked Yvonne, sitting beside him.

'Lemme replay that interview,' replied Martin. He prodded a key and they listened to the voice of Dr Ching. When the word 'consciousness' was mentioned Yvonne stretched out a hand and Martin, wrongly interpreting it as the beginning of a protest, leaned over and placed his lips on hers.

'No, idiot,' said Yvonne, pushing him off and scrambling away. 'I mean yes,' she amended, 'it's rubbish. I mean the bit before.'

Martin looked at her.

'Replay,' said Yvonne concisely, pointing at the PC. 'Sue said something about a book John wrote.'

She was right.

'"As he said in his book",' repeated Martin. 'I didn't know he'd written a bloody book. Did you?' But Yvonne was on the phone.

'Sue says it's called "A Fresh Look",' she said. 'It was a collection of controversial essays. He sent it round to a few people in Management but no one was particularly interested so it dropped out of sight. Sue's got a copy. We can download from her.'

'Let's do that right now,' said Martin. 'Two copies.' He rubbed his hands.

'"Rejected controversial essays" - it sounds like just what we need. There's nothing like a book for revealing what a guy is really like.'

The copies hissed out of the printer.

'Right,' he continued briskly, tapping the pages square and putting them in folders. 'The next step is to try to see Doctor Legrange. We can read this lot on the way.'

They were looking up flight times when the phone rang again and this time Martin took it. It was Sue. She sounded nervous.

'I've just been in to see the Director and I was blasted because I gave you an interview without authorisation. Two men from Security were there too and I had to repeat everything I told you.'

'And how did they take it?'

'Relieved, I thought. But there's a complete clamp-down now and just everything must be cleared through Security. Just everything. You understand?'

'Yes, I understand, Sue. I'm sorry you got into trouble because of me.' He rang off.

'Sue says she shouldn't have sent us that book,' he said to Yvonne.

\*

They flew to Maryland and Yvonne called the John Hopkins Medical Faculty directly from Baltimore airport, asking for Dr Legrange. The receptionist, hearing the French accent, put her through without question. But after a quarter of an hour Yvonne was still chatting away in French, immune to Martin's irritated tapping of his wrist watch.

'At six o'clock this evening.' she said at last, putting the phone down and looking slightly pink. 'Professor Legrange was very friendly.'

'Six o'clock?' said Martin.

'He says he has a late seminar,' she said.

'And did you tell him I would be there too?'

'Er, I didn't get round to it.'

'My male over-focussed intuitive right brain is telling me the professor is thinking of having an even later seminar,' said Martin.

\*

Professor Dr Yves Legrange at 45 was young for a Nobel Prize Laureate. Graduated from the prestigious Pasteur Institute in Paris, he was tall and slim with handsome aquiline features, black hair greying at the temples and had been married three times. There was a photograph of him on the wall showing Président Duplessis pinning the Legion d'Honneur to his lapel and in the background a beautiful woman is watching adoringly.

He had virtually ignored Martin and immediately started smiling and talking animated French with Yvonne, who had gone pink again. Only by loudly crashing into the conversation with his slow mangled French was Martin able to get the interview going, interrupting what he suspected to be a dinner invitation, if not worse.

'Yes,' said Dr Legrange, reluctantly switching into English as apparently the only way of stopping the dismantling of his mother tongue, 'Of course I remember the occasion. A man called me at the Institute in Paris, saying he had a friend who was ill with Snag's Disease and thought he would be able to help me cure him. He had found somewhere I was doing my doctor's thesis on this subject.'

'But how could a layman possibly help you treat what was then an incurable disease?' said Yvonne.

Dr Legrange elegantly shrugged his shoulders.

'I was sceptical, but he was willing to travel from America to visit me in Paris, so simple politeness obliged me to receive him.' His glance at Martin implied this was a rarely seen virtue.

'And he pointed out something that enabled you to cure his friend,' said Martin.

'John Phillips was not a medical doctor,' said Dr Legrange coldly. He paused. 'He was an excitable 25 year old and said many things.' He paused again. 'Let us say that in the course of our conversation an idea surfaced indicating an unexplored possibility concerning the infection vector for Snag's Disease. I followed up this lead and after a great deal of further work was indeed able to cure his friend.'

'And then you went on to win the 2053 Nobel Prize for medicine,' said Martin, his eyes open with admiration.

Dr Legrange opened his mouth but Yvonne said quickly:

'I think Dr Legrange means that John acted as a .. a "catalyseur" to bring forth an idea already laying dormant in Dr Legrange's mind,' said Yvonne.

'John's "friend" was the international financier Hiram Stark, wasn't he?' asked Martin.

Dr Legrange nodded. 'Yes, that is so. He was the ideal subject for the new therapy I developed. He accepted its risks as he knew he was going to die in four months anyway.'

'It must be wonderful to be able to save life,' said Yvonne looking up at him admiringly. The doctor raised a hand deprecatingly.

'Especially of someone who can show his gratitude to those who save it,' said Martin.

Yvonne looked across at him coolly.

'He lent John twenty million dollars to develop his first robot,' explained Martin. He turned politely to Dr Legrange. 'I trust he was equally generous in your direction?'

Dr Legrange glared at him. 'He built a new research wing to the Pasteur Institute.'

'So rarely does one see so much unmitigated good flowing from a single act,' said Martin sententiously. 'Did you and John work together on any other projects?'

Fortunately at this point the phone sounded on Dr Legrange's desk and Martin rose, making gestures of not wanting to further disturb. He quickly shook the surprised professor's hand and they left, his arm firmly around Yvonne's waist.

\*

The first robot brain was built in secret to his specifications and he programmed it himself. It was married to the prototype exoskeleton that was going to be John's substitute body. It worked almost perfectly the first time.

\*

'Why did we have to rush off so quickly?' pouted Yvonne, sitting stiffly upright in their rented car in the University car park.

'I only wanted to get confirmation of what McGregor said.'

'You shouldn't have suggested it was John's idea that got him the Nobel Prize. For answer Martin snapped open his PC and read:

'The first director of the Hiram Stark Pathological Laboratory in Paris was Dr Legrange. It was here that he generalised on his cure of Snag's Disease and wrote his prize-winning paper on 'Diversion Pathogens'.'

He raised his head, and looked at Yvonne. 'Meeting John was the best thing that ever happened to him in his whole life.'

Yvonne sniffed.

'You're just jealous,' she said.

'Damn right. I don't want you to see you wife number four of that smoothy.'

She giggled suddenly, remembering.

'A French rapier against an English cutlass.'

\*

John was rich and becoming richer. He tried to improve the computer brain of his computer, but he found he had reached his personal limit. Others would improve the design and make him more money. In the meantime his strangely active brain turned in other directions. He started to think about subjects that had never before interested him. And he came to some strange conclusions. So strange that he wrote them down in a book.

\*

Martin and Yvonne flew on across the States to Key Largo, Florida, where they tried to speak to the staff at Phillips's house, but the servants had been all dismissed and the house was in charge of a private Security service. Nor could anyone help them at Sarasota, the local airport where his Learjet had taken off for the last time. Undecided about the next step, they booked into a motel in Key Largo, bought some bathing costumes and decided to read John's book. It turned out to be the best thing they could have done.

They had walked onto the beautiful white sand beach behind the motel, looking out over the Gulf of Mexico. In the glaring sunlight they installed themselves by the side of an old sailing-boat.

As all the adult bathing costumes were too large for Yvonne, she had been obliged to buy a child's costume. It fitted her but certain important dimensions were startlingly too small. Only Martin's bulky form had deflected approaches from other males on the beach.

Martin read out the titles of some of the chapters:

"Analysis of Art using Information Theory."

"The Salami Technique applied to Teaching."

"Humour and Democracy."

"Conflict Theory in Medicine and Law."

"Some thoughts for medical doctors."

'It was only distributed once,' said Yvonne, looking at the first page. 'Even though Phillips wrote it, hardly anyone read it.'

'How was that?' asked Martin.

'It's a sort of "Engineer's view of ...". Take this first chapter. Sue said the PHILROB engineers know about Shannon's Information Theory but aren't interested in Art. And artists know about Art but don't care what engineers think of it. The same for teachers, doctors etc.'

'So no one was interested,' concluded Martin. He held up the print-out. 'You should read this "Conflict Theory", though. Page 83. It's a neat idea. Under "Medicine" he uses military terms to describe the ways bugs invade the body. By a surprise frontal attack, for example. They try to build up a beach-head quicker than the body can react. Or they slip in as "Sleepers" which are harmless for years and only become activated when the body's defences have got used to their presence. Or they use the Trojan Horse technique where a bug enters disguised as a friendly. All these methods have medical names.' He turned over some pages. 'Ah! But listen to this.' He read:

``Although to my knowledge not yet identified, there is no obvious reason why a pathogen cannot make a feint or diversionary attack on the body to draw off the body's more powerful yet slow-moving defences, in the same way the military try to get an enemy to commit its armour and then attack the weakened defence perimeter elsewhere. If soldiers have thought of this technique and use it routinely, Nature, after hundreds of millions of years of evolution has certainly thought of it too. If we haven't yet identified pathogens attacking in this way, it can only be because we have not looked.''

``And that's what he must have told Legrange,' he finished, looking across at Yvonne smugly. `In fact there's a footnote saying that this method has since been discovered.'

Yvonne's hair fell forwards as she clicked on the PC's keys. `Dr Legrange's famous paper was called "Symbiotic diversion pathogen intrusion in Snag's Disease",' she said.

``The disease first attacks the liver. When the phagocytes and other slow moving defensive cells have been drawn off, the main attack develops in the medulla oblongata (bone marrow)'. He went on to find several more "diversion pathogens".'

She looked into the distance. `It's brilliant. It's called "Insight",' she said softly, `I can hardly believe an engineer wrote it.'

`Right-brain stuff?' said Martin only half jokingly.

`Yes, exactly. The holistic pattern-seeking right brain.'

`And what's this "Salami Technique"?' asked Martin, after a while.

`That's quite different. It's John's name for "Reductionism"; the technique of finely slicing something up into small logical pieces,' said Yvonne. `For instance, in this essay on Teaching he describes how a person goes to school to learn a foreign language.' She flipped through the print-out of John's book, reading out the headings:

- "The school and how it modifies the pathways in your brain."

- "Why learn a foreign language? Men's motives, women's motives. Why be a foreign language teacher? Teacher's motives, male and female."

- "Teacher training. The importance of the nationality and personality of the teacher."

- "The importance of student selection."

- "The teacher meets the class".

- "Teaching methods. Feedback. Monitoring the student's progress. Monitoring the teacher's performance. Use of computers."

``It sounds a bit overcomplicated,' said Martin thinking of schools in his youth.

``The section on teaching is correct enough,' continued Yvonne. `He quotes the three stages of learning, then discusses associative hooks and the desirability of emotional reinforcement.'

``What was that on motives?' asked Martin curiously. Yvonne read a bit and grinned.

``He says: "Men mainly learn a language to give them an excuse to talk to pretty girls".'

``Really. And women?'

``I think girls have a calmer and more rational approach to learning a language. An English girl would probably learn German so she could visit Germany and talk with Germans. She would certainly agree with the Frenchman who said "another language is another soul".'

She looked up in surprise. `That was Lafourcaude!'

`And teachers?' asked Martin.

``Male and female teachers ... are both are tempted by the role of actor, by being able to `show off', but the male is predictably also very interested in the `power' aspect.''

``It's very basic, but he's right.' She carried on reading. `This is very good, very analytique,' she added to herself.

They both read on.

``Hey, how's this for a bit more insight?' said Martin, after a while.

``It has always surprised me that doctors, who have to treat suffering patients rarely have any idea of what their patient is actually feeling. How can a doctor effectively treat a heart patient if he himself has never felt the paroxysmal pain of angina pectoris? Or persuade an overweight patient to diet, if the doctor has never suffered the pangs of hunger? Or handle a patient who has become incapacitated through loss of a limb, or sight, if the doctor is himself whole?'

It seems to me that part of a doctor's training should be passed in an "Illness Simulator". Temporarily covering the eyes to simulate blindness, or anaesthetising a limb to simulate disabling will never carry the emotional burden of reality, but will be better than nothing. Modern medical technology must be capable of allowing other more complex illness, mental and physical, to be temporarily simulated."

Yvonne was listening, wide eyed.

``C'est vrai! He's right! Why don't they?'

``Because doctors are taught to think of themselves as a branch of the priesthood and as such are above such sordid things,' answered Martin bitterly, putting down his printout. `They would probably say they couldn't treat their patients objectively if they were emotionally involved with them.'

Yvonne made a contemptuous noise with her lips.

``They don't have to fall in love with them. If the patients know that the doctor knows how their malady feels they'll have much more confidence in him. I'd rather go to a dentist who'd had toothache than ...'

``Yes. Okay. I'm on your side,' said Martin pacifically. He looked down again. `And just listen to this. It sort of connects up to the `Illness Simulator'. He read:

``On my first visit to America, I incautiously put my hand on poison ivy. I was surprised at the intensity of the itching produced and even more at the ecstasy in scratching the affected part (mainly between my fingers). The feeling of almost sexual relief and warm well-being spread up my entire arm. Of course, continued scratching causes the pleasure to change to pain and spreads the infection. Treatment is to numb the affected area with various creams and wait for natural healing.'

Now it strikes me that here is an unexploited source of pleasure. Imagine a cream which when applied to the skin sensitises it to scratching. And another cream

which is the instant antidote. Or alternatively some electrical device which directly stimulates the nerves in the skin to produce the `scratching poison ivy feeling.'"

`Mon Dieu! He's right again!' said Yvonne. `It happened to me once. When I was fifteen I contracted a ...how do you say?... an eczéma on my arm. The doctor had to put a plaster cast on it because, ah! the pleasure of scratching it!' Her velvet-brown eyes glowed. `Imagine if I could reproduce that pleasure on any part of my body without danger!' She ran her hand up a thigh, rolled over and pressed herself against him. `But I would let you scratch it!'

Martin looked around quickly. It was a Saturday afternoon and there were several families on the beach.

`Jesus, Yvonne,' he said nervously, `we're not in Bali.'

`The sun is very strong. Let's go back into our room.'

\*

Laying on the big double bed sometime later, they carried on reading John's "Fresh Look" and gradually Yvonne was seeing some sort of pattern emerging.

`There's two strands in his essays,' she said. `The first strand is where he uses this "Salami Technique" to dissect things no one has thought of dissecting before. And the second is where he finds a connection between things no one has seen before. "Salami" and "Insight" - those are the two strands.'

`Left-brain and right-brain,' summarised Martin. Yvonne looked at him in surprise.

`Yes, exactly that.'

`I can see the "military technology/pathogen attack" and the "Illness Simulator" as right-brain insight,' said Martin slowly, `are there any others?'

`How about this "Humour and Democracy" essay? He says:

"Democracy has only appeared in multi-racial societies, where everyone thinks differently and the only way to get a decision on anything is to count hands. And in multi-racial societies humour is also needed as a social oil. Neither are needed in homogeneous societies."

Martin thought. Japan, Korea, China, all the Nordic Countries. Homogeneous, disciplined, hard-working - boring. Perhaps.

They went back to reading. After a while Yvonne said:

`This essay on Art. He says - "an Artist is a person who has a feeling in the right half of his brain and wants to communicate the same feeling into my right brain."'

`Yes?' said Martin cautiously.

`He notes our speech centre is in the left brain, so our right brains can't talk - it can only communicate with images or sounds,' she said. `He lists all the difficulties, using his Salami technique. He compares them to noise in a radio link.' She flipped through the essay. `First, the artist might just be incompetent. Secondly, his images might not mean the same thing to me because we don't share the same cultural background, and last, I might not like the feeling he is trying to produce anyway.'

`It's a wonder anything gets through,' commented Martin.

`Yes, he says Art is fundamentally a flawed communication link as the Artist can never know for sure if his message got through,' said Yvonne. She read on a bit further.

`But read this bit on filters in the brain; I don't understand it.'

Martin read, then looked up at the ceiling. Yvonne spoke to him but he didn't hear. Eventually he turned to her.

'It's insight once more! He says we build filters in our brains. Like I have an "oboe" filter which lets me hear only what the oboe is playing in an orchestra.' He waved his hand in the air. 'I'm sure he's right. Engineers call them matched filters. But he points out another property of filters.' He picked up the print-out.

'"If you put white noise, that is all possible signals, into a filter you get out what the filter is tuned to. The filter shapes the noise. Put white noise into an "oboe" filter and the filter output will sound like an oboe."'

'Yes, I see,' said Yvonne. 'But what's this about other people building filters in my mind?' Martin looked around and pointed up at the motel room ceiling.

'Do you see that stain?' he said. 'The one that looks like a pig's head?' Yvonne followed his finger.

'Er, yes. But ...'

'I've just built a "pig filter" in your head. The stains are merely noise.'

'Bon Dieu,' said Yvonne softly.

'He says Abstract Art is just noise,' said Martin. 'What you see or hear depends on the filters you can build in your head. The more life experience you have, the more refined filters you can build.'

'Rorschach blobs,' she murmured.

'He mentions them too. Deliberately no information content. What you see depends on you.'

'It's an insight, all right,' said Yvonne. There was a long silence. Martin sat up on the bed.

'I've been thinking,' he said. 'There's a pattern here somewhere. A rather conventional man 25 years old, quite bright, but no genius, has an accident...'

'An accident to his brain,' said Yvonne.

'Yes, an accident to his brain. Immediately after the accident he was very slow and couldn't speak, but gradually recovers. He needs a prosthetic robot so he just goes ahead and almost single-handedly builds one. He just rides over all difficulties. Money? This financier has money but is sick. Okay, cure the financier (incidentally opening up a whole new field of pathology). The financier lends him the money in gratitude.'

'And then he gets a team together to mass-produce robots. No R&D, just build it like this and I'll program the brain. Like he'd seen the robot already and was just copying it. Like he'd been able to look inside himself and was just copying himself. Listen to this.' He touched a key on his PC and the voice of Sue said:

'John seemed to intuitively know how our brains work and how intelligence is distributed in our bodies and just imitated it in his robots.'

He stood up and opening the fridge took out a can of Coke. He held the cold cylinder in his hand looking at Yvonne. Unusual for him he was embarrassed. He coughed, shrugged his shoulders and said:

'Er, this is kinda far out, but suppose the two halves of John's brain had gotten changed over in that accident. You know, like you're supposed to be able to make a right-hand glove into a left-hand glove if you can flip it over in the fourth dimension.'

'Just the brain? That's impossible!' said Yvonne, 'the blood supplies alone ...'

'Okay, okay,' said Martin. 'Then say the brain stayed where it was but the inputs to each half changed over. Somehow. All the data that normally went to his left brain was switched to the right brain, and vice versa.'

Yvonne sat up and looked at him as though he had flipped.

'Look,' he pressed on, 'the left brain is for logical sequential precise thinking, right? Like a very accurate digital computer with only one serial input. And the right brain is like an analogue computer - approximate, parallel inputs, looking for patterns. OK?' There was a sharp hiss as he opened the can.

'Each brain must have a different personality. The left brain is serious, nitty-gritty, logical, one thing at a time, makes long-term plans, check and recheck. Controls grammar in speech and writing, solves equations, applies design rules.'

He took a sip of the Coke.

'The right brain is quite different. Kinda sloppy, creative, likes to joke, shuffle ideas around, recognises faces and shapes, thinks globally, intuitive, doesn't want to get bogged down in details. The feeling brain.'

Yvonne sat on the edge of the bed and put her hand out for the Coke.

'Imagine what would happen if the digital computer is fed with masses of parallel sense data from eyes, ears, nose, tongue,' he continued, handing her the can. 'It can only handle one channel at a time, but that very accurately. That's gotta be why he slowed down but positioned himself ultra-accurately.' He waved his hand. 'And all the artistic appreciation stuff that normally went to the right brain went to the left and was treated slowly and seriously.'

'The "Salami" technique,' said Yvonne.

'Right. And all the memory-bank data that normally was only accessed by the left brain was available to the right brain. It found all sorts of patterns in it that he had never seen before.'

'That could be why he was so interested in Eastern philosophy,' agreed Yvonne. 'Yoga, tai chi, Buddhism and the use of Asiatic programmers. Dollmann of Princeton says that the mystical, artistic and religious cultures of the East are driven by the right brain, whereas all Western education is verbal education, aimed at the left brain as it is the only one that can talk. She says that our right brain is neglected.'

'Well, John's right brain suddenly found it could talk,' said Martin.

They excitedly flipped through their printouts, finding more examples for each other. But eventually Martin sat down on the bed.

'Yeah,' he said dispiritedly. 'It's all good stuff and it sort of makes sense. "Genius from the fourth dimension". But no one's going to publish that sort of biography without proof, and without his body we have no proof.' They gloomily looked into the distance.

'An instant,' said Yvonne, pointing to Martin's computer. 'You must have data on the Mars Expeditions.'

'Probably,' answered Martin, looking at her.

Silence.

So head down he started tapping on the keys. 'Voilà...', he said, 'The Tenth Mars Expedition.' He turned the computer around so she could see the screen, but she shook her head.

'No, I want pictures. There must be a picture of the one John was on.'

'I guess so,' said Martin looking at her mystified, but receiving only an impatient gesture shrugged his shoulders and returned to the keyboard. He muttered to himself and then:

'Here we are, a group photo.'

Yvonne glanced cursorily over his shoulder.

'Now get that photo from "Who's Who". Put them side by side.'

'Put them side by side? H'm, should be possible ...split screen ... lemme see ..."Store first image in Memory 1 and keeping the second ..."

Martin mumbled some more then:

'Here we go. I had to blow up the one from the Expedition to make them the same size.' Yvonne took the computer from him and held it closely up to her face, looking at it slightly cross-eyed. She handed it back to Martin.

'There you are,' she said.

'What d'you mean "there you are"?'.

Silence again. Yvonne had an irritating habit of not saying anything when she thought something was obvious.

'Okay, okay.' He bent his head to the screen. 'Well, he's five years younger of course.' He looked closer. 'Oh, I see. Some fool printed one of the photos the wrong way round. This little scar on his face is on the right cheek here and in the other on the left cheek.'

'The letters,' said Yvonne impatiently.

Martin looked at the printing on the robot, 'Helper Mk. I'. And on the banner held by two of the expedition members, 'Tenth Mars Expedition 2050'. The letters were all the right way round! He felt a shiver run up his spine.

'Jesus,' he whispered incredulously. 'He did get flipped round. I was right.'

There was a long silence as he tried to blow up the two pictures still more.

'He could have cut himself again and the other scar healed ...' His voice tapered off. Most unlikely.

'John must have guessed what happened,' said Yvonne after a while.

'You're probably right; his new brain set would have helped him,' said Martin.

'And he used his new way of thinking to program his first robots,' continued Yvonne. 'But as the company grew, the Management would learn that the continued success of PHILROB depended on keeping this new way of thinking secret.'

'And so they would try to suppress his "Fresh Look" essays, where he naively explained everything.'

There was another reflective pause. Martin picked up his computer once more and looked at the screen.

'Those two pictures printed side by side will make a wonderful book-cover,' said Yvonne, snuggling up to him.

'And he died in the Bermuda Triangle which isn't going to harm sales either,' added Martin, putting his arm around her shoulders.

\*

Hamilton had been passed to starboard two hours ago. Underneath him was the algae covered calmness of the windless Sargasso Sea with clumps of rotting green vegetation sluggishly drifting northwards in the Gulf Stream. He glanced at the navigator - 32°50' North; 80°42' West. The dash clock showed 14:32. He banked steeply and started a slow gliding descent. None of the missing aircraft had been higher than 2000 feet, and plenty of surface craft had vanished too. The motors hissed, the bright sun shone and it was hot in the small cabin of his Learjet.

Was that it?! No, just a momentary specular reflection from the warm flat sea 1000 feet below. Throttle back, bank and turn, bank and turn, looking down. A glance at the clock - 14:36. Mars would just be slipping into the imaginary line joining Jupiter, Earth and the Sun. Gravity waves sliding into phase, twisting space ever so slightly and approaching resonance. He looked down once more, scanning the torpid sea. A sudden twinkle way off to port, a crinkle, a step in the water and then it was upon him!

The port wing fell away as the stall warning sounded. *Its harsh note ran up the scale, splintered into pulsating slivers, Fourier transforming themselves into intermodulating harmonics as the world split open, spreading like an exotic flower greeting the sunrise. Moiré patterns shimmered on tessellating petals. Cubes slid into each other, everting and locking into impossible shapes. He was surrounded by an enormous hypersphere as reality twisted. To a deep gut resonating organ note curtains drew apart and his nostrils were filled with the odour of fresh bread. He opened his eyes and with profound satisfaction recognised the green constellations studding the sooty blackness of space. Nearby was a blue sun with two planets huddling close. He held out his hands to its comforting warmth. He had been right. And now he had returned!*

The End