The Big Byte

Geoff Clynes.

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Staff at Consolidated (A.C.M.) - Seniorities within their areas of duty

John Wragg Information Systems Manager

Ron Wells his just-departed Software Manager Ken Murray the incoming Software Manager

Ken's staff:

Jack Arnold Database Supervisor

Max Hanlon Centre Operations Supervisor

Alex Lacey Network Supervisor

Fred Hart Systems Programming Supervisor

Fred's staff:

Phil Bailey Senior Systems Programmer Lester Bayliss Senior Systems Programmer

Ray Agnew Systems Programmer, recently resigned

Bill Nicholson Systems Programmer
Paul Towner Systems Programmer
Tom Varney Systems Programmer

Henry Chu Probationary Systems Programmer Rod McAllister Probationary Systems Programmer

Alf Rosen Audit Manager

Alf James (AJ) EDP Audit Supervisor

AJ's staff include:

Jenny Atkinson Melanie Hancock

Marjorie Forrester-WilsonCareers OfficerMiles CarsonExternal ContractorMark WestCorporate AccountingMike WilsonDP Centre Manager

1. A Rough Day

Almost 7p.m., Annette was wolfing down the last of what had been a very large bowl of chili con carne, when she heard the front door of their flat rattle. Annette wasn't pretty, she knew that, but she was clever - so good at her job as a systems analyst for Digital Equipment that she could get away with looking like a modern Medusa, even at work.

Surprised a bit by the entry, she called from the kitchen. "Thought you were going to be late tonight, Less. Bad day at the office?"

"The worst! Too bad to talk about the wrong side of a stiff Scotch." Lester Bayliss plodded up the hall, hands thrust deep in his pockets. "What do you say we go out to dinner? Can't stand the thought of..."

He stopped, as he saw the spoon poised over the almost empty bowl. Bad timing, he conceded.

"Rest of the chili will only take five minutes. Anyway, I can't be bothered eating another dinner just to keep you happy. Go drown in the whiskey while I put that chili back on."

It was a very convenient relationship. They'd met at a Computer Society Annual Conference a couple of years ago, discovered common intellectual interests over the two days, and managed with difficulty to meet a couple of times over the next few months.

The "courtship" was a rough passage. Lester was a Systems Programmer for a large Australian public company - one of a team of six highly trained specialists with a lot of standby responsibility. Annette worked with sales staff for a U.S. computer multinational, designing and setting up customer computer systems, sometimes training the more technical user staff with their new toy, then responding to queries while they got going.

Neither of them had any need to travel, except very seldom to professional training courses, usually in Sydney. That wasn't the problem. They missed, both of them, about half of their social appointments because of unpredictable work demands.

Annette lived grudgingly with a succession of customers on short timetables and salespeople on shorter fuses. The current deadline usually won when her preference was dinner with a friend. The high salary was supposed to compensate, but you can't sleep with the money.

So meeting Less, another shy technologist looking mostly for company and reasonable contact, was a breakthrough. At 35 he was untidy, paunchy, drank and smoked too much, often came across as preoccupied or downright rude. Being a workaholic does that to you. She understood, because she was academically aware she shared most of those complaints. So there looked to be a basis for a longer term relationship, with little risk of third- party competition for that kind of partner's affection.

And affection it became. The pair lived in quite separate pigeonholes of the computer software industry, Annette close to the commercial user's needs and wants, Lester to the very complex internal operations of IBM's large computers. They could share ideas for hours about business, society and nuclear disarmament, mostly without ever sharing an opinion but invariably coming to understand the subject in a deeper way.

As to business, Lester didn't know what a "customer" looked like, and couldn't recall having met one. On the other hand, Annette couldn't care less about user exit points or machine cycle times; in fact, she dreaded the thought of fooling with Digital's Operating Systems.

Between his job demands, and her Tender and Bid timetables the two months after the Computer Conference became a kind of emotional torture - a good thing was just out of reach.

So, after the third or fourth broken dinner date, they decided to live together, and did the negotiating over lunch in a bistro in central Melbourne.

Behind their mutual need for some understanding human companionship, there was a cool, rational business relationship. She would move into his Caulfield flat, about halfway between their work places, they'd reimburse a joint account which paid for everything but clothes - in practice, a remarkably minor component of both their budgets, but they agreed the principle was important. There would be no children, and both had to make sure of that. The contract was without term, to be terminated by either party on one hour's notice from the next Bank opening time.

In the two years they'd had a few gruff words from time to time; but both wanted the liaison to work, and it did - admirably. They saw things, people and places that would have been a bother alone, and both enjoyed the chance to share confidences or outrageous personal judgments.

Tonight had better be "give" time, she judged. He hadn't expected to be home before midnight. Since the job was testing, he needed the whole machine, and the West Australian operators couldn't really be kicked off the system until after eight local time. It was supposed to be urgent, important enough to warrant staying there all night to get the job finished. Wonder what went wrong?

No answer on offer. She strolled up to the lounge, suspecting she knew the reason for all the silence. Sure enough, the diagonally-placed body took up most of the spare floor in the snug room, with its arms spread-eagled. Dvorak's music healed a lot of wounds, and the headphones gave a good helping - without having to negotiate volume levels with the philistines who lived next door. Terrace houses have their problems. She pointed to her mouth, and he nodded lazily as he rolled up to a sitting position, rattling an ice cube around the empty tumbler.

Dinner took all of fifteen minutes as his appetite returned to normal. Collecting a plate of cheese and a wine cask from the table, he headed back to the lounge, in time for the tail-end of a TV news broadcast. Annette let the weather girl finish her tightly-packed spiel, before switching her off and loading an organ concerto into the cassette player.

Lester stared grimly at the darkened television screen from his armchair.

"So what's up your nose?" she prodded bluntly. Not much sense trying to be diplomatic until you knew what the problem was.

"Disk broke."

"Not that big new storage disk they just got a few weeks ago."

"Yep"

"You had to test all the driver programs you'd written, the last week of 25-hours days," she tried again to draw him out.

"Well, Ray Agnew did most of the writing. Bastard left before he got the testing started." Back into brooding silence.

"So what happens next?"

"Gonna have to get it fixed"

"I guessed that much. When?"

"Not my job. I only get to work long hours on non-deadlines. If you want the Sto Tec Engineer's opinion he doesn't know either. Doesn't think they have parts for it in Australia yet."

He had gone back to the stirring Bach fugue, but was slowly relaxing, it seemed to Annette, after vocalising the frustration.

"Thanks for the biscuits. Get another whiskey?"

"No," he responded, "I'll just tear into the wine for a while. So what have you been doing this last week. Here it is Friday, and all we've done lately is play musical beds." He was definitely thawing out.

"You missed a good session on computer security at the Society's branch meeting on Tuesday." Seeing his brow furrow with irritation again, she hurried on, mentally cursing her careless reminder of missed opportunities. "The guy works as an independent consultant. He's got a casebook growing of Australian computer crimes, and some of them sounded dandies. No names, of course, and it's surprising how little money changed hands. Most of the big crimes are sabotage, and resource costs, like stolen customer lists. He says all the big ones get hushed up, though."

There was no answer from Lester, but feeling herself on safe ground, Annette decided to explore the tantalising subject further. It had been a very stimulating hour at that presentation, and Lester ought to have a lot of insider understanding.

"Did you know you're the prime suspect?" That ought to bring him back to life, Annette surmised.

"What? Haven't done anything. How do you mean?"

"They looked at what sort of people commit crimes," she supplied, "and some people's jobs give them better access than others."

That was vague enough not to destroy the subject, and she waited as Lester's mind caught up with the suggestion.

"I think I see where you're headed," he murmured.

"He was saying the Systems Programmer has the best chance of all. Strange that you mob do so little with all those opportunities. According to him, your profession is paid to monkey around with the computer's operating system. If you know what you're doing, you can change what you like, add anything you please, destroy any records you don't like. You can dodge the Security systems - that's if you don't already have the highest level Password in the installation. You can even cover all your tracks, ruin all traces you've been there."

Lester absorbed all that, a slow smile starting to wash the signs of aggravation from his face, and sipped at the wineglass thoughtfully.

"So why are we living here in abject poverty and destitution?" Annette persisted playfully. It would be a much more pleasant evening if she could draw him off the frustration of the last week's fruitless efforts.

"Mainly because I haven't worked out what to do with the loot," he offered, picking up the subject with a hint of enthusiasm.

"Do you need any help?" she got in, but the conversation wasn't flagging at all.

"No," he volunteered slowly, "at least, that's not the problem. Those descriptions of the chances available are a bit colourful, but they're unrealistic. You've got to look at the whole job. You probably need a very powerful friend to fence a \$20 Million cheque. Most banks would wonder where it came from. You'd be caught in an hour. Anyway, the Accountants put audit trails all over the place. In a week or so everybody would be wondering where all the suspicious holes came from."

"Holes in the Operating System?"

"Maybe there; more often holes in the program that made those transactions happen, and holes in the library where the backup copies were kept."

"So it could be done," Annette chortled, "and you're missing the point. There'd be a full scale disaster, at home-base, complete with cops and Board members, while you're out in the

slums of West Melbourne trying to fence that \$20 million cheque. You'd never work again! You'd never have to," she mused, "if you found the fence."

"I suppose it's the same as most other big crimes involving a lot of money," he went on. "Either of us could buy a black water pistol, and get a few thousand from a Bank at closing time on Friday. That's only the start, though. You'd probably need a new face, name and address a long way away to spend it."

"There's five million people in Victoria, you know." Annette was enjoying the cat-and-mouse game.

"There's only five or ten could do my job. We practically have an annual reunion at the same IBM update course every so often. I'd have to go to Madagascar, and Heaven knows whether they use IBM computers or Australian bank cheques over there."

"So the gnomes of Collins Street have got you chained to your coding pad for life." It was an intriguing thought, nevertheless.

"Seriously, though, if you really had a fence or something, how could you work a really big swindle?"

"There are literally dozens of ways. That's not difficult at all. Our site's interested in good security, but the Systems Programmers have to have access to everything. You never know where a fault will take you, but you have to get there fast a lot of the time, when Supervisors are often in bed."

"I could run the fortnightly payroll twice, if the Paymaster left the cheque blanks in the Operations area for an hour. It would be childishly easy to pay a non-existent supplier, along with the normal month end accounts payable. With a bit of extra effort, you could even balance several books to delay discovery. Creating a new Cost Centre wouldn't take five minutes, and internal transfers you made out of it could look like corrections of bookkeeping errors."

As he spoke, he saw dozens of operational tasks, the need for lots of "bent" friends, and the final blockage, still, of how to get clear away with the proceeds. Laundering, they called it.

"Well, that lecturer certainly made it sound a lot easier," she said, closing the subject wistfully. "Guess we're going to have to stay penniless. You look like you could use a week's sleep. Coming to bed?"

He'd do better than that. He'd have a four-day weekend, to wash some of the tiredness and frustration away. His supervisor, Fred Hart, knew how unjust the last week's work had been, and would raise no objections or paperwork. There had to be some concession for the long hours and unreasonable shifts. With a good run of luck, the disk might be fixed or replaced by the middle of next week.

2. Peaceful Weekend

The weekend went most satisfactorily - all four days of it - despite the bitter disappointment of Friday evening. The conversation about Security that night had helped to defuse the worst of his bitterness and frustration. Lester was an escapist at heart - had a reasonable comprehensive Sci-Fi library of paperbacks and was working slowly through the collection in the local municipal library, as the spirit moved him. So the chance to talk about pulling off a major subtraction of company wealth had appealed to his sense of adventure. In the final analysis, though, it was a pity he knew too much. You'd never get away with it.

They spent Sunday visiting a couple of picturesque scenic spots in the Dandenong Ranges. It was a pleasant one-hour drive in warm Spring sunshine, with the worst of the forest's dampness no longer underfoot or on every branch as you brushed it, just about gone in the sunshine. Though the Ranges never lost their greenery, they looked and smelt clean and new today, and offered a complete break from computers, technology and deadlines. So the pair did nothing significant all day, chatting with the locals who were keen to welcome the early forerunners of the season's tourist trade. They weren't old friends, but they were welcome, and the day was an excellent diversion.

Last year, bushfires had torn through a big slice of this beautiful region, but those areas were not obvious any more, and might not have existed. Even if the residents there were still fighting Insurance companies almost a year later, there was plenty of virgin territory left for the tourist. Something a little sad there: but not their problem.

The subject of computer crime didn't come up again, but one of the discussion's loose ends began to tickle at the edges of Lester's consciousness.

Monday, after Annette had, not so silently, packed up and gone to work, he let the house calm down for an hour or so, and rolled out of bed to give some consideration to breakfast. She would be home around six-thirty - normal early knock-off timetable. You waited for the peak - hour traffic to abate, and then the drive from the city fitted in well with the ABC's series of current affairs radio broadcasts.

That meant eight hours of relative freedom – or emptiness, if you looked at it that way - to get on with the job he planned. The house's old dining room was dingy and claustrophobic at best, so they'd agreed on some bright, plush wallpaper, the stuff with a furry surface that took a lot of care to hang but looked great. Over the last two weekends he'd filled all the cracks, they'd bought all the material, and two clear days was three times as long as he needed for the job.

They never used the dining room. The kitchen was much more practical as an eating area for a working couple. For recreation, though, some activities didn't fit well in the front Lounge, so they rechristened the old dining room a Study, and today was a start of the setup work.

Sizing the walls needed no deep analytical planning, and so that recurring question was allowed to come to the surface. Annette had noted how effectively he was chained to his coding pad, and he'd agreed. It looked that way, but it was the first time in ever so long that he'd stopped to think about any career considerations.

Was it all done, finished, and complete? Was he planning to work in the continuous school of Systems Programming, forever? Would he create some kind of industry record, retiring at 65 in 28 years as the oldest pro in the business? Never happen: the big IBM mainframe was on the way out, and only a few large companies held on; they were waiting for

the BIG BOX to decay and fall through its own bolt holes, rather than have to re-plan all their systems. Eventually, though, it would happen.

There was a modest bank account, a little over two years of salary, which gave him some freedom, of course. The company would permit him to retire up to ten years early, as well, and his contributory Superannuation would by then be worth maybe \$500,000,, he guessed idly. The current business slowdown was changing things, too - an early departure with full entitlements could be possible - but it was still about 15 years away from that sort of situation.

The work group had been arguing the pros and cons of being self employed, working under contract to a company rather than being a regular employee. That was over a lunch a couple of weeks back, and two of the specialists in Lester's group had been boasting about the tax advantages, and the flexibility of their Private Company status. Others in the group were clearly wavering.

"You've got no imagination, mate."

"Some of us are just risk-averse, and you're it."

The industry had gone that way in very large numbers over the last ten years: more than half of his programmer associates were on contract, and swore by it. One of the big influences was the increasing job mobility of programmers, the logical result of competition for scarce skills. It took an employer a year or more to develop a programmer to optimum productivity, and the result was he/she didn't get a lot of variety. It cost less, because the work was done faster, if the professional was kept in a fairly narrow job stream, the area of most familiarity.

However, it wasn't good for one's career to learn more and more about less and less. One's marketability, flexibility, access to new challenges and opportunities went downhill as the computer industry forged into new fields, in all directions at once. And it was a huge and fast-evolving industry. Accountants, Production, Sales, Marketing and Distribution people all had special needs to be met when they considered using computers - as they did, these days, in every business under the sun.

The demand for good programmers was insatiable. Australia had seen the first predictions thirty years or more ago of impending shortages at all levels of the computer professional fraternity. Those forecasts had been largely ignored, and then they had become reality. The best programmers, analysts, sales people could name their price and almost any employer would accept contract personnel as routine. For some, it was an employee's market these days.

3. Is That All There Is?

He'd finished the wallpapering and reinstated the "Study" by noon next day, and after lunch he decided to call the Centre. No doubt, they'd come looking for him if anything urgent came up, but he'd just about run out of alternative activities anyway. He was ready in his own mind to get back to the job, to start clearing whatever had arisen.

His extra two days of absence had several outcomes, he'd found. The place was a flurry of activity: the disk failure had pulled the veil off the supplier's embarrassing lack of local spare's holdings. Somebody had to be the first customer, of course, but it turned out the sales rep had made some rash promises about support, and his District Manager hadn't actually corrected them, so they were both caught napping in positive thinking territory.

The supplier did a quick, rather public, evaluation of the blow to their reputation, and the rush was in earnest to salvage the situation, on a hastily-revised and almost impossible timetable. The local engineer had been there most of the weekend, trying to find the fault without any documentation. He'd been joined yesterday by his Sydney counterpart and an imported spare sub-unit plus manuals. The tech pair had the disk going (didn't matter which one), just as a complete replacement arrived from the U.S. - just in case - and were starting into the hardware setup procedure.

By tomorrow morning, Fred Hart promised, one disk or the other would certainly be ready for him to start operational tests. Lester noted the deferential tone as Fred went on to ask his opinion on whether they ought to lengthen the off-line test sequence, just to be sure.

"No, I don't see why, Fred" he soothed. "The thing fell over and the Sto Tech people hadn't learnt to fix it yet. Their System Manual is a damned good one, though. I'm very confident there'll be no software problems when the hardware's reliable. We've had a lot of experience (at least I have, he thought) with their smaller units, and it should be clean.

"I got Ray Agnew's work two weeks ago: he'd mostly written the driver, and it only needed finishing off. I didn't have to change anything. It'll probably be OK - unless there's reliability problems left in the disk. A few threats about that wouldn't do any harm, before those engineers disappear."

"You're coming in tomorrow, aren't you?" Fred probed gently. "The engineers are going to stay for tomorrow's tests whatever they achieve on their own today. I'll see to that. We can put it on the line tomorrow night if you're happy, but I've told Operations it should be up for the weekend."

He'd wangled us another couple of days of slack, in case of trouble! Nice job; perhaps the man wasn't a cream puff after all. It ought to go on line-tomorrow night alright, but it was a real novelty to have allowed a couple of spare days after that. Now, wait a minute; I bet Fred's forgotten the other work.

"After we've got on line, who's doing the file setup?" Lester asked.

There was silence from the phone. Then, a few seconds later, "Why?"

"I mean, it's going to be a big, new empty storage area. The system will suddenly know it's there, but it won't have any reason to use the space. It'll be struggling for room still in the Database area, until we shift some of the DB files onto it. Is anybody scheduled to do that?"

"Oh! Yes, that's out of our hands," Fred assured him, now a recollection of the DB group's offer was coming back to him. "Soon as we've finished the system component, Jack Arnold's people will take over. They've got a man studying the work you've done, and they're finished a

review of what files to shift. The man will be on standby tomorrow night, and you just walk away when you've finished. You just hand over to him and you go home. How does the recovery look?"

Friday's tantrum had certainly had an effect. There were standby people of every colour on tap now. He was confident, though. He'd as good as finished the software driver testing last Friday, when the "Bang" came from inside the disk pedestal. The little wisp of smoke looked so inconsequential, but it certainly ruled out any operations. It was the Database people's job, anyway, to relocate the Database files to the new area. They'd been too busy on Friday to agree, but once the problem arose he'd got around to mentioning them, too, in his report. He'd mentioned their supervisors, mothers, fathers and general competence in that dispatch and it had obviously been quoted about a bit.

"What else is going on, Fred?" He ought to know how the rest of the team were loaded, and be aware of any waiting tasks that he might help with at the moment.

"Paul's going to need some help, understanding some patch or other of yours that you did a year or so ago, but there'll be time for that tomorrow."

There'll be time for lots of things, Lester hoped as he dropped the phone. He had every reason to believe he would be finished the testing in an hour or two tomorrow, and then have to wait ten or so hours - until all users were off the system - before he could get the disk assembly connected in place on the national network.

"Stand back, standbys," fondly he pictured himself barking. They'd watch in awe as he studiously ignored the engineers, operators, supervisors and programmers.

Finally: "You can have it now," he'd snap as he headed for the door, the task satisfactorily completed.

It wouldn't be like that, though. They'd all have other things to do. Hopefully, he wouldn't need any help with the disk, but it was an opportunity to raise the subject of promotion, or some other duties just as a source of variety, with Fred.

With all the time spent on it so far, it wasn't surprising he was right about the disk instal. After two hours' work, it was still singing happily, after it had sung for him every song he could think of that was pertinent. The supplier engineers had even brought along a new diagnostic; he'd had a look at its driver routine, and reckoned his/Ray's was simpler in several places.

His supervisor was delighted with progress when he emerged from his weekly Software Manager's meeting at eleven o'clock that morning. Fred was quite happy to push anything else aside for a few minutes to discuss job prospects for a while.

"I'm trying to look ahead a few years, Fred," Lester led off, squirming in the tightly padded office armchair. "It's not very exciting to look forward to another 20 years doing the same thing. There ought to be room for some variety. I thought you ought to have some idea of the options, so I wondered if you'd give it some thought."

"What sort of variety are you looking for, Lester? Do you want to get out of this area?"

"No," Lester assured him, "at least I don't think so. Actually I'm just feeling a bit bored, with one series of tasks, and I think I'd like to break the pattern."

"But you're a specialist - probably the best we've got in your own field."

"So I'm wondering if that means I can't do anything else." The conversation had reached the core of the matter a lot faster than he had expected.

With a thud, Hart recognised that he too had a minefield. The specialist wanted variety, and the company needed efficiency. He might have a No-Win situation here. He could have his best contributor promoted out of the group, and it would take years to replace those skills fully.

Bayliss was his own age -38 - but he'd probably be able to take Hart's job over quite well. The odd blast of temper like last Friday's might stop him progressing far, but it certainly got things done once in a while. Nevertheless, Hart wasn't offering his own job, and Lester was one of the main tools he used to keep that job. It wasn't easy to be a System Programming Supervisor. Without Lester, it would be a damn sight harder to look competent.

The third way to lose this round was to discard Bayliss' dreams outright. The man would pick up a job in days at any one of ten mainframe sites around town. He was good, and gradually the industry came to know it. Competitor staff saw his name as contributor often enough to programs in published libraries. Bayliss was a personage: he was pretty close to free. He could walk out if he chose, and he'd double his salary if he chose to work on contract.

Hart just had to find a compromise, and that would take time.

"Well, give me some idea of the sort of work you'd consider, Lester. How about Sales Support, or Supervisor in the Operations area? It's not going to be easy to get satisfaction elsewhere, when you're so good at one job."

The flattery didn't get him anywhere. Lester had opened the subject, and he knew it wouldn't be easy. They spoke in circles, each waiting for the other to fasten on some concrete possibility, but neither did. Lester wanted the Company to devise a solution, and Fred hoped that if he juggled this problem delicately for a few weeks, it would go away.

Later that day, Fred's subconscious dredged up a better way to handle the risks. The Personnel people were paid to handle career problems.

Initially, the Personnel Director couldn't see the relevance of his Careers Officer to Lester's problem. She was only 25, and a big help with the younger clerical staff, apprentices and operations. He doubted she could help much with an overpaid technologist, but conceded it might be worth trying. An appointment was set up for Lester in the city office next day, and Fred outlined his earlier conversation with Lester to her on the phone.

Then he phoned Lester.

"I didn't get very far with our earlier discussion, I'm afraid. I think my mind's stuck on the present, and it gets in the way of looking at alternatives. So I want to call us in some outside help. There's a Careers Officer on the corporate staff in the City. She makes a living at working out people's strengths and preferences. She ought to able to narrow the field. How about talking with her?" Fred was pleased with the way he had put that. "We" have a problem, and we're getting the best help the Company can offer. This was positive action, and it didn't really matter that the woman and her boss didn't much fancy the idea. It just wasn't their normal challenge, but they had much better qualifications than he had.

Another thing; if Lester Bayliss got sufficiently pissed off to resign, it just mustn't look like Fred's fault.

That visit sounded like a good idea to Lester. There wasn't any hurry with the subject, and a specialist with a current knowledge inside and outside the company would be a breath of fresh air. Back at his desk, he jotted down details of tomorrow's appointment, and made contact with the Database man; the one whose evening's work would start when this was finished. He'd never had someone in the position before. For years and years, he always got the wrong end of the duty roster stick. No wonder the bastards were obliging about time off.

* * * *

Next day, he drove into town with the scent of victory still in his nostrils. That disk had gone in without a hitch, and already he'd dispensed with the other problem, in the best possible way. Paul Towner has copped a query in his absence, about a supervisory routine he's installed a few years ago for Internal Audit, After all this time, it seemed it might be causing trouble. Into

the bargain, Towner was making very slow progress working out what the program did. The documented version was hardly worth looking for, it had been archived so long ago. Lester felt the newer security Software made the whole question obsolete. He doubted that routine was ever used any more, and so it probably wasn't worth trying to fix.

The pair decided to get some fresh air, rather than do the legwork by phone. They strolled to the Central Accountant's Offices to find the reports that were generated by that routine.

Each month, after all the supplier cheques had been raised, the machine reconciled the Payables total from two separate sources, a kind of batch check over the cheque-printing run. A clerk used the reconciliation again on the copy off the cheque printer. That way, no cheques could go missing, either a cheque that should, or a cheque that shouldn't, be there.

The girl who showed them the file of reports assured them that the system hadn't changed, at least not that she was aware. Her boss had somebody else, however, reconciling to a total from another source, unbeknown to her!

The Audit Supervisor took no more than a minute over the problem. "We don't depend on that reconciliation anymore. It's done a different way, so the officer doing the inputs can't fiddle the books either. You can scrap the report, for all we care."

Paul's eyes met Lester's with some elation as they retraced their steps. He liked the occasional job in partnership with Less. The man never hurried, hadn't been caught in a mistake that he knew of, and it was instructive to watch him turn a problem upside down. For instance, this time he's started by asking whether they really needed to solve the problem of several years back at all. They didn't, as it turned out. They could just throw the program out, and save some clerk a useless job each month.

That course of action also removed potential complications from the machine. Every handwritten piece of code carried a higher risk of malfunction than the original system, and any professional in the area felt good about simplifying things. You didn't often get the chance to remove patches and temporary solutions: it was cause for rejoicing when it happened!

On the way in the centre-city office, he got his thoughts straight. There were few jobs like his - the challenge, the prestige, the salary was good, too; it was just that you couldn't live on ice-cream as a solid diet. Now wait, it was a bit too glowing to put his dissatisfaction that way. He'd just like to broaden his activities a bit. There wasn't any need for a big, irrevocable break. Surely the Company could comprehend that, with its more than 30,000 employees.

He didn't get a lot of reassurance from the Careers Officer, though. Whatever she was capable of doing for less mature, less developed careers and people, she was far from encouraging in this case. He had to realise he had a senior position, and a lot of people depended on him. As well as that, there were few in the organisation with such a long outstanding record of productive service. There was always possibility of a promotion sometime in the future, and they talked about people-management for a while.

As they sparred, it became clear what she'd do about any perhaps-suitable vacancies that might turn up. If she had a supervisory position to fill, she'd almost certainly pick an appointee with people-management experience. In the current economic climate, there wasn't as much room for risk, he could see her thinking.

But did she have any constructive suggestions?

Well, he really ought to do a Supervisory Management course. Several of the big Management Consulting firms ran suitable two- or three-day workshop series every three months or so. She'd recommend he be reimbursed for undertaking one of those courses. It might be a

while, though, before he got an opportunity to use that training. They'd just have to wait until a suitable vacancy turned up, ideally in a high-technology field.

On the whole, he was one of the fortunate people, she assured him. Sometimes it was more productive to set out to build variety into your out-of-hours life, than to look for change within. There were just so many things an employer would like to do, but couldn't afford, these days. If he had any specific ideas, though, she'd be pleased to talk about them: any time.

No chance of his getting fresh ideas out of that surly little bitch, he concluded bitterly: she actually resented his wanting a change! It looked like it was going to be his problem.

That's it, he decided on the way back to the Mulgrave office. He'd tried Fred, and he'd given the Personnel bird a chance, and he'd found that they all had their own problems to solve.

It was becoming painfully clear that they needed him exactly where he was, and it was going to be too bad if he didn't like it. They weren't about to help him. After all he'd done for them, all the late nights, double and treble shifts, the lost weekends over the years, you didn't get rewarded for dedication.

4. Perhaps a Protest

The simmering discontent carried a sharper edge by the time he returned to the office again that afternoon. It was almost five o'clock, he had been caught up in the start of the standard peak-hour exodus from the Central Business District, and so found the drive slow and wearing.

Home office wasn't much fun to be at, either. The Accounts staff didn't understand why they should discontinue that balance report - been doing it for years, and it's supposed to be an important crosscheck. He read the caustic complaints on his desk from several sources, and strolled off to find his partner in the cheque-balancing victory.

Paul Towner was feeling just as frustrated. They compared notes over a cup of "plastic" coffee, and mapped out a strategy for return of common sense. Briefly, it went like this.

Their findings had saved the Accounts staff a monthly task; if that saving was to be reversed, dumb as that might sound, then they'd expect the Audit Manager at least to agree, if not to instruct.

Copy to Fred, copy to Audit, and that ought to put the battle ground somewhere else for a few days at least.

Rather satisfied with having moved the storm on, Paul went back to his current problem, and Lester wondered whether to pack it in for the day. Perhaps he wouldn't yet. Just for interest sake, he'd have a look at the more recent Audit software, to see how IBM's bean counters had closed that loophole. It could be interesting to see how they attacked the problem for their local equivalents two or three years back that he had just solved. A different approach often had something to offer, and anyway he didn't have much else to do. In the morning, he'd have to let whoe yer was on the Problem Desk know that he was free.

In theory, nobody was supposed to touch the Security software, so the first task was to get in to it. He used the screen on his desk to sign on to the system. This session, he'd use the special password he'd got from Audit a week or so ago to track down a possible journal error. No problem, he'd made sure it was defined as a top-level access means - go anywhere, do anything -and they hadn't canceled it yet. Normally, they wouldn't bother for a week or two; they didn't have much chance of understanding what he was doing. He would usually tell the EDP Audit Manager himself that there was no further need for it, and then it would be canceled. Probably, if he forgot, the trusting soul would never realise anyway.

This "Auditor" operator designation was deliberately structured to allow password holders to have almost unlimited freedom. They couldn't destroy much, but they had the presumed right to look anywhere they pleased in the dark corners of the computer's huge filing system.

There'd have been other options, of course. When old Miles Carson worked on the site, he never bothered to log off his terminal when he went home, and never locked his office either. After half-an-hour or so, though, the computer would sign the terminal off automatically, because there'd been no keyboard usage. If you took over his terminal as Miles walked out, you usually didn't need a password at all, for most functions.

This wasn't going to be a simple function, though. Miles wouldn't be expected to want to browse in the machine-language areas of the control software. The machine knew, it had been told, and learnt from his work patterns, that Miles didn't ever look at program details, so his password would probably not be good enough this time. At very least, Lester suspected, the System would ask for a repeat of the password every so often; then it would log a Security violation when the "user" didn't know his own password. Then there'd be a fuss in the morning.

Jenny Atkinson was always good for a try, too, late at night, when "authority" had all gone home. She was a damned good Accountant, as far as he could see, but she didn't trust her memory. She always had to write important things down. You could read today's password, and have a pretty good stab at tomorrow's, from the string of words across the top of Jenny's desk blotter. Last time he'd dropped in to get some advice on a Receivables procedure, it had seemed such a silly way to protect her access code. Across the top of the blotter, he'd read:

CAPRICORN AQUARIUS PISCES ARIES

He'd only need to borrow a women's magazine and he'd have Auditor passwords for the next week or so. There wasn't any need for that, though. The System accepted "LESSLEUTH", and he began hunting among the cross-balancing procedures.

After a couple of hours, and tracking down a few file references he had not recognised, there wasn't much else he felt interested in doing.

This new method was a pretty thorough series of checks. It went right back to the Accounts Payable database, and only used the transaction file of payments as a second check point. From one place it derived the value and number of payments due that month. Then it added in the daily files - if they existed - of emergency and special supplier payments, and collated them with the detail of the check-print run. It logged a match as routine, and only reported to the Accounts Department if there was a mismatch. That report, though, was a real gem of precision and detail. Extra, altered or missing cheques were spelt out in minute and historical detail. He'd have taken a month, instead of a week, to find and present all that diagnostic stuff. It was a good scheme, that principle of exception reporting. If you didn't get a monthly report, that was because you didn't need to do anything about the subject. IBM wins again.

Now he could go home, and tomorrow he would fire those memos into the admin system. That old report of his really was obsolete.

As he drove home, the annoyance of that interview with Margery What's- her-name crept back. They owed him, owed him for eight years of presumption, interference with his home life, and they planned to go right on doing that - if he let them.

He could get away with millions, if he chose to, and they all knew he wouldn't. As of today, he felt sure he could get himself a fat cheque out of a monthly Payables run; and once he removed that fancy exception report, they'd take weeks to discover anything was amiss. Maybe he wouldn't call at the Problem Desk first thing. Maybe he'd frighten the bastards into taking him seriously.

"What's that? Did you say something?" He hadn't been taking the least interest in the TV program, a documentary on homeless teenagers. It didn't have any relevance to his situation, and his mind had wandered back to collecting a cheque for a half-million dollars, addressed to him. What a great conversation piece to table at the Tuesday Review in the Conference Room!

"Just wondering whether you'd like to ignore a movie tonight, or half-do something else instead," Annette repeated patiently. Absent friends were a common occurrence in that lounge room, and there was no malice in the jibe. It could well be her turn to be a lousy conversationalist tomorrow night, and he'd cope just as well then as she did now.

"Pick a movie that suits you", he responded. "Couple of interesting things turned up today, and I was just thinking them through. "I need a distraction, though, or I probably won't sleep."

"Yes, it must be over a week since the last disaster out a Mulgrave. Must be dead boring for you. Anything interesting on the go? We had a hell of a busy period up to June 30th at Digital, but I'm in a bit of a hole too now. The post-mortems are over on the sales opportunities

we lost, and I've handed all the wins over to the customers. Got a new revision Operating System for the Personal Computer, otherwise I'd have practically nothing to do.

Would she be a useful "partner in almost-crime" he wondered? Useful, perhaps, but that wouldn't be wise. If something went wrong, it could really be bad. She might say the wrong thing to somebody, and it might look as though there really was a crime. He could finish up with a real chain, and it wouldn't lead to a programmer's coding pad. The risk of getting locked up was not supposed to be part of this deal.

No; he'd have a good look at this possibility, strictly alone. If it looked feasible, perhaps he'd also pull it off – but strictly alone. No sense pulling Annette in; it wasn't her fight, it shouldn't be her risk, and it would be foolish to let her increase his own risk exposure. Later on, everyone could find out how clever he was.

"So you're bored, too," she assumed. "Take a film, any film. We'll see if the outside world can project some novelty into our humdrum lives."

He didn't even remember the name of that movie. So much for that crap about using the movie as an alibi. By the time the program reached the first commercial break, he was thoroughly engrossed in planning the production of a fat cheque for a non-existent supplier. In his mind's eye, he had it all worked out.

He decided to call it plan A: the first step in the project to get serious consideration of his need for a bit of job variety.

He'd have a look at the Accounts Payable history, and pick up the name of some company they regularly paid a lot of money to, a regular monthly recipient of a good, fat cheque.

There would have to be three changes made to be successful. The cheque would have to be printed with the wrong payee, himself. He was sure there'd be a covering letter, with supplier invoice numbers and such like on it. To do the right thing, he probably ought to change the name and address on that, too. Then, finally, there'd be an envelope needing to be addressed. That depended on the procedures of the Operations staff. He really hadn't taken a lot of notice how they did it.

He was aware the Pay Office had its own cheque printer, for the odd "special" salary item that wasn't paid by Bank transfer, which was the normal case. They locked that room while the printout was progressing. That was probably for privacy reasons; not too many crooks would bother stealing somebody else's cheque.

However, if the Accounts people stood over their cheque production too, he might not be able to remove the re-addressed cheque. He might have to let it go through the mail. If that happened, the envelope had better be addressed to him!

Did he need to bother about the letter? He hadn't seen any window envelopes around, so it was pretty good odds the letter and cheque would go inside the same envelope. Then the letter didn't matter - except that somebody might be matching them up manually. That someone would be putting two documents in the one envelope, so they all had to be the same addressee. Otherwise, the whole thing could come unglued at the worst possible moment. There was no way he'd convince people it wasn't a real crime, if they caught the cheque going into the mail.

So the three changes all looked very desirable. He could make those changes in the database, as long as he could be sure where the three printing programs called them up from. If he did it that way, though, there was another danger area. The Payables sequence updated all the Accounts, straight after the cheque-printing run.

They put the cheque details on a magnetic tape, which was another record of payment, as well as the carbon copies of the cheques. Then they ran that same reel of tape under another

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