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The Tyranny of Numbers

William Spencer

"Quick!"

Dr Helen Furbis sank backwards on to the flat slab of a stone tomb, drawing her assistant on top of her. A light was flickering towards them through the crosses and catafalques of the burial ground.

Amazed, Belmont felt her jerking down his zip, then yanking his jeans to half-mast.

"Hey... steady on!" he protested.

"Shush." She slid a hand over his mouth. "Pretend we're making love." She bit his ear playfully. "Come on."

The Italian policeman swung the beam of his torch towards them as he got nearer.

Two pale female thighs rose from the folds of an upflung skirt. Between them, a slim male pelvis rocked in slow rhythm.

"*Bene, bene*," muttered the policeman. "*Avanti, piu caldo! Forza! Coraggio!*"

He allowed the beam of his torch to linger appreciatively on the glimpse of naked flesh. Then he moved away into the shadows. Let them get on with it, he thought. It was not his job to be a guardian of public morals. But still... in a graveyard...!

After a decent interval, Dr Furbis pushed Belmont off her, and stood up.

"Phew. That was a close call," she whispered, disentangling a dead leaf from her hair.

Belmont searched for the right blend of gallantry and flippancy. Simulated sex with his employer was not part of the normal duties of a postgrad. "The things we do for England," he joked.

"All in the cause of science, my son. This will be a worldwide knockout, if we succeed." She smoothed her skirt. "Lucky I wasn't wearing any. All adding to the realism. It gets so flaming hot in Italy in July, doesn't it?"

Belmont blushed retrospectively. He'd kept his jockey shorts in place, and hadn't noticed how close he'd come to the real thing. But no... his employer's tastes were well known round the lab. They didn't extend to young men.

"To work," she said shortly, as if dismissing an unimportant incident.

Taking the cue, Belmont retrieved his rucksack from behind a tomb. He drew out a laser rangefinder and handed it to Dr Furbis. Then out came two sonar transceivers – squat little devices with parabolic reflectors mounted on sturdy tripods.

He began to position the transceivers on the ground, their dishes pointing slightly downward. Dr Furbis checked the locations with the rangefinder, taking bearings from the corner of a building, verifying co-ordinates from the data on a clipboard.

When they were satisfied with the position of the gear, Belmont retrieved a flat metal box from the rucksack and handed it to Dr Furbis. Finally he took out a dark cylindrical object the size and shape of a dead rat. This he placed carefully on the ground at their feet.

Dr Furbis fingered the metal box, checking the contols. The rat-thing whirred briefly, nosing left and right. Then it scurried forward and began to nuzzle against a leaf-strewn bank.

"Check the readings," said Dr Furbis softly, indicating with a sideways nod of her head the clipboard lying on an adjacent tomb. She nudged the controls, and the rat-thing buzzed as it began to drill its snout into the soft earth.

Soon it had disappeared altogether, and Dr Furbis quietly read out a series of co-ordinates, as they appeared in groups of three on the read-out of the control box.

"That's good," said Belmont. "You need to head three degrees to the right, and down by one degree."

Underground, the mechanical mole was making slower progress, as the earth it tunnelled in became more compacted. There were longer intervals now between successive co-ordinates. Patience was the name of the game.

Belmont ran a finger round the neck of his shirt. "Truly it is hot," he admitted. "Like being in an out-of-control sauna. So why did we have to come to Italy in July."

It was not really a question. But Dr Furbis took it, ever so slightly, as a criticism of her planning. "You know why. We had to have some progress to report to the funding panel by next spring."

"But why Sansepolcro, of all places? Why choose Piero, out of all the multitudinous ranks of the dead?"

"Think of it as a way of celebrating the five-hundred-and-fiftieth anniversary of his death. Some people consider him to be the greatest painter who ever lived. But I value him because he was also a distinguished mathematician. He brought mathematics into his art, you know. He combined both sides of culture. That's why we need him."

"One degree up," warned Belmont. Then, when Dr

Furbis had made the course correction, he asked, "But why couldn't we simply apply for an exhumation? Save ourselves all this hassle."

"Oh, come on!" Dr Furbis was indignant. "You must be joking. It would take months, if not years, to clear that sort of thing with the authorities. There'd be a public outcry. Desecrating the dead, they'd call it. And anyway, all we want is a tiny specimen of DNA. A few crumbs of bone. We're not really disturbing Piero's last rest."

They went on with their task of making minute course corrections, as the mole neared its ultimate target.

"There's something else," Dr Furbis confided. "Piero della Francesca was originally buried in the Badia. That would have made things much more difficult for us. But a researcher of antiquities came across a secret journal, indicating that his body had been removed to this less distinguished graveyard."

"Why?"

"To make way, obviously, for more important bods. The work of Piero was neglected after his death. He was eclipsed by Raphael, and some of his frescos were painted over. "Luckily for us the people who moved him were very precise about the new location. In case of any comeback from higher authority, I suppose."

Twenty minutes later, Dr Furbis had steered the mechanical mole back along the tunnel towards the point where it had first burrowed. It broke the surface a couple of metres from their feet.

Belmont stooped to pick it up. But as he did so a light flashed once more in their faces.

"*Me l'ha fatta! Smettila! Finiscila subito subito!*"

The Italian policeman was clearly annoyed. He realized he'd been duped in some way.

"*Scuse?*" said Belmont. "*Non parlo Italiano.*" He looked sheepish, like a schoolboy discovered in some silly misdemeanour.

Meanwhile Dr Furbis, with tiny movements of the controls, was steering the mole towards the cover offered by a pile of dead leaves. Luckily Perrin, the wayward technician who had crafted the mole, had decided to add a touch of authenticity. He'd given the thing a plushy coat of black velvet. In the poor light, it really did look like a small animal.

Across the gulf of language, Belmont and the policeman stared at each other. A large moth, attracted by the policeman's powerful lantern, blundered round them.

This gave Belmont an inspiration.

"Motho," he said hopefully, jerking his forefinger towards it. "*Insetto.*"

Dr Furbis caught on quickly and came to his aid. "We count. *Contare.*" She waved her clipboard. "*Universita.*" She showed the policeman the crest of arms on the notepaper.

"*Ebbene, non uligani...dall' universita,*" said the policeman, impressed by the splendour of the coat of arms.

He paused. Should he report what he had found going on to his superiors? A tricky question. He was not supposed to be in the graveyard at this time. He had taken a short cut and surprised this couple apparently making love. But something in their manner had excited his suspicion. He had come back to check on them again, suspecting that they might be drug-traffickers or other undesirable characters. But it turned out that they were harmless academics.

The policeman saw the flag stitched to Belmont's rucksack.

"*Inglesi?*" he queried.

"*Si, inglesi,*" said Dr Furbis. She pointed a finger at Belmont. "*Il grande professore. Multo accademico. Multo sapiento.*"

"*Bene, bene,*" said the policeman. He turned to go. Mad foreigners! The "professor" seemed scarcely old enough to have left school. With an assistant, he now saw, almost mature enough to be his mother. Let them get on with their harmless games with moths and numbers!

He trundled off down the path.

More cautiously now, after this disturbance, Dr Furbis steered the mole out of its hiding place.

"Get the torch, and give me some light," she said peremptorily to Belmont. Ordinarily, he would have resented her tone, but he realized that her nerves were taut to breaking point. Much now was hanging on the results of the mole's hidden foray into the charnel world beneath the tombs.

Carefully Dr Furbis snapped open the mole's hinged upper jaw. There in its maw were the yellow fragments of bone, shining like gold-dust in the beam of the torch. With a sigh of relief she closed the jaw and eased the mole into a heavy-duty polythene bag, which she sealed and stowed in a secure pocket of the rucksack.

"Time to go," she said.

They sat on the terrace of the taverna in the velvety Italian night. The oppressive heat of early evening had now moderated, and a cool breeze came from the hills. This would probably be their last night before departure.

Dr Furbis was in a near-euphoric mood as she recharged her glass with wine, and then, after a nod of assent from Belmont, filled his to the brim.

"So. Piero is in the bag, so to speak."

"You were saying about the marriage of science and art – and how Piero managed to encompass both."

"Yes."

"But what about Leonardo da Vinci?" Belmont queried. "Wouldn't he have been a much more notable example of the same aptitude?"

"Perhaps. I tend to think of him more as a high-grade technologist. But you're overlooking one important fact."

"What's that?"

Dr Furbis looked round to make sure no one at the other tables was near enough to overhear, then lowered her voice. "Leonardo's tomb was in the Church of St Florentin in Amboise."

"In France, you mean. But we could have made it to France."

"No point. The grave disappeared during the French Revolution."

"I see. That does create a bit more of a problem."

They sipped their wine. Coloured lights fringing the edge of the loggia nestled in the leaves of an ornamental vine. Beyond the terrace, the valley fell away into impenetrable gloom, with the faint outlines of

the hills picked out against the skyline.

"A month," Dr Furbis mused, "running the computers flat out. Then we should have the complete read-out of Signor P.'s entire genome. Then comes the interesting bit."

"You're not going to try to re-create Piero della Francesca *physically*, are you?"

Dr Furbis looked shocked. "For God's sake, David, keep your voice down." She seldom used his first name. "That's out of the question. We would need a surrogate mother for that."

David Belmont regarded her levelly across the candle flames that formed the centrepiece of their table.

"You're not looking at *me* are you? My womb is off-limits as far as this project is concerned! Anyway it would take far too long. Nine months' gestation followed by 18 years or so to maturity. What kind of a project is that? And who would fund it?"

"Quite. But how *did* you manage to get funds in the end?" Belmont was becoming bolder, influenced by the wine, to the point of indiscretion. "I've heard the Board can be pretty sticky."

Dr Furbis didn't seem to mind the question. "Oh – it came out of the computer graphics budget, in the final submission. I put up the idea that there must have been something very special about Piero, to enable him to blend art and mathematics in such an intimate way. If we could see a hint of that in his genes, we would have a sure-fire way of pre-selecting computer graphics personnel. Then the training funds could be concentrated on people who had an inbuilt aptitude in the first place – as a result of their genetic make-up."

"And they swallowed it?"

"Completely." Dr Furbis paused. "I didn't reckon they needed to know the full scope of the project."

"Which is?"

Dr Furbis took a swig of her wine. "Do *you* need to know?" Her eyes flashed for a second with metallic hardness.

"Oh come on, Helen. You can trust me – your closest colleague."

Still she hesitated. Then the wine gained the upper hand.

"The aim is to make a complete reconstruction of Piero della Francesca – after five and a half centuries. We shall have a full readout of his genome – I trust – in the bone samples. Anything which is lacking in one cell, as a result of decomposition, will be supplemented by the readout from DNA in another cell. In the end we should have dozens of redundant pieces of information – an embarrassment of data!"

"So. You've got the genotype. But what about the phenotype?"

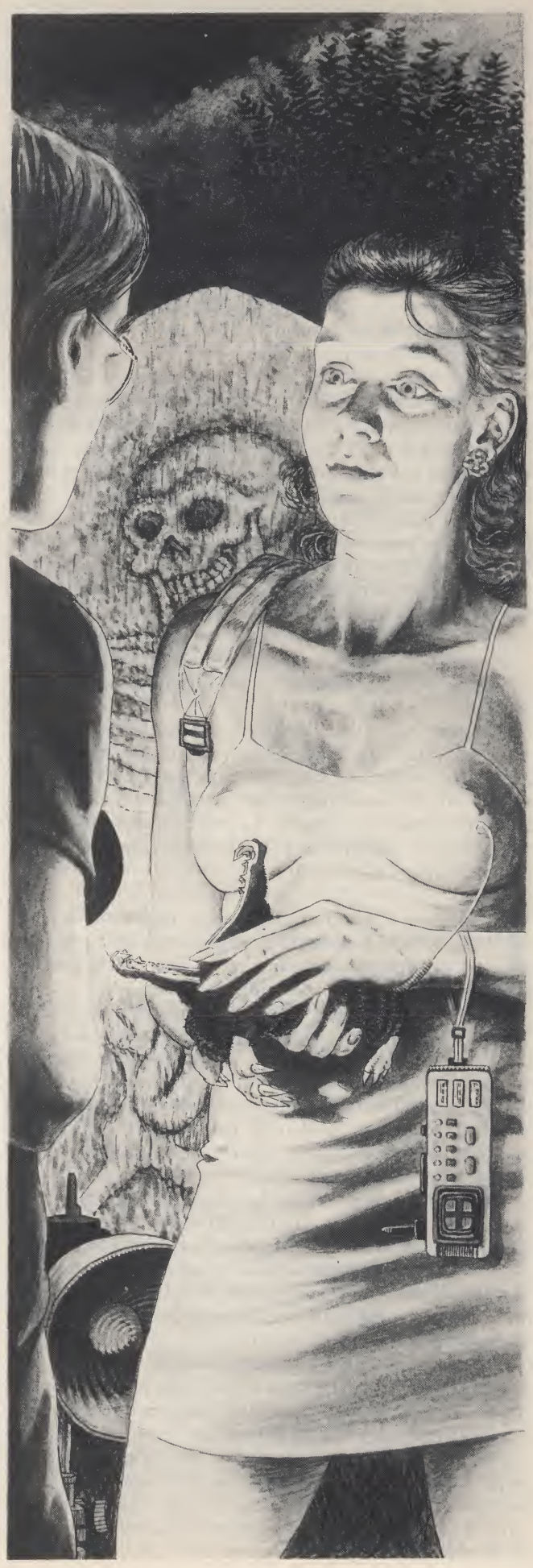
"Think of the standard theory. The phenotype emerges as a result of interaction between the genotype and its environment. Nature is shaped by nurture – to use the old terms. Right?"

"Right."

"So what we shall do – what I've already put in hand, in fact – is to create a complete environment, equivalent to quattrocento Italy, within the computers."

"Isn't that a tall order?"

"No, it was quite easy and straightforward. There's so much documentation and graphic material available



Illustrations by Rob Mooney

already in digital form nowadays. It was mainly a question of selection."

"So you had to turn yourself into an expert on Renaissance Italy?"

"No way. What I did was to hire a bunch of post-grads during the last vacation. These arts types come pretty cheap." Helen Furbis was perspiring now, her face flushed carmine, glowing with the wine and her own burgeoning sense of triumph. "Experts come a dime a dozen. One for Renaissance culture on the visual side. One for 15th-century maths. One for a suitably ancient version of the Italian lingo – plus Latin of course. It was simply a question of identifying appropriate bodies of data, earmarking them to be fed into the computer's memory. Where we had to, we used an optical scanner, which is much clumsier of course. You know that a decent processor will devour the entire *Encyclopedia Britannica* in ten seconds flat."

At the far end of the terrace, an itinerant violinist had begun to saw out a tune, some heart-rending melody from the depths of the Tuscan soul.

Helen Furbis looked at Belmont, across the candle flames. He was not such a bad young chap. Good hearted. Thoroughly trustworthy, otherwise she wouldn't have employed him. Sometimes a bit sluggish and ponderous in his thought processes.

"Only one thing," she said. She was beginning to slur her words slightly. "When Maestro P. speaks..."

"Maestro P. ?" Belmont's eyes had taken on a kind of glaze.

"Signor P....Piero della computer. The reconstructed Piero that will exist within the matrix of neural networks, inside the computers. When he speaks, he'll speak in modern English. We'll make him effectively bi-lingual. I couldn't stand all that struggling with dictionary databases. Languages have never been my strong point..."

It was late when they got back to the hotel. He was surprised when she invited him into her room, on the pretext of sampling some Tia Maria which she'd bought earlier in the day.

Belmont sat uneasily on the edge of her single bed, while she fussed about the room. The wine had evidently changed her nature – plus the effect of the smoochy music and the soft Italian air. Or perhaps the gossip round the lab had been misplaced? But a kind of nervousness gripped him. How do you set about seducing your employer – even if she so obviously invites your advances?

She made it easy for him by starting to undress in a vague abstracted way, then coming over to him and beginning to undo the buttons of his shirt. They were both in a pleasantly relaxed alcoholic haze, the kind of mood when everything seems to be floating slightly above the ground, and people act completely out of character.

But the wine had a predictable effect on Belmont. Before she could get his shirt off his back, or even fully undone, he had slumped down on the welcoming bed and was soundly asleep.

She tucked him up in her bed, and felt gently in his pocket for his key. With this, she let herself into his bedroom. Even in her drunken state she could appreciate the benefits of a sound night's sleep, before they tackled the journey home tomorrow.

The decoding of the genotype went smoothly. The specimens of ancient bone were in better condition than they had any right to expect. Something to do with the acidity of the soil...

Perrin was happy with the performance of his mole. But the handling of the computer environment for Piero proved a worry. It was straining the resources of their computers to the limits. This remained true, even though far less was known in the 15th century – the world was in effect a smaller place then. And that was not simply because Piero's life predated the discovery of the New World by Columbus. There was an entire continent of knowledge which science had not yet dreamed of, much less discovered.

In the event, Perrin had to devote some of their precious funds to buying an additional hard-disk unit, a cool ten terabytes of extra storage, on which the data could be loaded while the phenotype development was proceeding.

He explained to Dr Furbis that, to get the project up and running, it would be necessary to link all five computers together, in order to handle the huge masses of data in real time. In effect, all their available processing power would be functioning as one large computer.

Using this method, it took only six months to reach the stage of the first "run" of Piero.

Of course, the construct within the computers which represented Piero would be shown as equivalent to a mature young man whose education was all-but complete. They were by-passing the baby babble and childish prattle stages of development.

Nevertheless, Dr Furbis thought it best to limit the audience to an inner circle of viewers – herself, Belmont, Perrin and his deputy, and just one other academic – a Dr Scriven on whose discretion she felt she could rely.

Piero appeared on the screen dressed in the finery of a quattrocento Florentine. The buildings in the background had been the graphics handiwork of Belmont. He had done his homework, and they were closely based on the architecture shown in the famous "flagellation" painting by Piero.

Piero addressed them from the VDU. There seemed to be some important truths which he urgently desired to communicate to them. His accent was standard computer-speak. But the ideas he presented were alien to them:

"The world, as the sage Pythagoras has revealed, is made entirely of numbers. Numbers are the substance of the food we eat. They make up the air we breathe and the very ground we walk on. Our bodies are composed of numbers, and our every thought is made of multitudes of numbers.

"You may ask how this can be – since it is solid ground we tread, and palpable food we eat, and our flesh is dense to the touch?

"The later wisdom of Plato laid bare the key to this apparent enigma. The numbers so beloved of Pythagoras may be shown to compact themselves into regular solids - the cube, the tetrahedron, the icosahedron, and so on. These solid forms of perfect regularity are, to the higher mind, of unspeakable beauty.

"Such regular forms, the Master Plato averred, are the very basis of all that is, all that ever was, and all that shall be.

"But because these forms are in themselves so beautiful – they are indeed Beauty Itself made manifest – we may have faith that all that ever shall exist is founded upon Beauty as its very being and substance."

Dr Furbis shifted uneasily in her chair and glanced at Belmont. What utter bilge, she was thinking.

Piero went on, oblivious to any reaction from his audience. "I may modestly seek to add an iota of further insight to the truths revealed by these great sages of the past. I have discovered this: since God Himself is the Highest Form of Beauty, God Himself must be made of numbers. These numbers are of two kinds only, the existent on the one hand, and the non-existent on the other. Therefore God Himself may be said – with equal truth – both to exist and not to exist. And as the numbers pass from Zero to One, and back again, we may see God the Manifest and God the Unmanifest revealed to us – a perpetual coming into existence and dissolving back into nothingness. The eternal process of Creation is revealed, which is the fount and source of endless Beauty."

"Perrin, do we have to go on with this?" Dr Furbis was coming close to losing her cool.

"He's talking about binary numbers," put in Belmont.

"Er, I say Piero, that's probably enough for today." Perrin addressed the VDU. "You have to understand that our minds work slowly, much more slowly than yours. It takes time for us to digest new ideas. Interview is closing now."

Perrin moved a control in his hand, and the image faded from the screen.

"Bloody hell," said Dr Furbis, "I hadn't bargained for all this God stuff."

"Have you read the literature of the quattrocento?" asked Dr Scriven, her elderly colleague, in magisterial tones. "Those who constituted the informed section of the population were as much a part of the Middle Ages as they were firstlings of the modern age."

"I suppose so," admitted Dr Furbis, visibly crestfallen.

"Just think of the paintings. Almost all on religious themes. And of course the pervasive influence of Neo-Platonism. That was just beginning to be felt, particularly in Renaissance Florence."

"He's got the idea that binary numbers are the be-all and end-all of everything," said Belmont. "Don't you see that, existing within a computer, he must think that everything is a stream of binary data."

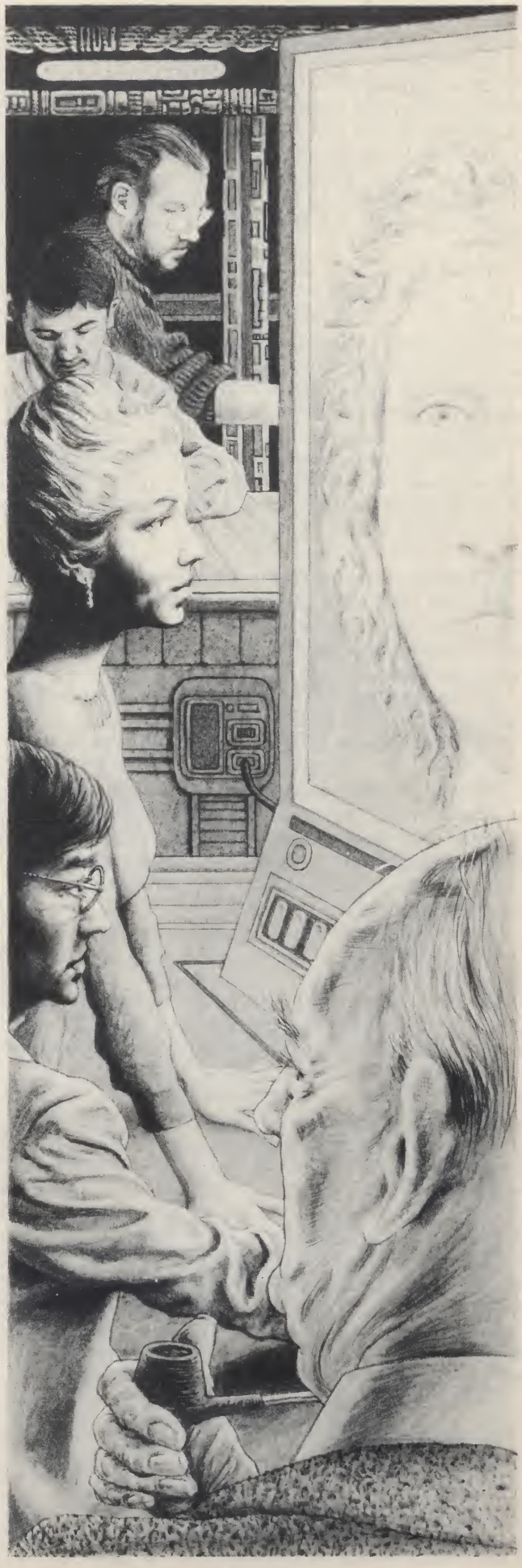
"Jesus Christ," said Dr Furbis.

"No, not so much our Lord and Saviour," said Scriven, who hadn't caught the last remark, lost in some reverie of his own on quattrocento mysticism. "More the influence of Plotinus and other Neo-Platonists. It's all there in the paintings, for those who have eyes to see."

"No two ways about it," said Dr Furbis. "We have to update his knowledge somewhat – and more than somewhat."

She was talking to Belmont after they'd got rid of the other spectators of that first run of the Piero construct. Together they were mulling over the upshot of what they had seen and heard.

"All his ideas are totally out of date. You can almost



smell the thick accumulations of dust on them, the mildew, the centuries of cobwebs."

"But what did you expect, Helen? You've lifted him out of a centuries-old past. I thought that was the whole point of the exercise."

"Maybe. Maybe. But what he tells us now has got to be relevant to the present day. We have the funding board to think of. They're not going to appreciate this Neo-whatsit patter one little bit. Piero has to be dragged – screaming, if need be – into the present century."

"If you say so."

"I do say so. What I intend to do is to arrange for a whole load of new knowledge to be dumped into his memory banks. All the knowledge that has accumulated since Piero's death. Copernicus. Galileo. Kepler. Newton. Darwin. Faraday. Einstein. Planck. The whole shooting match. Not to mention Crick and Watson, our own patron saints."

"You'll give him mental indigestion – or worse. You realize that this could unhinge him completely. Then we'll have nothing to show the Board..."

"We'll have to take that risk."

For the next run, the audience was restricted to just Dr Furbis and Belmont. They decided it was safer that way. They saw now the unwisdom of any premature disclosure of the results they were obtaining.

Dr Furbis juggled rather inexpertly with the controls, and the VDU sprang to life.

"Hello there, Piero. How are things?" she asked cheerfully.

This time, Piero was standing against a background of glass-walled skyscrapers and other identifiably modern buildings. He wore a loose-fitting polo-necked sweater and a pair of baggy jogging slacks. The vapour trails of a four-engined jet could just be seen crossing the sky behind his head.

"This is truly amazing," he said. "I feel as though I have wakened after a sleep lasting many centuries. My mind has expanded to take in the vast scope of more than half a millennium of new knowledge. There are wonderful new insights now unfolded into the nature of matter and the interactions of energy."

"And how do you see the world now?"

"I see all things as founded in beauty still. Everywhere I discern the ordered patterns, at the very heart of all we experience. Everywhere the mathematical intervals, strung out like notes of a well-tempered scale, which govern the inner structure of matter and the ceaseless pulsations of energy all around us. In many ways my views have scarcely changed. The vibrant shells of energy which encircle the nucleus of each atom are at least as beautiful as anything we formerly imagined. They far outshine the crystalline spheres which were once believed, following Claudius Ptolemy, to be poised at intervals around the earth's dull globe, chiming together in sublime harmony."

"Hmm. Many people see these new facts just as facts, not as specially beautiful or unbeautiful."

"But how can you say such things? Physics is founded upon mathematics, is it not? But mathematics is founded upon beauty. Do not mathematicians choose their theories according to their intrinsic beauty? Do they not say, 'This is an elegant theorem, we will adopt this one. This on the other hand is crude, cumbersome, unlovely. This one we reject'?"

"I suppose you're right."

"Science, too, is surely founded upon beauty. Thus we reject Ptolemy's view of the universe. Why? Not because his interrotating epicycles do not correspond to the observations. No. We scorn them because they are cumbersome. We prefer Kepler's ellipses because they are so much simpler, that is to say more elegant, that is to say more beautiful."

"Perhaps you're right. So half a millennium of new knowledge hasn't changed your fundamental belief in the primacy of beauty?"

"You are correct. But one thing is new – very new."

"What's that?"

"I used to believe in eternal verities. Behind the flux of passing phenomena, I thought I discerned a timeless world of unchanging realities. That was the message of the Master Plato. Now all that is swept away by new knowledge. I see the glorious uncertainty of it all. This man Heisenberg really shifted the solid ground from under our feet, in a way that not even Copernicus could do. Now, all is at hazard, thanks to the devastating force of the Uncertainty Principle..."

"Quite, quite," muttered Dr Furbis. "I say, Piero, could you do something for me?"

"Of course. Subject to the whim of chance, which must govern all our existences."

"Could you write me a thesis? Nothing too long – eighty thousand words will do. On the transformation of our knowledge from the days of your past life to the understanding of the present day."

"A huge theme."

"Yes, but keep it brief and pithy, as you did in your treatise on perspective. Good practical stuff."

"Of course."

"Goodbye for now, then."

"Goodbye."

The image on the VDU faded.

Dr Furbis had hoped to see some progress in the first week, but there had been hiccups. Perrin reported that a message had been put out by Piero on the printer, requesting a link-up to all major telephone networks, so that he could access the public databases. A satellite link-up would be useful too. A dish was duly installed on the roof of the building. Piero needed to plumb the depths of all the great libraries, both here and abroad, to assemble the matrix of facts on which the thesis would be based.

By the end of the first fortnight nothing had come off the printer beyond a few introductory paragraphs, couched in the broadest and most generalized language.

"He's using fantastic amounts of computing power," Perrin told Dr Furbis.

"Presumably trying hard to integrate all the information. A bit of a struggle."

"I don't know. He's got a security shield round a whole section of activity. It seems to involve a great deal of satellite communication, with data streams proceeding in both directions 24 hours a day."

At the end of the third week, a terse message emerged from the printer.

"Cannot proceed. Satellite link cut off. P."

Dr Furbis and Belmont stood by while Perrin probed the computer system to locate the cause of this breakdown in communication.

The satellite link was indeed dead, but he got through on the conventional transcontinental phone.

The satellite company's response was clear: "It is our policy to discontinue our service when an account is more than five days in arrears."

Belmont and Helen Furbis exchanged glances. Of course, they should have been monitoring the financial side more closely. But then, it was all routinely handled by the computer system. No one had thought to request financial print-outs on a day-to-day basis.

"We've been paying for the satellite link exclusively out of the project budget, I take it," Dr Furbis said to Perrin. "Surely all the funds can't have been exhausted at this stage."

It was worse than that. Perrin got a readout from the computer.

"Phew!" he said faintly.

The entire finances of the lab were in the red. It was not just the project budget that had gone. The entire kitty had been drained of all resources by Piero – all the monies that were responsible for paying their salaries and the overheads of the Centre.

Colour drained from Helen Furbis's cheeks as she realized the enormity of the disaster. They were broke.

"But how on earth did Piero manage to run through all that money?" she asked. "Even operating the satellite and all the telephone links for 24 hours a day, he'd scarcely be able to. It just doesn't add up."

"Or subtract down, you might say," ventured Belmont.

Dr Furbis glared at him. This was no time for hair-splitting witticisms.

"Get me a full print-out of all financial transactions," she snapped at Perrin.

Concertinas of folded paper began to spew from the laser printer as Perrin fed in the necessary instructions. After a short time they were practically knee deep in the stuff. Then the printer bleeped and stopped. "Out of paper," said Perrin. He went to get a fresh stack.

Dr Furbis, who had been examining a wadge of print-out, held up her hand. "Hang on. There's only about three days' worth of transactions here, but it may be enough to give us the general picture. Have a look at this, David."

The print-out showed an endless stream of sums of money flowing to an address in Las Vegas. At first the sums involved were fairly small, and there was some counterflow of monies in the other direction. Then the sums increased exponentially. They became huge, and the flow was largely one-way.

It was horribly clear.

Piero had gambled away their entire finances. Within the computers, he had found ways of draining off their financial life-blood – and his own – in some crazy scheme he had hatched.

"Get him up on the screen," raged Dr Furbis. "Let's hope there's some rational explanation of all this."

The image of Piero showed no sign of contrition.

"What else did you expect?" was all he offered in the way of apology.

"Don't you realize I had to give myself some kind of enlivening stimulus, some kick of motivation? You failed to provide me with a body, and all the thrills that the body offers to the psyche. As a disembodied ghost, what other form of excitement was open to me?

"And this in a Universe where the Goddess of Nature herself plays dice..."

Dr Furbis gazed wearily at the VDU. "What kind of crazy scheme were you operating?" she asked. And then in an aside to Belmont, "As if it matters now."

"I used an idea from a fellow-countryman of mine. The Fibonacci series. It yields, as you know, a diagram of great beauty, not unlike a sea-shell such as Botticelli might have limned.

"Instead of doubling up on each loser, in the conventional way, I went to the next term of the series. In this way I could sustain a longer run of losers."

"Not long enough," said Dr Furbis.

Somewhere on a lab shelf a stack of discs lies inert, collecting dust on its plastic cover.

Piero lies sleeping, awaiting a further incarnation, after his long oblivion of more than five centuries.

Until funds permit...

Or until another researcher, as bold or as foolhardy as Helen Furbis, looks back over the Centre records, and finds an interesting passage, partially deleted.

It could be a long wait.

William Spencer wrote "Striptease" (*Interzone* 72). For further details of his interesting life and intermittent writing career see the interview with him which follows.
