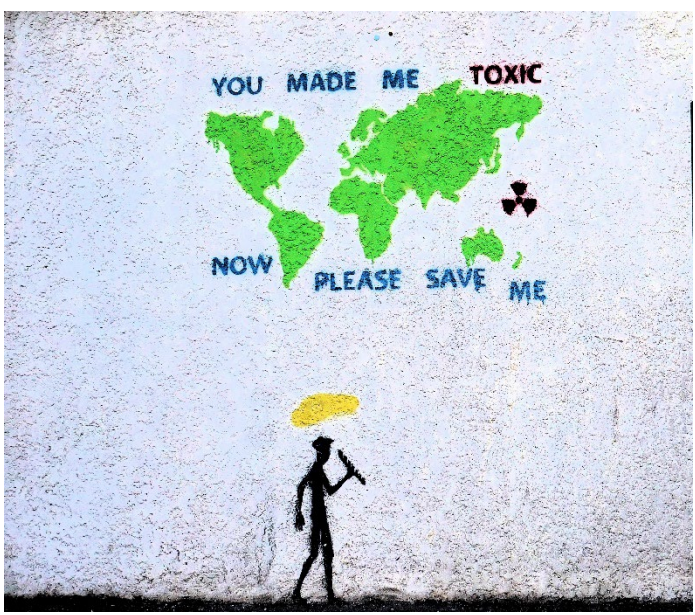
The Stone Scenario



Stephen William ROWE

Acknowledgments:

I would like to express my gratitude to Professor John Fothergill and to Tegwyn Jones, for their patience and their help in proof-reading the manuscript.

Stephen William ROWE

Biography:

Stephen William ROWE is a retired industrial research scientist. He specialises in the physics of ultra-high voltages and currents, electrical arcs and electrical insulation.
He is a Fellow of both the English IET and the French SEE and is author and co-author of about a hundred scientific, and conference papers.
He has studied a wide range of subjects including synthetic composite materials, the ageing of electrical insulating plastics, ultra-high vacuum plasmas, electric and magnetic fields, numerical simulations, Greenhouse gases, highly toxic gaseous decomposition products and finally electricity distribution networks.
An accomplished musician and a prolific songwriter. He is author of seven novels.
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First published in France in 2020

Second revised version, July 2022

Printed in France by: Europrim, Grenoble, France

Dépôt Légal: Biblioteque de France, 2020 and 2022

2nd Edition :
ISBN.978-2-491167-04-2: Paper Version
ISBN. 978-2-491167-05-9: Electronic version

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Cover Illustration: Photo of unsigned Street-Art

Novels by Stephen William ROWE

The "Dr William Stone" series:

1) Bait
2) Hate
3) Agent Vx
4) The Songwriter - (coming soon)

The Stone Scenario

The "What on Earth Could Go Wrong" series:

1) Three Men in a Panic Vol 1
2) Three Men in a Panic Vol 2
3) Volume 3 : In preparation

The "Sarlat" Series:

1) The Salat Quartet
2) The Dordogne Renovation Project

Author's Note:

This novel is placed ten years in the future.
As a research scientist, the extrapolations I make from present situations seem reasonable. However, they may or may not prove to be exact. Time alone will tell.
The technical and scientific information I have used is reliable. At the time of writing this represents the present state-of-the-art.
I have done my utmost to double check all facts. However, if any errors have slipped through, I will update the text should it be felt necessary.

Chapter 1.

One rarely has the opportunity of attending a lecture by a Nobel prize winner. Unsurprisingly, the public had jumped at the chance, and only those arriving early managed to find places. Luckily for me, reporters from the "International Science Digest" count amongst the privileged on such occasions. I thus had a seat in the front row.

The speaker, Professor Ian MacGregor, had granted me a personal interview the following week. All the same, I wanted to see him in action. My experience has shown that the public can be relied on to ask unexpected and sometimes blatantly naive questions. On such occasions, one gets a far better idea of the man behind the reputation.

The Professor was a born communicator, so his speech was enthusiastically received. Moreover, he consistently used terms and notions everybody understood to support his often daring simplifications. As a result, participants invariably left his lectures feeling they understood things that had previously escaped them.

Having summed up, the "questions" session was opened.

The Chairman had shrewdly primed a trusted colleague with a question to get the ball rolling.

‘After such a long struggle Professor,' the man said, 'it must be highly satisfying to have your work officially recognised at the highest possible level. With hindsight though, what advice would you give a young person considering a career in scientific research?’

The professor's face broke into the well-known grin that had adorned so many magazine covers. He burst out laughing and, with his broad Scottish accent, said, 'I'd say, "stop before it's too late". Secondly, whatever else you do, don’t get married.’

The audience laughed and applauded. 'But joking apart,' he went on, 'I'd tell them that if they aren't animated by an all-consuming passion and thirst for knowledge, do something else. The path is long, difficult, and chock-full of disappointment. Poorly paid too.' He paused and looked out across the sea of heads. 'If that doesn't put you off, you might just be made of the right stuff.’ He paused and smiled. ‘Next, and most importantly, interest yourself in everything. Not just your pet subject. Breakthroughs always come from

innovative thinking, combining ideas and knowledge from different subject areas.' He nodded at the audience, then concluded, 'And finally, if you like expensive cars, drop science altogether.'

This statement was followed by a new burst of laughter from the appreciative public.

Next, the Chairman skilfully drew a few questions from the younger, intimidated audience members. They stumbled and stammered them out nervously. Each was rewarded with an encouraging nod, a wide grin, and a friendly reply from the great man.

There followed the inevitable series of politically biased questions, which he sidestepped with the ease of a seasoned public speaker.

Then came the equally predictable remarks about the unprecedented lack of public funding for government-controlled laboratories.

At this, his brow drew down as he listened, and my colleague from “Science Globe” leant over to me and whispered, ‘That’s asking for it!’

I nodded back, and we waited.

With a flash of the old highland fighting light in his eyes, MacGregor drummed his big hairy fingers on the rostrum and glared.

‘Aye, maybe. Maybe.’ He nodded, ‘But some say that scientists who waste valuable time and energy grumbling are the ones with little to contribute to science anyway.’

Silence fell in the auditorium as each person did his best to appear innocent of entertaining such petty thoughts.

‘The ones with their noses to the grindstone,' he continued, 'the ones wrestling with science at the very edge of present knowledge have no time for grumbling. Science is a tough taskmaster,’ he nodded. ‘You'll find big discoveries are rarely made by people who grumble about lack of funds. They're made by those who shrug in the face of adversity. The ones who find ways around the difficulties and get on with the job.'

This cooled the atmosphere considerably.

The Chairman coughed, 'One or two last questions,' he said. There followed several over-asked and rather sad questions dealing with the environment.

These were inescapable because the public assumes that a Nobel Prize winner knows the solution to all the world's troubles.

Once more, he surprised everyone by saying something completely unexpected.

‘Most of you have heard that song by Amy Winehouse, “Rehab”.’

There was a rumble of voices and a nodding of heads.

'Well, someone wrote alternative Lyrics to that song. You might like to ponder these.’

He paused, ‘The first line is, “The Planet needs to go to Rehab”. Clever that, I thought. And this is how the chorus goes.' And he went on the amaze everyone by quoting in a deep, rumbling, melodious voice:

“Speculators are not concerned,
Where profit comes from, or how it’s earned.
But believe me, they’d clean up this mess
if they could make big money in the process.
As we can’t run away,
let's think that out because we have to stay.”

He looked around the amphitheatre once the applause had died down. ‘Well said, don't you think? So, what if we were to offer payment for every ton of rubbish cleared out of the oceans.'

He paused and looked around the hall, 'or from anywhere else for that matter. You can bet your last euro that thousands of companies would be clamouring for concessions.’

He nodded, '"Think it out". That's sound advice.'

There was a rumble of agreement,

'In one of the verses, the guy wrote,' and again he quoted;

"The scientist said, 'trust in me.
Time's run out; can't you see.
The lobbyist shook his head; 'money, dear,
is what life's for. Just sign down here.'
'Profit,' he smiled, 'makes businesses grow.'
'That environmental crap is just for show.'" 1

He drew himself up and looked out across the expectant audience.

'Not nice to hear, eh? But unhappily not all that far from the truth, I'd guess.'

He looked over at the Chairman to ensure he wasn't going too far. The latter nodded encouragingly and smiled at him to continue.

'Now, imagine that each country was to allocate as little as 0.05% of its budget to a "global-clean-up" fund,' he continued. 'That way, we'd have more than one hundred billion Euros to play with. That's a hundred-thousand million

[1] See the last page for my full song lyrics.

Euros in everyday terms...' He paused to let this figure sink in, then, with a wry smile, added, 'every year of course….'

The audience waited, some perched on the edges of their chairs.

'If,' he continued, 'the desire of securing a slice of that cake doesn't trigger a bit of enthusiasm, then I have sadly misjudged my fellow man.'

He looked around the hall, 'That's a pretty big number.' He paused, 'About two hundred million euros for every person in this hall today... every year...'

He smiled over at the Chairman, who was getting to his feet to close the session.

The man turned to the Professor and nodded, 'So I suppose, professor, it's a question of "Stop complaining and get to work".'

'Exactly, Mr Chairman. If you'll allow me a concluding remark….'

The Chairman knew Professor MacGregor often kept his most reactionary remarks until the very end.

'Go ahead, Professor,' he smiled, chuckling to himself.

'I'd like to invite everyone to ponder the following,' said the Professor. 'If we humans won't look after the planet and its environment

properly, why should we expect the planet to look after humanity.' He nodded to the audience.

'Put yourselves in the planet's shoes for a moment.

Would you consider humans a valuable asset in the overall scheme of things?' He nodded, gazing around the amphitheatre. 'Or would you perhaps think they were a rather troublesome and expendable life form?' He gazed across the expanse of upturned faces, 'Think about it.'

The Chairman thanked everyone, and I stood to leave once we had finished our applause. As I did so, the Professor caught my eye and winked.

I left him as he stepped down into the crowd and was swallowed up by reporters and selfie addicts.

Chapter 2.

The days following the Nobel Prize conference were fully occupied by the laborious job of correcting my latest novel.

As I plodded on with the task, time slipped by, and inevitably the details of the conference gradually faded into the background.

However, one sunny morning, the postman rang my doorbell.

He handed me a thin, registered envelope to be signed for.

This bore an Edinburgh postmark, and all I found inside was a short, hand-written note from the professor.

“Will have to postpone our meeting; sorry.’ he wrote. “Unexpected meetings with the PM take precedence, I'm afraid. As compensation, I've engineered you an exclusive invitation to visit the “Atlantis-II” deep-sea mining facility in the Red Sea. As you’ll remember, the site is roughly mid-way between the Saudi Arabian coast and Sudan,100km off Jeddah." The note continued,

"You'll be receiving official notification from the site manager, including a complimentary plane ticket. I strongly recommend you accept the invitation. I think it'll make an excellent article, and you'll learn a lot that might be useful later. We'll meet up after that if that's all right by you."

The note was signed, "Ian MacGregor".

There was a postscript, "PS: You won't need your swimming trunks. The mining is on the seabed, two kilometres deep. Hydrothermal vents keep the water down there at 65°C. A bit hot for bathing...".

I sat down and pulled out my well-thumbed "Readers Digest" atlas.

Having located the place, I nodded to myself, remembering an article I had read about the tormented progress of this project. I then phoned my contact at the "International Science Digest". She agreed to commission an article on deep-sea mining, so that was that.

Except for a familiar face at the drinks counter, the business-class waiting room at the airport was empty when I arrived.

The man turned as I entered and frowned. 'Oh hell!' He groaned, 'You're not covering the Sudan pipeline business, are you?'

It was my colleague from the "Science Globe".

I shook my head, 'No, don't worry,' I laughed, 'I'm doing a bit on the deep-sea mining off Jeddah.'

'Thank God for that!' he sighed, 'if I don't put in an exclusive paper from time to time, my desirability as a reporter tends to drop off a little too fast for comfort.'

'What's the deal with pipelines then?' I asked, 'Is that the "Great Nile" one?'

'Yeh,' he nodded. 'Repeated breakages. The official position was sabotaged by the Nuba Mountain rebels, ' he said, 'but they've had to drop that angle.'

'Ah!?' I frowned as I helped myself to a drink. 'Why's that?'

'They had another breakage last week and a big spill not far from Khartoum,' he sipped his drink. 'It just happens that a military patrol was not far off when the alarm went up.'

'And they didn't catch anyone?'

'No. But they'd have liked to blame those rebels as usual.'

I nodded. 'Yeh. Covering up for the poor workmanship done by cut-price contractors by accusing saboteurs. That's standard practice. So, what happened?'

‘Unfortunately for the minister, the patrol was escorting a group of South-Sudanese officials to view the new refinery extension.’

‘But,’ I said, ‘Not a rebel in sight...’

‘Exactly. So they have to look elsewhere for excuses this time.’

I smiled at this. ‘What happens to all the crude oil that leaked out? Must be thousands of litres.'

‘Thousands!’ My colleague from the Globe shook his head sadly. ‘if it were a question of a few thousand litres, nobody would bat an eyelid.’

'The clean-up job must be pretty messy then,’ I said.

'That's the sort of topic I avoid,’ he smiled, ‘I’ve enough on my plate with the technical stuff without having irate state departments breathing down my neck. I leave that sort of question for environmental agencies and activists,' he smiled. 'I’ve heard that their cub reporters aren’t sent out into the field until they’ve won their Ju-Jitsu black belts. I haven't even got a white one, and I like a quiet life.'

I laughed, ‘so?’ I asked.

'I'm told the local specialists think a sort of geologically triggered mechanical resonance is at the bottom of the recent failures. So they've

called in some big names, and there's to be a press conference. Invited reporters only...'

'You mean that seismic activity sets up vibrations in the pipe, and it shakes itself like a mad snake?'

'Exactly. And remember, that pipeline is nearly a thousand miles long, so all sorts of things are possible.'

I nodded, 'Yes. Interesting, that. Not simply thermal expansion then, or solar-storm-induced electric currents? That happens sometimes.'

'No. That was ruled out months ago. Why don't we sit over there?' he nodded across the room. So we strolled across to the armchairs and settled down to wait for the plane to be announced.

'So, you're writing up the Red Sea trouble then,' said my colleague.

'Trouble?' I frowned. The professor hadn't mentioned any trouble. I wondered why. Interesting that, I thought.

'Not your angle then?' he smiled.

'Come on,' I laughed, 'out with it.'

'Well.... Environmental activists have been giving those guys trouble from the very outset of the project. So far, they've stopped the mining operations twice this year.'

'Really? Well, I hope they don't mess up my visit.'

My colleague smiled, 'Might do. Good for the article if they did, too. Add an extra bit of background colour, a good selling point.'

'Maybe,' I laughed. 'I'm all for a bit of excitement. As long as I'm not ditched into the sea in the process.'

My colleague frowned, 'That can't be ruled out. Anyway, the water's not cold.'

'Deep, though.'

'Yeh, pretty deep. If China hadn't been unfairly blessed with a quasi-monopoly of some raw materials, we'd have left the oceans alone.'

'Maybe,' I agreed, 'but that justification is only used as an excuse nowadays. Once investors realised the fortunes there were, just lying down there waiting to be brought up, it was unstoppable.'

'Yeh,' my colleague nodded. 'I heard that manganese, copper and nickel estimates in the Pacific Ocean are well above twenty trillion euros.

I shook my head, 'I always have trouble grasping what more than a few million euros really means.'

‘OK, just tell your readers that that’s twenty million, million euros.’

‘That’ll help them a lot,’ I laughed.

‘There’s plenty of gold, silver, zinc and cobalt, lying down there on the sea floor, too,' He smiled. 'And just about every other metal you can think of, including lithium.’

'Ah!' I frowned. 'Lithium. People don't realise just how strategic Lithium has become.'

‘Maybe.'

‘Cobalt too. You need kilograms of that for high-power battery electrodes’

My colleague took out his phone, cast a quick look at the screen and replaced it in his pocket. 'For the moment at least,' he said. 'But if the latest research on battery technology is confirmed, Lithium-Ion batteries will go out of the window. Then the whole pack of cards will be reshuffled,' he smiled. ‘Again.'

'Yep. In the meantime, all that stuff is lying on the seafloor, waiting to be picked up.' I added. 'And the crude-oil economies are desperate to find new sources of income for the post-oil period. Those guys know that if tourism is all they'll have left, they'll have to seriously tighten their belts.'

My colleague shrugged, ‘that’s their problem. By the way, I suppose those ore deposits are outside territorial waters,’ he nodded significantly,’ so anyone can pick up the contracts to mine it.’

'No,' I shook my head, 'not in the Red Sea. The maritime limits go right out to the middle if my information is correct.'

‘I didn’t know that. So, it either belongs to Saudi Arabia, Sudan, or Egypt. No international waters at all then?’

‘Exactly. There’s also a bit belonging to Yemen.’ I smiled, ‘so they can do more or less what they want, with little risk of the Chinese or Americans barging in and cornering all the contracts to mine the stuff.’

‘Are you sure about that?’

‘More or less, but not enough to put it in writing yet. That’s one of the questions at the top of my list.’

‘But out in the middle of the Pacific, they’re all international waters,’ said my colleague.

Yes, and so it’s the “International Seabed Authority" who grants the mining rights?' I nodded.

‘Christ...’ he frowned, 'The pressure on the guys at the top must be incredible.'

‘That’s why they’re paid so much.’

‘Yeh. I suppose they have to be paid more than the standard international bribe rate,’ he smiled. ‘I wonder what that comes to nowadays.’

‘You’d have to check that in the latest edition of the “International Businessman’s Bribe Handbook”,’ I laughed.

At this moment, our plane was called.

By mutual agreement, we sat separately so that we could read up on our respective subjects during the flight. We were both flying via Dubai. So we would spend the night at the International airport hotel together and have plenty of time to continue our chat over dinner.

The following day, I flew on to Jeddah, where I was picked up at the gate and transferred to a waiting helicopter.

I was informed that my host was already on the mining platform we'd reach in about thirty minutes.

I used that time going over my notes and the questions I needed answers to. I only looked back down at the sea when the pilot informed me that we were approaching.

Its surface was dotted with dozens of boats and several tankers. Either approaching the mother ship or heading coastwards.

I had been expecting to find the waters murky with mud from the deep-sea excavations but was surprised to see it sparkling just as brightly as ever. This observation made me reflect that I had perhaps allowed myself to be unduly influenced by the never-ending flow of anti-mining propaganda. Organisations on both sides of major topics like this, invariably manipulate us daily with their misleading phrasing. They often favour sentences beginning with wording like, "many specialists now believe that..." or "It is generally accepted that..." or, "recent studies seem to confirm that...",

This is an old dodge aimed at confusing the reader and tricking the non-expert public into giving undue credence to the writers' point of view.

I suspected that even some respected research labs play a similar game of manipulation. By subtly supporting a sense of uncertainty, they minimise the probability of someone questioning the usefulness of their state funding.

Deep-sea mining has always been a sensitive topic, so I knew I would have to stay on my guard. Above all, I'd have to insist on solid proofs for any facts that my host might advance. I was certainly not going to allow myself to be manoeuvred into drafting a biased paper defending the interests of the stakeholders of this multi-billion-euro enterprise. So, I'd need to carefully double or triple-check everything before publishing.

As soon as we landed on the mothership, I was helped down and led across the landing pad to a heavy metal door.

The helicopter took off again at once, but as it left, I realised that most of the noise was, in fact, coming from elsewhere. The air was full of a roaring sound and the very decks vibrated under my feet.

My host, an Australian, was impeccably dressed in a dark grey suit with an expensive sky-blue silk tie. All this seemed out of place here on this noisy vessel.

'A bit noisy, I'm afraid,' he shouted, 'That's the pumps.'

I nodded and followed him into the central control room.

This vast room was humming with activity. The floor space was filled with computer-covered

control desks, each with a visibly harassed engineer behind it.

'Let's go and take a look at a mining tractor,' he smiled, 'they brought one up for refurbishing yesterday. You're lucky.'

I followed him through a second heavy iron door and onto an open-air platform.

'Christ.' I exclaimed.

'Yeh. Pretty impressive, isn't it.'

Above me loomed a giant pale-yellow machine as big as a house. The frighteningly massive grinding wheel measured almost three metres in diameter, six wide and sported a fearful array of colossal tungsten teeth.

'A bit like an outsized garden rotavator.' He nodded, 'Nearly a megawatt of electric motor power.'

'Hell,' I gasped. I hadn't been ready for this and hadn't realised just how big these machines really were.

'They took years to design,' he shouted, 'to start with, the pressure down there is nearly two hundred atmospheres. If that wasn't enough, the water temperature is around 70°C,' he nodded. 'There are even some hot outlet vents where it reaches 350°C,' he nodded happily to himself, 'takes some doing.'

I nodded, suitably impressed.

‘Water boils at nearly 370°C at those pressures,’ he added, ‘but being a scientist, I suppose you knew that.’

I hadn't thought about that point but nodded, all the same, 'of course.'

‘You can take photos if you like. No restrictions, but I’ll give you a USB key with some good ones we had taken by a pro. You choose which you use.’

‘OK,’ I said, ‘I’ll take a few, just to help my memory.’

I stood back, 'so this huge tooth-covered wheel grinds the surface up?’

‘Yep. As I said, a megawatt of electric motor power. It needs to be incredibly reliable too. It has to stay down there for weeks or months on end. That's why it took so long to design.’

'But it must be pitch black down that far. So how do you control it? What if it falls down a crevasse or something?'

'The whole thing is computer controlled and guided from up here. We've thousands of watts of spotlights and dozens of cameras down there when we need to see anything. Some of the lights and cameras are on robots,' he frowned. 'And don't forget, all that stuff has to resist a pressure

of two hundred atmospheres too.' he nodded again and pulled a face. 'That's two hundred kilos pushing down on each square centimetre.'

I made a quick mental calculation, 'That's twenty tons on a surface of only ten centimetres square.' I pulled a face. 'I can imagine that it takes some good design practice.'

‘You bet,’ he nodded. 'Otherwise, it gets squashed as flat as a pancake.'

'Good fun designing though,' I suggested.

‘Yep,’ he smiled, ‘Even if a single bolt comes loose, we get feedback about it in real-time. It's far too costly to bring the thing back up, so we've got a host of little robot tools down there. When we need to do something, we guide the required one in to do the job.'

I pulled a face, 'Incredible. A sort of remotely controlled toolbox.'

‘Yeh. Good description,’ He agreed. ‘Once the grinder has been lowered down, we’ve also got a little fleet of robot machines to connect it to the pumping line. Takes all day...’

I stepped forward under the shadow of the towering machine, reached out and tapped one of the impressive grinding teeth. 'I wouldn’t like to get in the way of that thing,’ I said. ‘It’s a bit like a tunnelling machine, I suppose.’

‘Yeh,’ he agreed. 'About the same size and power, I guess. Except that those guys can see what they are doing most of the time and the repairs are easy. Just walk up with a spanner.'

His idea of what might be considered "easy" differed from mine.

‘I suppose you keep the thing running day and night,’ I said.

'There's only night down there, but yes 24/24, unless it overheats. Then we give it time to cool off a bit.'

'So, this machine grinds up the seabed,' I gazed at it. 'And all the bits of rock and dust are pumped up to the surface.'

‘Yeh.’ He smiled, ‘Let’s go and have a look, shall we?’

I took a few more photos as we passed the machine, and then we came to another heavy, yellow-painted door where he stopped.

‘The pumps in there make a hell of a din, so you’ll have to wear these noise-cancelling headphones. They’ve got a special microphone so we can talk easily enough.' At this, he stepped forward and opened the heavy door an inch or two.

The roar that swept over us was enough to convince me of the usefulness of this technology.

'Here,' he handed me a pair of mud-spattered headphones and helped me adjust and switch them on. I was astonished by their efficiency and heard his voice clearly, 'Brilliant, eh?'

I nodded.

Beyond the door, we entered a sort of anti-chamber to hell. Immediately in front of me and extending away was a series of swimming-pool-sized basins.

The first was full of brown, tormented water, spouting and foaming violently...

'That's the input basin,' said my host, 'each successive pool filters out some of the suspended ore. The ore is then passed on to the concentrators beyond that wall. We use both spiral and foam machines to separate the material particles as a function of weight, density, and hydrophobicity,' He smiled enthusiastically at me.

'Both?' I said, trying to appear suitably impressed when I had no idea what he was talking about.

'Yes, both. And then, all the outputs go to the de-watering section. That gets rid of as much of the remaining water as possible. If we don't dry it, it's too heavy and, above all, too dangerous to ship to the processing plant near Jeddah.

‘Dangerous?’ I asked.

'Like wet sand,' he smiled, 'If the tanker rolls a bit due to the waves and the cargo shifts, the craft can't right itself properly. Then when the next roll comes along, the stuff can shift more, and the tanker can go right over.'

‘Then down,’ I added.

'Exactly. With all our precious ore.'

‘Plus, an expensive tanker.’

‘Yeh, but the tanker doesn’t belong to us, and those guys are well insured.’

‘And you’re not?’ I pursed my lips and frowned, ‘For your ore, I mean.’

'Probably,’ he shrugged. ‘It's not my job to know that sort of thing though.' He then explained the details of the various processing steps, most of which I had already studied. Simple, robust, and efficient tools for recovering the highest possible proportion of valuable ore.

He ended his technical presentation by adding, 'the remaining water and the tailings are then pumped back down a pipe nearly two thousand metres to the seafloor.'

'Tailings?' I had never heard this term before.

'Tailings is the mining term for waste. The parts we are not interested in.'

'The stuff not valuable enough to ship. An odd name, though,' I said.

'Yes. I've no idea where that term comes from.' He frowned and asked, 'I gather from my brief that you're more interested in the technical side than environmental aspects. Is that right?'

'Yes,' I nodded, 'It must make a change for you not to have to be on your guard all the time.'

'What makes you think I'm not on my guard?'

'Maybe because your tie has come loose, and you didn't immediately tighten it. Also, because you didn't keep staring fixedly straight into my eyes when you explained the technical details and finally because you were obviously enjoying yourself.'

My host gazed at me with astonishment, 'Hey. You're pretty hot stuff for a reporter.' He paused and surveyed me through half-closed eyes.

I laughed, 'I've always been observant and have developed a seventh sense for detecting liars and dissimulators. I also have a PhD in physics.'

The man laughed and relaxed again.

'In any case,' I continued, 'the "International Science Digest" always steers clear of non-technical controversy. We simply aim to give our readers reliable and double-checked answers to

the technical questions they might ask themselves,' I smiled. 'That's hard enough as it is without getting mixed up in international politics.'

'Christ,' exclaimed my host, 'I wish I could do that.'

'For example,' I said, 'I won't be fuelling ongoing debates. I won't point out the risks of polluting the deep-sea waters by pumping slurry, or as you call it, "Tailings", back into the depths. I know that topic is a major issue with environmentalists. Furthermore, I won't point out that that is a minor problem compared to all the mess thrown up during the grinding process. I won't even ask where all that stuff ends up when it gets carried away by deep-sea currents for hundreds and hundreds of miles.'

The man burst out laughing, 'That's exceedingly kind of you. I see you've thought the whole process out well. Thank goodness you're not on the payroll of one of the environmental organisations.'

'Payroll!?' I pulled a face. 'I wasn't aware that any of those guys got paid.'

He laughed heartily at this, 'Anyway,' he said, 'We recover nearly everything solid which comes up. It wouldn't be a very economical process,

pumping it all up and then back down again, would it? Especially if it contains gold.'

'Or Lithium,' I smiled.

My host laughed again and then escorted me around the remainder of the three-hundred-metre vessel supplying me with technical data I knew already. From time to time, he asked me not to publish specific details, which he said might help competitors.'

Once we had finished the hour-long tour and were seated in the soundproofed ship's café, he leaned back in his armchair and gazed out over the sea. 'I never really believed we would manage to get all this process working, you know,' he nodded. 'It seemed crazy at the beginning. And now here it is, running like a top.'

I smiled, 'It's amazing how motivating the promise of huge profits can be to some people.'

'Yeh,' he agreed, 'but they still grumble about my travelling expenses.'

'Unfortunately, there's always someone paid to do that,' I laughed. 'It helps keep unemployment figures down.'

Then I leant forward and lowered my voice, 'Completely off the record. What's the truth about the effect of this mining on marine life? I promise

not to quote you on anything, of course. It's just for my personal knowledge.'

'Completely off the record then,' he paused, 'Nobody knows. What is certain is that anything that gets in the way of the grinder is destroyed,' he frowned.

'Yes,' I said, 'that's pretty obvious.'

'All the species of marine life, which are mobile enough, like fish, crabs, or tortoises and have some means of sensing imminent danger, get out of the way and stay there.' He sipped some of his coffee, 'That's why you won't see any dolphins in these parts now.'

'I'd guess that the noise alone would drive them off.'

'Yeh. That and the vibrations and the light.'

'And what about slow-moving crabs, snails and molluscs, and other marine life.'

The man shook his head. 'I've honestly no idea. The official position is that there's very little down there,' he said. 'They say that what life there is detects the presence of machines and avoids them.'

'And you believe that?'

'Completely off the record!? No.' he sighed, 'Plants and worms and stuff like that don't swim very well, at least as far as my knowledge goes.'

'I assume that specialists know if deep-sea marine life species are sensitive to light, noise, or vibrations.' I asked.

'You can assume what you like,' he said, 'but I'm not sure if all that much is known. I don't know if any reliable and double-checked experiments have ever been done to discover which species are sensitive to various disturbances. That being said, these organisms might very well have detection systems we don't even know about. For example, maybe they can detect the deformation of the earth's magnetic field by our huge metal machines.'

I nodded, 'That's possible, of course.'

'Perhaps,' he continued, 'they can even sense the electric currents in our cables, or the electromagnetic fields created by the motor windings. Who knows? At least I hope they can so that they can get out of the way.'

'And if they can't?'

The man sighed, 'then when we've finished, there won't be anything alive down there. When the mining campaign has finished, I mean.'

'What about microorganisms?'

'The problem is that they'll all be pumped up to the surface with the rest.'

'And then pumped down again,' I said.

He sighed, 'Yes. But if those organisms contain any dissolved gas, it'll expand, and they'll explode as they come up from two thousand metres to the surface. So there probably won't be anything left of them but a mushy pulp by the time they get up to the top.' He shook his head and was clearly disturbed by this idea, so I changed the subject.

‘Where have the dolphins gone?’ I asked.

'As far as my information goes, some have moved north towards Suez. Apparently, many more have moved south, and quite a few have even left the Red Sea altogether. They are now apparently cruising about in the Gulf of Aden.' He looked straight at me, 'All this is strictly off the record.'

‘Of course. You can trust me.’

'Yes. I think I can,' he paused. 'It's not always easy juggling with one's conflicting feelings,' he paused. 'One consolation is that the Red Sea is an almost closed part of the oceans. So, any damage we do should be reasonably limited in extent. Not like the Pacific Mining programs.’

At this point, we spotted the helicopter arriving and headed to the landing platform.

Chapter 3

When I got back to my hotel in Dubai, I checked the outside temperature. I decided that 40°C and 90% humidity were not ideal strolling-about conditions. Reading the newspaper with a cold beer seemed a far better alternative. I changed my clothes and headed down to the bar.

My colleague from the "Globe" was already sitting in a corner, typing his report on his laptop.

‘I’ll leave you to it,’ I nodded, ‘Shall we eat together later?’

‘Yeh. I’ll be done in an hour.’

I nodded, took my glass to the comfortable sitting room, selected my favourite newspaper, and settled down for a quiet read.

However, only a few minutes elapsed before I was halted in pursuing the latest rugby news.

‘Excuse me.’

I lowered my paper and came face to face with a young woman about my own age.

Her accent was unmistakably Scottish, and one look at her brought me directly out of the grumpiness of being disturbed. She was tall, slim, and beautifully dressed in a long, loose-fitting dark green dress. As recommended, both shoulders and knees were hidden, but her hair was not. Red hair and green eyes are a rare combination. Adding to this a determined tilt of her shapely head and a self-assured gaze, I was temporarily deprived of my usual eloquence.

‘My name’s Helen MacGregor,’ she said. ‘Can I sit down?’

She certainly could. There was no question about that.

I jumped to my feet in an attempt to show my good breeding and courtesy. However, I stumbled. I flailed about wildly with my arms and happily managed to catch hold of the back of a neighbouring chair. Although this saved me from falling, it did not project the suave gentlemanly image I had aimed at.

A wry smile twitched the corner of the young woman’s lips, and she shook her head with amusement, ‘That was an interesting dance step. Did you invent it yourself?’

I laughed, ‘I think I’ll have to give up trying to be gallant. I always mess it up in some way or other.'

'That's because it isn't in your genes. So, unless my background information is wrong, Dr Stone, you were not born of royal blood.’

‘So, you already know my name?’

‘Naturally, as you must have guessed, I am one of the original fighting Highland MacGregors. When our clan goes hunting, we prepare things properly.’

'And, of course, you were born of solid royal Scottish stock.'

‘If you care to go back enough generations, that’s probably true. Disappointingly, however, the quantity of royal blood running through my humble veins is probably, barely above the homoeopathic level.’

‘Close to the infinite dilution limit, you mean?’

'I prefer Homeopathic dilution, which is a molecule or so higher, I believe.'

I leant forward, 'And how can I be of assistance, your majesty?' I asked, reflecting that the MacGregor concentration surrounding me was above average this month.

The young woman leant back in her armchair. Then, through her green and slightly

mesmerising eyes, she gazed at me, 'You've been out to visit the "Atlantis-II" site, I believe.'

‘You’re well informed,' I said, shifting into a more guarded state of mind.

‘I want to go, but they won’t allow me, so I thought I’d ask you to explain.’

‘If they wouldn’t allow you to go, they must have had a good reason.' I looked over at her. 'Now I wonder why that was?’

The girl shrugged, so I went on, ‘perhaps you should consider leaving your two-handed war sword and sacrificial dagger at the hotel next time. That sort of thing tends to put people off.’

She smiled and sat forward. Her thick red hair fell across her shoulders as she set her elbows on the leather chair arms. Then she cupped her palms under her chin and gazed at me, ‘It seems I'm on their list of undesirable aliens.’

'Ah! Public enemy number one.' I said, measuring her up a little more carefully now.

‘No. Not number one. Apparently close to the top of the list though. That may be because I’m the ocean welfare specialist for,’ and here she mentioned the name of one of the best-known environmental activist groups.

‘Ah!’ I nodded, ‘and you only wanted to pop out there and throw an inoffensive spanner or two in

the machinery. Just to keep the guys on their toes.'

‘Nothing as common as a spanner,’ she laughed. ‘it was to have been a broadsword.'

‘Naturally.’ I said, ‘but if *my* information is correct, you’ve already thrown a good few spanners, sorry swords, in the works this year.’

‘Wrong. That wasn’t us. We don’t work that way.’

'No. You prefer to blow the boats right out of the water with a small stick or two of good old, matured Highland dynamite. More effective and definitely longer lasting than a handful of spanners.’

'Not that way, either. We use political spanners. They carry more weight and do more damage.’

‘Nasty, unpredictable things,' I pulled a face, 'They need careful handling too,' I smiled, 'and a lot of training, to use properly. First, one needs the courage and determination to get in close, and then to aim carefully.' I paused, 'And even then, one can never be certain that one's adversary has not got an even heavier one hidden under his jacket.'

‘Very amusing, Dr Stone,' she nodded, 'or perhaps you'd prefer me to address you simply

as “Doctor”, or better still, "Herr Doctor". That sounds much more impressive, doesn't it.'

‘As you prefer, Your Majesty.’

The red hair was shaken with good humour, and she smiled a soft and kind smile. ‘I only want you to tell me exactly what you saw out there. That’s all.’

‘Oh!' I exclaimed. 'Is that all!? Well, in that case, naturally. And of course, I'll give you all the photos I took and tell you all the confidential details I promised to keep to myself.'

She shook her head with a wry smile, ‘I could pop up and get my sword and dagger if that would help smooth negotiations.'

‘I suppose it’s only gentlemanly to point out that I always wear my chain-mail under my tee-shirt when I’m on a mission,’ I laughed.

The girl frowned, 'but surely you must realise how important this must be to me. Remember that I've followed you halfway across the planet, just to plead with you,' she said, gazing at me like a wounded deer.

‘Halfway across the hotel lobby would be closer to the truth,’ I smiled.

'But you will tell me, won't you?' she leaned forward again and gazed into my eyes.

‘Sorry,’ I said. ‘But I promise to send you a complimentary copy of the article as soon as it goes to press.'

The girl sighed, let herself fall back in the armchair and sighed again, more theatrically this time, 'it was worth trying anyhow.'

She was quiet for a moment and turned her head to gaze across the room at the comings and goings in the luxurious lobby.

During this time, I watched her quietly as her features relaxed slightly. She was decidedly pretty and refreshingly easy and pleasant to talk to. Finally, she let out a long deep sigh and turned back to me. However, she started slightly when she found my gaze fixed on her.

'It's monstrous though,' she said, a dangerous glint leaping into her eyes. ‘You’ve seen those damn machines, haven’t you? About the size of a house.’

'Yes. I've seen them and even touched one.'

‘Those machines are killing off everything in their paths while digging out the ore crusts, polymetallic nodules, or sulphide deposits. You know that, of course?' she looked me straight in the eyes.

I nodded, ‘Yes.’

‘And you know that the effects of that activity will be felt over a far, far wider area.’

I nodded again and continued to watch her.

‘The noise and vibrations from all the other mining operations in the red sea will also probably disturb the ability of organisms to communicate.’

‘That’s already chased the dolphins away from around these parts,’ I agreed.

'And that's only the bit we can see. The emerged part of the iceberg,' she shook her head. 'All that mess they're stirring up down there, day after day, added to the stuff they pump back down as fine-particle suspension, is creating deep-sea sediment plumes. Some of that settles back onto the seafloor, burying the wildlife that managed to survive somehow. Moreover, the suspended residue reduces visibility for everything with eyes.'

‘Yes,’ I nodded, ‘that's highly probable. Potentially that stuff could work its way back into the upper ocean either simply by diffusion or undersea currents.'

The young woman frowned and looked at me askance, ‘You seem to have thought all this out pretty completely, Herr doctor.’

'I like to get my background facts right before writing up the technical parts. It avoids me getting taken in by manipulation.' I smiled at her, 'from both sides...'

The woman pulled a face and shrugged, 'did you know that nearly three billion people rely on marine wildlife for their main source of protein. That's only a little less than half the world's population.'

I frowned, ‘Are you sure of that?’

She shook her head, ‘No. At least I haven’t checked my source. Certainly not well enough for you to be able to publish.’

‘I won’t quote you on that then,’ I smiled, ‘but I will check that out and maybe slip it into the introduction.’

She started, 'You don't intend to publish anything slighting about us, I hope?'

‘Heavens no,’ I cried, 'you'd come after me with that two-handed sword and sacrificial dagger. I'm certainly no match for a maddened highland warrior queen.'

'Ha, ha,' she laughed sincerely this time, then suddenly became serious. 'Have you any idea how the destruction and perturbation in the deep sea will affect human fishing stocks and the marine global supply chain?' She fixed her

mesmerising gaze on me once more. ‘No, of course, you don't. No one does because it’s barely been investigated. Even the International Seabed Authority doesn’t know.’ She almost snarled at this. ‘Those bloated idiots have even recommended that the best way to learn about it is to begin mining and observe what happens. That’s madness, madness. So many respected scientists are cautioning against this "try it and see" attitude, but no one listens.'

I nodded, 'Trying and seeing is the best way of allowing everyone to make a quick fortune before public opinion forces a policy change.'

She shook her head sadly, 'If it isn't too late, which it probably will be.' She threw herself back in the armchair and folded her arms defiantly. 'They all make me sick,' she exclaimed and sighed deeply. It makes me want to scream. Do you know what? I think I will.'

I quickly held up my hand to arrest her action, ‘Remember, we’re not in a London pub.’ I said sternly. ‘Even though you have respected the local conventions by covering your knees and shoulders, you might still end up at the police station.’

'I could say you tried to touch me,' she smiled. 'Then you'd end up in prison instead of me.

Then they'd check your luggage and find all sorts of compromising documents and photos of their lovely mining operation.'

‘Remember, I have an official invitation?’ I smiled.

‘They might mislay it,’ she nodded. ‘By accident. These things happen quite often in these parts. Especially if I were to let drop that you seemed to be acting oddly and talking in Russian on your cellphone.’

‘Very amusing. Just don’t scream while I’m around please.’

‘Ok,’ she laughed, ‘if you tell me everything you know about the platform out there, I promise not to.’

I looked across at the young woman and smiled, 'Just because I refuse to tell you all you want to know, doesn't mean that I condone all the things these people are doing.'

'Well, at least that's one consolation,' she said. 'An exceedingly small one because you and all the other people like you won't lift a finger to help stop them.'

‘That’s your job, not mine.’ I countered, carefully preparing to avoid being cornered by this clever woman.

She shrugged, ‘Coward.’

I sighed, ‘Can I say something without you going through the roof?’

‘Probably not.’

‘I thought not, but here’s what I think.’

'Oh god,' she exclaimed, 'you're not going to play the wise old philosopher, are you?'

'What I think,' I said, ignoring this, is that no matter what man does, as soon as it comes to large-scale production of anything, we always end up destroying living things.'

She made an impatient gesture,' astounding, brilliant. What an innovative thinker you are,'

I ignored this sarcasm and went on. 'Take a farmer, for example. Even before the advent of mechanical tractors, merely the fact of his turning over the soil killed thousands upon thousands of creatures. Moles, mice, worms, beetles. We've been doing that for so long that we don't even remember what it was like before we started. First, we tried it and saw. Then we did it on bigger and bigger scales.

‘That’s because there are too many of us,’ she said.

‘Agreed. So, we build more houses and roads and destroy more and more living creatures in the process and need more and more food which kills more and more wildlife.’

‘Brilliant.’ She shook her head, ‘only about a million people have had that idea before you.’

‘I simply wanted to point out that we’ve been using the “try it and see” formula since the beginning of time.’

'And look where it’s got us.' She pulled herself up in her armchair and leant forward again. 'This Red Sea affair is only a tiny problem compared to what’s happening in the Pacific Ocean.’

'So why not pop over and throw your spanners about out there then?' I asked.

'Because, Herr Doctor Clever, the mining sites are several thousand kilometres from the nearest land. You can only get out there if you have a big ocean-going ship. They'll spot you hundreds of kilometres off and have a friendly welcome committee waiting when you arrive.

'There's still the Cook Island mining fields or those in Papua New Guinea. Surely those are easier to get to.’

‘Only slightly, but most of the big damage is being done along the middle of the pacific between the Clipperton island and Clarion Island fracture zones.’ She nodded at me, ‘You know where that is, I suppose.’

'Yes. I also know that the seabed is far deeper there. I believe most of the mining is going on at depths of between five and six thousand metres.'

‘Ah.’ She smiled, ‘We have looked that up too, have we?’

‘We have.’

'Well now, Herr Clever, I will tell you something you don't know.'

'Are you sure about that?'

The girl sighed, 'Listen, will you.'

I nodded.

'Many species of sea wildlife migrate across the pacific to their reproduction and spawning sites.'

‘Yes...’

'Be quiet, please,' she held up her hand. 'For example, the Blue-Fin Tuna migrates more than ten thousand kilometres from the coast of Mexico, across the Pacific, to South Korea. The round trip takes them almost eight years.'

‘Eight years,' I exclaimed. 'That’s interesting. No, I didn’t know that.’

‘Yes. And it just happens that the Tunas' three-year return path takes them straight across the Clipperton- Clarion mining fields....’

‘Ah!’ I said.

'Exactly. Another example is the Leatherback Turtle. They, too, swim ten thousand kilometres across the Pacific from North America to the Philippine Islands and Indonesia. But unfortunately, their path takes them straight along the Clipperton-Clarion fault lines...'

I sat up, 'And mining activity could upset that migration which has been going on undisturbed for perhaps tens of thousands of years.'

She smiled, 'Or even millions of years. But, of course, you didn't know that did you?'

'No.'

'See, Herr Clever. Red-headed Scots are not simply dangerous warriors. They have brains too.'

I smiled, 'I see that. I wonder if your brains are as red as your hair. Go on anyway.'

'I was going to,' she laughed. 'In any case, if our brains are red, they're certainly blood-red. Anyway, these species seem to migrate following the equatorial ocean current, in the case of turtles, and the North Pacific current for the tuna.'

I frowned, 'But nothing we could do would be capable of modifying global ocean currents on that scale.'

'No, of course not. Except perhaps a nuclear explosion. Anyway, the noise and the pollution

from the dozens of mining sites along the fracture lines might create confusing cues for them. Or mask some of the critical ones that migrating species use for navigation.'

I nodded, 'So the fish or turtles or other species might not find their way back to their ancestral breeding grounds.'

'Exactly. And, of course, you could say that is of little or no importance.'

'Except if that stops them breeding.'

'Yes. Or carries them into waters where they find less favourable living conditions and die out. They might also enter waters populated by predators which wipe them out.'

'Yes. I see what you're getting at. The Red Sea mining effects are local, whereas Pacific sea-bed mining might upset things globally.

She smiled, 'You learn fast.'

'Is that a compliment?'

'No. Just an observation,' she laughed before going on. 'These migrations form a sort of age-old trans-Pacific conveyor belt. Over millions of years, it has created the ecosystem that exists today along the coasts of the continents. The Pacific conveyor belt touches the Indian ocean one, which links to the Atlantic one, and so on. So, the whole ocean ecosystem is at once

interconnected and interdependent. Each species relies on the existence of the others from the other parts of the oceans. They are not.' She leaned forward and tapped my arm, 'They are absolutely *not* isolated, self-sufficient systems.'

'So, you're worried that upsetting just one migratory channel or track might have unthought-of repercussions,' I said.

She shrugged, 'We have no idea what effects modifying this living conveyor-belt process will have on the ecosystem. It could have far-reaching effects which we have no means of predicting.'

'Or no effect at all,' I said.

'Yes.' She agreed, 'Or, as you say, none at all. That would be nice. But as I said earlier, three billion people depend on the sea for food.'

I leant back in my armchair, 'So in that context, the "try it and see" technique doesn't seem to you to be the best option.'

She nodded sadly, 'Can I scream now?'

'Do it in your bedroom.' I smiled, 'With your head under your pillow, preferably.'

'So, will you tell me everything you saw now?'

She looked at me, and I shook my head, 'No. But I might fit some nice facts about those ideas

in my article. Once I have double-checked them, of course.'

‘You disappoint me, Herr Doctor.’

‘That’s life,’ I smiled.

Then, unexpectedly a startling idea struck me, and I sat forward. 'So, the Pacific mining operations are mainly concentrated along geological fracture lines.'

‘Yes. But over there, the companies are mainly mining for what they call “nodules”, which is very different from operation here.’

‘Yes, I know that,’ I interrupted.

'Good,' she said. 'In this case, the "nodules" are potato-sized lumps, mainly manganese oxides. They also contain a high proportion of nickel, cobalt and copper.’

'I frowned,' I wonder what would happen if all that grinding eventually triggered a mechanical resonance in the sea-bed rock.'

The girl opened her eyes wide, 'Let's pray that never happens. Can you imagine the results?’

'That's why I mentioned it. It might trigger a slip in the fracture-line and some reorganisation of the sea-bed geological environment.'

She shook her head and let out an exasperated little sigh. 'I'm sure, Herr Doctor, that if you really

tried hard, you might be able to find an even more complicated way of putting that.'

I sighed in turn, and she went on, 'I suppose that in layman's terms, that means a massive undersea earthquake along a four-thousand-mile-long fault line.'

I nodded. And we exchanged looks.

'The result would be a huge tsunami,' I said, pulling a face.

'Oh!' She nodded, 'I like it. That's the best anti-mining argument I've come across for years. Thank you.' She frowned and was clearly turning this idea over in her mind, 'I'll quote you on that.'

I laughed, but I was also turning over the idea, 'If that happened, the wave would head straight for the west coast of America.'

'And Japan, and New Zealand...' she rubbed her hands gleefully.

'You're absolutely morbid,' I laughed.

'Yes, I know. Goodbye, California,' chanted the young woman, 'I'm going to really, really enjoy developing this idea.' She was rubbing her hands with enthusiasm. 'I see great potential for metaphorical spanner-throwing here. Lovely. The press coverage will be fantastic. And what is more, the American public will go absolutely wild.' She paused, 'Oh, you can keep all your silly

information now. This is much better, thanks. I will, of course, mention your name as the creator of the idea.'

I assumed she was joking again, but when I looked at her, I realised she was deadly serious. 'For god's sake, whatever you do, don't mention the "International Science Digest". They'd go wild if their name was mixed up in any environmental controversy.'

'You know,' she smiled, 'well handled, your idea could do a huge amount of good to our cause?'

'Your cause, not mine,' I bridled. 'You can quote the idea, but you must not give the impression that I endorse your ideas or philosophy.'

She pulled a face, 'You're not very courageous, Herr Doc. I was expecting a little more of you. I'm disappointed,' she pouted.

'Unfortunately, I'm not a wild, thick-armed highland warrior ready to sacrifice safety and comfort for a whim of his queen without a moment's thought.'

'As I said,' she sighed, 'you really disappoint me.'

'Remember,' I said, 'that I only get the work I do because I am known to be totally independent. I

get into places where you don't, based on that. It took me years to build my reputation, and I don't want to forfeit all that...'

She held up her hand to interrupt the flow of my narrative, 'I know, I know. All for the whim of a mad, red-headed Scot you only met half an hour ago.'

'That sums it up rather nicely,' I smiled.

'Anyway, as I said, I see great promise in that idea. The USA is extremely fertile ground for sowing the seeds of revolt. Especially so when people's personal well-being is endangered. In this case, it's like starting a forest wildfire that the combined force of the national fire-fighters will be unable to extinguish and doing it with a single little match.' She smiled to herself. Even if extinguished, it could spring up again at the slightest breath of wind. Yes,' she nodded, 'Lovely. And you just handed me the lighted match. Thank you.'

I frowned and sighed, 'God. What have I done this time?'

She looked at me and leant forward, 'I think I'll have that drink now.'

I frowned again and was about to say that I hadn't yet offered her one. But instead, I laughed and made a sign for the waiter to come over.

Over dinner later that evening, my colleague from the Globe explained the results of his press conference.
Apparently, the scientists commissioned to study the repeated breakage of the "Great Nile" pipeline endorsed the view he had explained on the way over. In addition, they were reportedly concerned that seismic disturbances were being triggered by the non-stop grinding of the seafloor in the red sea.

They had warned the Sudanese minister that if this was the case, it might even disturb the oil fields.

The seismic activity might shift the subsurface rocks and pinch closed the main shafts.

This, in turn, would make drilling new shafts necessary. But, in the meantime, oil production and consequently, national income would plummet.

Over our cocktails, we agreed this presented them with a complicated economic dilemma.

‘It’ll be a question of deciding which environmentally polluting activity presents the best long-term profit...’ said my colleague.

When I told him my ideas about mining along the Pacific fracture lines, he agreed that things looked decidedly touchy...

He asked if he could quote me on the idea, which struck me as amusing, being the second person that afternoon to want to do so.

And so, it came about that, thanks to my red-headed encounter, my ideas came to be called the "Stone Scenario".

They appeared in two entirely different types of publications. They then spread around the world like wildfire, precisely as predicted by Helen MacGregor.

Chapter 4.

It was Sunday morning, with the sun shining and the sky pale blue. I strolled across Grenoble's pedestrian precinct to the "Grand Hotel". This luxury hotel was smack in Grenoble's centre, only a few steps from the central square.

I was expected, and the girl at reception surprised me by accompanying me right up to the door of his suite. She paused and knocked respectfully.

‘Come in, come in,’ called Professor MacGregor. The girl opened it and announced me, as if introducing me to a royal presence.

'Thank you, Mademoiselle. Would you bring me up a couple of wine glasses, please?'

'Yes, Professor.'

As she disappeared, he winked at me, opened the mini-bar and extracted a chilled bottle of white wine.

‘The organisers asked if I needed anything special, so I said a bottle or two of Pouilly-Fuissé,'

he smiled. 'This is the second.' He smiled, 'Eighty-five euros a bottle, I checked on the internet. Nice.'

‘One of the perks of being a Nobel Prize winner?' I smiled.

'Yes. That and five-star hotels and brilliant food. It makes up for thirty years of campus canteens.'

I laughed as the girl returned with the glasses.

The Professor beamed at her, 'Thank you. I'll be leaving at around four fifteen.'

'That's perfect, Professor MacGregor. The taxi will be waiting.'

He nodded, and she left us, closing the door softly behind her.

‘They treat me like royalty,’ he smiled. ‘Here,’ he handed me a dewy glass of the wine. ‘A noble wine for a Nobel Prize,’ he laughed. 'Mind you,’ he looked up at me, ‘I'm only treating you to this because I know you won't try to trick me into saying something I don't want to.'

‘I’m flattered.’ I replied.

‘I rather doubt that,’ he said. ‘But before we get down to work, I'm sorry we had to put our meeting off.'

'That's all right.'

'It seems that even Nobel Prize winners have bosses,' he laughed. 'Anyway, I'm pleased you made the Red Sea trip. Excellent article you wrote too. Brilliant, in fact.'

'Thanks.'

He leaned forward and looked at me over his glasses, 'The "Stone Scenario" is pretty good stuff too.' He nodded. 'Exceptional by its simplicity.'

'Thanks again.'

'And you met my namesake. The dreaded Redhead, Helen MacGregor.'

I laughed, 'Yes. A formidable woman to have as an enemy, I should think.'

The Professor frowned at me and nodded slowly, 'Formidable? Yes. I think she would appreciate that term.' He smiled to himself. 'The planet could do with more people like her.'

'The place would be a good deal less comfortable for certain businesses if there were,' I replied.

The Professor laughed. 'Oh yes! That’s for sure. Anyway, tell me. Why you gave up research Dr William Stone.'

'So, it's you doing the interviewing then?' I smiled.

‘I like to understand things.’

'Well,' I frowned, 'it was when I was writing up my thesis that the idea struck me.'

Professor MacGregor leant forward and gazed at me encouragingly, so I went on. 'I enjoyed writing it and also writing the conference papers.'

'It was a good thesis,' he said, 'I read it. The conference publications were crystal clear too.'

'Thanks. I found it easy and an agreeable job, so I couldn't understand why everyone else detested that part of the job.'

The Professor sipped his wine, 'So you decided that writing was more down your line than slogging over the same uncooperative experiments year after year?'

'I didn't think about it in those terms. But after a few years of research, I realised I derived more pleasure from helping others understand than from doing the research myself.'

'Yes,' nodded the Professor. 'That was obvious each time you gave a conference presentation. A gift that's given to few.' He nodded.

This was a huge compliment from one of the best public speakers I knew. However, he was utterly oblivious to the value of the praise he had paid me, and I kept my head bowed to my notebook to hide my blushes.

'And I suppose that it was at about this moment that you also discovered a talent for storytelling?'

I nodded.

'And If that hadn't happened,' he added, 'you'd probably have become a teacher.'

'That's possible. Anyway, now I'm half novelist, half consultant, and half science reporter,' I laughed.

'I see you're using your own innovative arithmetic rules, he smiled. 'So where do we start?' he leant forward and tapped my knee, 'Drink up. This stuff is excellent for inspiration, but only when it's inside you.'

Obediently I sipped the pale gold liquid. 'Mmm, delicious.'

'Isn't it.'

I lifted my bag and took out my notebook, and he nodded approval. 'No Dictaphone, I like that. The good old-fashioned pencil, paper and memory method.'

'The batteries don't run down so often.' I joked, flipping open my notes.

'Well, to start with,' I said, 'now that you're a Nobel prize winner, I suppose everyone expects you to know the answers to everything. Regardless of the field of study, from chemistry

to biology or astrophysics to geology. Have you any comments on that?'

'I noticed that tendency,' chuckled the Professor. 'I do my best not to disappoint people. However, I can assure you that it's not always easy. Sometimes, the only solution is to sidestep questions I can't answer. Otherwise, I begin with wide generalisations so that I'm certain of being able to work my way back to a topic I do know something about.'

‘You must have learnt that trick from politicians,’ I joked.

‘The only difference is that I *do* have something interesting to say at the end,’ he chuckled.

'But,' I said with a wry smile, 'please reassure me. When it comes to the environment, you do have the solution to all our problems, don't you?'

Professor MacGregor sighed. ‘I don’t often go as far as I did during my speech the other day. The trouble is that people expect so much. They're hoping that someone they can trust will pop up and tell them not to worry and that everything will be OK.'

‘Yes,’ I nodded, ‘I realised that, and of course, you’re not that man.’

‘No.’ He leant forward and tapped my knee, ‘You can’t quote me verbatim on this.’

I nodded, 'I'll phrase it in general terms, and I'll send you the text to check before it's published if you like.'

He shook his head, 'no need. I'll just send over one of my Highland bodyguards to have a quiet chat if I don't like it.'

'I'll be particularly careful then,' I laughed. ‘Helen MacGregor talked about going for me with a two-handed war sword.’

'Good for her,' smiled the Professor. 'She would too. given a good enough reason.'

‘You seem to have met before.’

‘Our paths have crossed a few times,’ he nodded. ‘As you said, not a good enemy to have.’

‘So, what are your thoughts about the environment?’ I asked.

'Well, although I never admit to it in public, I have thought a good deal about the future of our planet. And naturally, I've studied all the reliable data available too. I've also done my utmost to analyse this topic as a Nobel Prize winner should. That's to say, with absolutely no bias. But unfortunately, my conclusion is that things don't look good.'

'And you see no hope for the future?' I asked.

'Oh, yes. In fact, a great deal of hope,' he paused and sipped some wine meditatively. 'I

said I analysed the data. However, present predictions are based on models we have built ourselves. We've put into them everything we know.'

‘Ah.’ I smiled, ‘I see where your hope comes from.’

'You have a quick mind. Yes. We can't include physical mechanisms we haven't discovered in our computer models.'

Here he paused once more to collect his thoughts. 'However, I suspect that Mother Nature has kept a good few tricks up her sleeve. And, as she has time on her side, she only gives us a glimpse of a new piece of the puzzle when she wants to.'

'But for the moment,' I said, 'the new pieces we've been permitted to see all point in the wrong direction.'

He shrugged, ‘Maybe, but I’m not over-confident about numerical simulations. Especially extremely complicated ones.’

‘You’re not implying that the predictions are wrong, are you?’ I asked.

'I'm saying that no matter how convincing a new theory or prediction might seem, it still has to prove itself. It must show itself capable of reproducing all available experimental

observations perfectly. Not just a general tendency, which might conceivably be due to something else, including luck.'

‘The proof of the pudding is in the eating?’ I suggested.

‘Yes, except that it’s a little dangerous in this case, don’t you think?’ he said.

'That's more or less what that girl, Helen MacGregor said about Pacific marine life migration,' I said. 'Try it and see.'

'A clever girl,' smiled the Professor, watching me with a keen eye.

‘So, you avoid the subject as much as possible.’

‘Yes. But it’s not a bad idea to use even partially proven facts if the results frighten people into taking action. If we don't, the only thing influencing future decisions will be maximising financial profit.'

‘Which brings us back to the verse of that song you quoted.’ I concluded by showing him the text:

“The scientist said, ‘trust in me.
Time’s run out; can’t you see.
The lobbyist shook his head; 'money, dear,
is what life's for; just sign down here.'
'Profit,' he smiled, 'makes businesses grow.'
‘That environmental crap is just for show.’”

‘Exactly. That was simple provocation though,’ he smiled.

'I have a distinct impression,' I said, 'that you are not telling me everything you could about this prickly question.'

'Good heaven!' he cried. 'I should think not. To start with, I don't know you well enough, and secondly, we've only got half an hour left, not all week.'

'And what about the remaining "tricks" that Mother Nature keeps concealed up her sleeve?'

‘Ah,’ he nodded, ‘they might just be considerably bigger and unexpected than the ones she has shown us to date.’

‘But they could go either way.’

‘Yes. That’s the problem.’

'Hmm, would you like to expand on that?'

‘Not today. No.’

I looked up from my notes and gazed through the window to gather my thoughts.

'So,' I asked, 'how did you feel that day in the lab when you slipped the final piece of the Nobel Prize puzzle into place?'

'Ha! Puzzles again.' he smiled, 'Well, I was convinced I had made a mistake somewhere, so I kept it to myself. I went home, had a meal, drank

too much, then went for a five-mile walk around the loch in the middle of the night.' He nodded. 'Then I left the subject alone for the rest of the week.

‘A whole week! That must have been hard.’

'No, not really. I’d got used to my brilliant ideas springing leaks, so I was wondering where the leak would be this time.'

“And there wasn’t one.’

'Well, I couldn't find it.’ He smiled, ‘Then I had a rather innovative idea.’

‘Ah! Another one?’

‘I asked my principal academic rival if he’d like to check the stuff before I sent it off for publication.' He smiled to himself at the recollection of this.

'I bet he jumped at the possibility of being the first to prove you wrong.'

'You bet he did. We were both angling for the vice-chancellor's job at the university,' He nodded. 'Better salary, a bigger office, and the authority to direct the future of teaching and research.'

‘What happened?’

‘They chose a guy from Oxford,’ he sighed. ‘Bigger address book and tailor-made suits.’

‘No. I meant about your work.’

'Oh, yes... Well. He came charging into my office three hours later, red in the face. I never saw a man more excited.'

‘And then you knew you were right.’

The Professor nodded, 'Yes, and that's when the nightmare started.'

‘A one-million-euro nightmare.’ I smiled.

He laughed, 'that came much later.'

'Yes, of course. But with hindsight, what's the most special memory you have of that period.'

The Professor thought for a few moments, sipping his iced wine. He then lifted the bottle and refilled my glass, then his own.

'Well, earlier, you talked about me slipping the last piece of the puzzle into place.'

I nodded.

'Well, at that instant,' he continued, 'the part of the puzzle I was working on suddenly became clear. So clear, in fact, that we were all astonished that we hadn't been able to guess it before.

‘Yes,’ I said, ‘but what next.’

'I'm coming to that.' He stretched his back and looked out of the window. 'How can I put this?' He stood up and, carrying his glass, went over to pull back the curtain, letting the sun in.

'Well, then I metaphorically stood back to get a better look at the puzzle as a whole.

Did my finished section help us guess the overall picture?' He smiled, then continued, 'However, it struck me that, in fact, we hadn't even got any of the edge bits of the puzzle in place, let alone any of the corners.'

I nodded, 'so you couldn't see how big the picture really was and where the limits were?' I suggested.

'Correct. I see you are good at mental images. That's exactly how it struck me.'

'A sobering thought,' I said.

At this, the big man frowned again, 'Yes and a bit depressing too. Especially so, because we haven't got the metaphorical puzzle box displaying the picture. That puts us at a considerable disadvantage.'

'You realised that you had only really finished one isolated fragment of the science puzzle?' I suggested.

'Yes. In a way,' he smiled. 'It was as if I had completed the part of the puzzle with a boat on it. One of the easy bits. So that part was clearly a boat and no longer a multicoloured blotch.' He paused, then went on, 'another man had completed a section with trees on it, while

another had done the bit with an island. Finally, someone else had got some clouds and the sky more or less finished.'

‘A nice image.’ I nodded. All these little fragments were sitting on the table with gaps between them.'

'Exactly. Huge gaps. It struck me that it was mostly gaps, in fact. It also struck me that the entire picture would only become understandable when all the missing bits between our unconnected fragments are fitted into place.'

‘Yes, that’s very nicely put. Can I use this in my article?’

‘Naturally, and you can quote me.’

“Great.’

'But,' he went on, coming back and sitting beside me, 'when I looked about on the table, metaphorically speaking again, there were no pieces of the puzzle left.'

‘I see. So, Mother Nature forgot to put them in your metaphorical box. And that was unsettling?’

He shrugged, 'What I find encouraging is that there is still so much for us to learn. There are so many fundamental things we don't know that it sometimes lifts my soul sky high.'

I made a few more notes and asked, 'You don't find that unsettling?'

He shook his head.

‘And that’s where your hope springs from?’ I added.

He nodded. ‘Most people reaching this point in their reflections agree that there's great hope for the future. Incredible things may be possible of which we have no clue today.'

I looked up from my notes and nodded at him, ‘And you’re not sad that you will not be in at the kill?’

The Professor smiled at me, 'Do you know what I think?'

I shook my head.

'I think we humans have not evolved enough yet to get anywhere near what you call "the kill".'

‘Ah!’ I frowned.

'I believe,' he continued, 'that our brains are not yet equipped to deal with the concepts underlying what remains to be discovered. Let alone master them.'

‘You’re implying that we’ll need several generations?’

‘I’d say between five and ten generations of the best brains,’ he paused, ‘at least.’

'But in the meantime, the truth is that we have no idea what the forces of nature are,' I said. 'We

don't even know how they travel from one place to another and do what they do.'

He nodded, 'Correct. Gravity to start with,' he said. 'We can measure it and precisely calculate its effect on everything in the universe. But we don't know what it is and how it acts on us over such incredible distances.'

He paused here and sipped some more of his wine.

I took a few notes, 'and that's good news or bad?'

The Professor chuckled, 'you have to admit that it's not all that reassuring being unable to understand what holds the oceans onto the globe's surface. Or what stops our atmosphere flying off into outer space.'

I nodded, scribbled a few words, and added, 'Or keeps the planet at just the right distance from the sun, so we don’t get burnt to a cinder or frozen solid.’

'Exactly,' he smiled. 'But getting back to the forces of Nature. Next, there's the force between magnets,' he smiled. 'Same thing... The predictive capacity of our calculations is awe-inspiring. But we've no idea what it is that flows out of one magnetic pole, can cross absolute

vacuum, and then flows back into the opposite pole.

I nodded, ‘But we can feel the force physically pulling them together or pushing them apart.’

‘Exactly. We face the same dilemma with electric forces, and finally the atomic and subatomic forces.’

I nodded in agreement, and he went on. 'We can set up networks of equations predicting precisely what the forces will do. However, the thing that actually does the job eludes us completely.

Here, he paused for a moment and sipped some wine. ‘As an aside,' he said, 'did you know that we don't even know what causes the Earth's magnetic field?'

At this, I frowned, ‘I thought that was fully cleared up recently.’

'Don't quote me on this, William, but the latest explanations don't convince me. On the contrary, I feel that we are missing something.'

‘The internal dynamo theories, you mean?’

‘Yes. You’d have trouble crossing the Pacific Ocean using a compass if the Earth’s magnetic field was like the predictions from some of those models.’

'That's odd, really, though. I mean us not knowing. Especially when that magnetic field is the only thing protecting life on Earth from being wiped out by charged-particle bombardment from the sun.'

'Exactly,' he frowned. 'Not a reassuring thought. If it were suddenly to disappear, destruction would be inevitable and rapid.'

'Anyway,' I said, 'you're implying that we're not much closer to understanding the origin of fundamental forces than we were in the sixteenth or seventeenth century.'

'I'm not implying. I'm stating it categorically. And the further we progress in each field of science, the more we realise that there are far more things we don't know than we do. So that's why I'm hopeful, all the same.'

'OK,' I said, 'But back in the seventeenth century, philosophers proposed the idea of an Ether. They imagined this as a gaseous medium connecting everything in the universe together.'

'Yes, that was the idea.' Said the Professor. 'They devised that idea because they couldn't accept that things could act on one another without touching.'

'Wasn't the Ether supposed to be the breath of the gods?'

'Yes.' smiled the Professor, 'But remember that in those days, you had to work gods into your scientific explanations in some way or other. If you neglected to do so, you were liable to be promptly separated from your head.'

'It's quite amazing we got as far as we have when one thinks about it,' I said. 'But why should there be only one Ether or web? Maybe there is one for each of the forces we know.' I suggested.

'That's a possibility,' He smiled, 'multiple Ethers or multiple dimensions. It all boils down to roughly the same thing, three-dimensional webs of something we don't understand but call "Fields". Magnetic fields, electric fields, gravitational fields. Maybe even multiple space times. That would interest Einstein, no doubt.'

'From where Einstein is today, he certainly knows the answer.' I smiled, shooting a look heavenwards. 'But we down here must keep on observing and trying out theories. At least until some guy comes up with an unexpected idea which no one has ever proposed.'

'That's what fundamental research is for William.'

I smiled, 'Perhaps you believe in God after all then.'

He chuckled, 'I believe that there is something out there. Everywhere. Something we have not imagined yet.'

‘Someone will have fun finding a name for it then. And he’ll probably get a Nobel Prize for it into the bargain.' I joked.

‘Astrophysicists are presently calling it “Dark Energy” and “Dark Matter”,’ he said.

‘Yes,’ I replied, ‘and that’s surely one more proof of what you said. I mean about us knowing very little about what makes things work.'

'Oh, yes.' He smiled, 'I agree with you. It's a cover-up job, really.'

‘Sorry?’

'Well, think about it. One morning we discovered that some new observations don't fit the predictions of our pet theory. So, what do we do?’

‘We assume that there’s a bug in the instrumentation,’ I said

He laughed, 'To start with, yes, always. But when we discover that the equipment works perfectly, we're obliged to get the little grey cells working. So, we sit down and think. Then eureka, we propose an invisible, undetectable, and unmeasurable material. We suggest that this fills up empty space. And by an incredible stroke of

luck, this material just happens to have the right properties to make our broken models work again.’

'And we call it Dark Energy and Dark Matter. The whole thing is not very convincing. I agree.'

He frowned, 'One has to start somewhere. Especially when one starts finding cracks in the foundations of our theories.'

'Yes, I suppose you're right,' I agreed. 'But the new "Dark" proposition implies that the part of the universe we can actually see only accounts for a few per cent of the total. So my conclusion would be that something enormous has been left out of the model.’

He nodded, and I went on.

‘Also, all this "dark" stuff smells like a revamped term for the “Ether” of those seventeenth-century philosophers?’ I frowned.

‘Well said, William. The same thing for the same reason, because we still don’t understand.’

‘As you said, we have to start somewhere. I suppose that's what you meant earlier. I mean, when you said our brains are perhaps not yet equipped...’

The Professor interrupted, 'I didn't use the word, "perhaps" William.'

'OK, our brains are NOT equipped to see what's going on behind the scenes.'

'OH!' exclaimed the Professor unexpectedly, 'That's exactly it. Brilliant, William.'

I frowned and looked at him askance.

"Behind the scenes.' he repeated, 'Like a children's puppet show in a darkened room,' he nodded. 'We see the puppets moving and playing out the story. Imagine that we didn't know there were people behind the black backdrop, moving things with sticks and strings. Then the lights go up, and they step out.'

'Is that what I meant?' I laughed.

'Of course, it was,' he smiled. 'I always said you should never have given up science. Anyway, hopefully on the way to solving these vast enigmas, we'll find ways of avoiding destroying our planet,' he said.

'Maybe the planet will get rid of us before we get that far.' I laughed, 'It may have its own immune system. Who knows?'

The Professor started, sat up, and glanced at me sharply, 'The Earth's immune system,' he repeated slowly, 'now there's an original idea. Yes, who could possibly know?' Then he nodded and sipped some more wine, 'It's odd you should say that, though... Someday you'll have to come

and chat with one of my old friends. He'd no doubt enjoy debating that point with you.' The man gave his wine an appreciative glance, then looked up at me, 'Ever studied the functioning of the human brain, William?'

‘I only scratched the surface for a short review article last year.’

'Well, my friend says that that's about all we've done in understanding how it works, just scratched the surface. He has some interesting and quite revolutionary ideas that you'd certainly be interested in. Very innovative and disconcerting ideas.'

He then mentioned a familiar name, and I frowned as I tried to remember where I had heard it.

Then I remembered, ‘Oh. I didn’t know you Nobel prize winners formed some sort of club.’

'More like a secret society, really,' he laughed. 'We spend most of our time drinking expensive wine and eating the sort of foods mere mortals can't afford.' He chuckled, 'then, over fat cigars and eighty-year-old cognac, we decide the future of humanity. And naturally, we have a direct line to the CEO, up there, you know.'

'Would you like to expand on that point?' I asked, 'I'm sure my readers would be interested.'

The Professor shook his head, 'No. I don't think I'll expand on that for the moment, and you can't quote me on that bit. A secret society always works better when it remains secret.'

We laughed together, and the Professor stood, showing that it was time for me to leave.

'So, what you're saying,' I said, holding out my hand, 'is that we know nothing about what makes things work and that that's great news.'

The Professor burst out laughing and clapped me on the shoulder, 'I'm looking forward to reading that article, William. I really am. So make it good.'

He then opened the door and winked, 'You can expect an invitation from me shortly, he said, shaking my hand. 'If you have trouble finding the funds for the flight to Edinburgh, let me know. Our secret society has almost unlimited funds at its disposal.' He laughed.

Chapter 5.

Mister Blancpoint leaned forward across his desk. Then, with a short nod, he tapped the sheaf of papers he'd laid before me,

'We're talking about marketing, William. An occasion like this doesn't come twice.'

I nodded back and turned over the first page.

The man observing me so keenly was the CEO of "VIP Speakers". This company boasted the world's most extensive roster of "Distinguished conference speakers". His job was to organise highly lucrative lecture tours for statesmen, retired business tycoons, and such. He was also the manager of several Nobel prize winners, including Professor Macgregor.

This impeccably dressed man also owned the company that published my novel, languishing way down on the sales charts.

To be more exact, it ***had*** been languishing. However, sales had abruptly soared. Retailers

worldwide were now bombarding the sales department with urgent orders. However, the company sales department consisted of a single French woman, Nathalie. It was thus presently up to its eyes in work.

Within weeks of my visit to the Red Sea mining site, the so-called "Stone Scenario" became one of the hottest subjects. It was immediately analysed, criticised and embroidered upon by those whose opinions counted in such matters. However, these well-informed few had difficulty being heard. Their voices were drowned by the noise created by magnificently illustrated papers written by people whose opinions ***didn't*** count in the slightest.

Thus, the wildfire predicted and liberally fanned by Helen Macgregor flared up.

Her publication in "Earth Matters" magazine introduced the inventor of the scenario as "The well-known Physicist, Novelist and science reporter; Dr William Stone."

In the wake of this first wave of opinions came better thought out and constructed contributions from both sides of the debate. A few of these sported highly realistic graphic representations of the possible results of such a scenario. However, it's only fair to point out that many of these

publications were aimed more at maximising sales by surfing the lucrative wave of public opinion. Getting at the truth clearly came after. The fearfully realistic illustrations they overflowed with sent shivers of fear down the spines of even the staunchest of opponents.

However, then a highly respected team of mathematical modelling experts went to work. They used the world's most sophisticated geological computer simulation program to study the question in detail. The resultant animated rendition of their computer predictions was so cataclysmic in its conclusions that the world simply stopped and stared...

It showed the birth and propagation of two gigantic deep-sea wavefronts. Once initiated at a depth of seven kilometres, these were shown to propagate outwards across the ocean floor with very little visible disturbance on the surface. One of these travelled north-eastwards towards the USA coast and the other southwest towards Australia, New Zealand, and Indonesia.

Upon entering the USA's shallow coastal waters, the simulation predicted a thousand-kilometre-long wave. This wave reached thirty-five metres in height, higher than a seven-story building.

It also predicted that the sea level along the coast would rise by more than ten metres and would only return slowly to its original level.

The conclusions were that the low-lying regions of all the major USA east coast cities and towns would be devastated.

The unimaginable power behind such an immense wave and the subsequent submersion flooding would destroy most man-made infrastructures. This included electricity generation facilities, water treatment centres, ports, roads, hospitals...

It would make an estimated two to four million people homeless.

On the opposite side of the Pacific Ocean, the coastal regions of Australia and New Zealand would be similarly affected. Brisbane, Sidney and Christchurch would be devastated.

Finally, and inevitably, infrastructure on most Pacific islands would simply be wiped off the map altogether.

Those authors who bravely reminded the public that the scenario was pure conjecture, if not simple guesswork, were clearly fighting a losing battle.

From here on, Helen Macgregor’s wildfire needed no more fanning and got out of control.

Within two days, the remaining copies of my book were snapped up. Mr Blancpoint had immediately ordered an urgent reprint to meet the unprecedented surge in trade.

'People out there want to hear the opinion of " the man behind the idea ", William.' He paused. 'They want to know where the ideas behind the "Stone Scenario" came from. They're wondering why he had them in the first place and what he thinks about ideas published since. They want your views, and they want to see you.'

'I know that, but I don't have the academic credentials to go out there and talk in public about such a sensitive topic,' I replied. The truth is that I was a little worried about the prospect.

The man shook his head, 'If all my VIP speakers thought that, I wouldn't be where I am today, William. The recent articles published have given you all the credentials you'll need. People will make up their own minds about you and your ideas once they've heard you. *But*,' and he leaned even further across the desk, 'If you remain honest and independent, then people might just think it worth reading your novels.' At this, he sat back and swivelled from side to side, 'And then we will be talking about big money.'

I was still unhappy about this, 'I don't know...'

'Look, William,' he smiled, 'you're brilliant at speaking in public, at finding ways of clarifying complex ideas to the public. That's one of your strongest points, isn't it?'

'I like doing it, that's true. But this subject is exceptionally delicate, don't you think?'

'Oh, yes. But that's why you should see it more as a new challenge. If the subject wasn't so...,' the man hesitated, searching for the best word. 'If it wasn't so damn prickly and contagious, then we wouldn't be here today, would we? The fact that the remaining copies of your novels were snapped up so quickly shows that the guys have already made up their minds about you. They're convinced,' he smiled. 'They'll absolutely lap you up. Believe me, I know about these things.'

'Maybe. But there'll be crowds of angry pro-mining guys waiting to pounce on my smallest mistakes with sharpened knives.

'You bet.' He said, smiling and rubbing his hands together happily. 'That's precisely what we want.' He leaned back in his chair and sighed, 'In any case, you know how to deal with that sort of thing. I've seen you defuse worse bombs than those before. You imagine every possible nasty question and have the answers prepared well in advance, so you're never taken by surprise. In

any case,' he chuckled, 'whatever happens, the press coverage will be fantastic. Incredible advertising for your books, and all scot-free. Fantastic!' He stopped swivelling on his chair and pointed a chubby finger at me, 'you had better get on with finishing the new novel. 'I'll need that well in time for Christmas.'

'Oh, it's almost finished.'

'Great. But we'll have to have it double-checked and polished up this time. Can't take risks when people are expecting so much.'

'You mean the last one wasn't up to it?'

'William!' he smiled. 'At the time, the expected returns on your book didn't justify the extra outlay. The sort of "professional polishing" a book by a past president requires doesn't come altogether cheap. But now you're looking like becoming famous.'

I frowned at him, 'Is that how it works?'

'Publishing companies are supposed to make money, not lose it. You know that as well as I do.'

'So why don't you have the first one "polished" too then?' I asked.

The man smiled, 'for your information, William, I sent it to my top "polisher" last week. The 'polished' version will be back on Friday and will go to press on Monday.'

‘And I don’t have my say about any of this?’

'You can say what you like. I've no objection to that. But you authorised us to edit and improve the manuscript to optimise sales in the contract you signed.’

I shook my head and laughed, 'Yes, of course, I remember. And I suppose there's a similar clause in this conference tour contract here.'

'You suppose correctly, William,' he said. 'But just remember that we'll never have another opportunity like this.

'And what's more, this incredible marketing campaign won't cost you a penny,' I laughed.

'Cost me!' he exclaimed, 'We'll make a small fortune out of it. That speech will have to be faultless, though. Because that second novel will have a red band around it marked "By the world-renowned architect of the 'Stone Scenario'." He smiled at me, 'So will the next edition of your first book. The bands are already printed too.' At this, he pulled open a drawer and handed me a bright red slip of paper with the text he had quoted written on it.

We both laughed, and I picked up the sheaf of papers and my pen.

'You'll see,' he leaned forward again, 'that I guarantee setting up a one-year tour with one venue a week.'

I nodded.

'I propose to start locally with Paris and London, then head for the USA. We'll take in all the main cities around the world after that. If things go well, we'll add a few dates. If not, we'll cut some out.'

‘I suppose I’ll be able to come home from time to time,’ I smiled, not really minding about this point.

'That's up to you, William. Anyway, all travelling expenses are paid. Business-class. First-class is reserved for Presidents and Nobel prize-winners.’

'That's ok with me.'

'Hotels will be four or five star and all costs paid.'

I nodded. I liked good hotels.

‘As to your slice of the cake, I'll guarantee you fifteen thousand euros, or dollars, whichever you prefer.’

I pulled a face, and Mr, Blancpoint frowned, 'fifteen thousand, William!' he cried. 'Multiplied by fifty conferences... Come on, William, that's pretty good money for a beginner. But, of course,

if you want more, you'll have to become a president, then I might make it a hundred thousand a throw. But then you'd only have a few per year.'

My jaw dropped, but I kept silent. I had thought the sum mentioned was for the entire series of conferences, not per speech.

'You should come out of it with seven-hundred and fifty thousand euros. And all that for just a few hours a week. So, you're surely not going to complain about that?'

I was not. I shook my head, 'I don't think so.'

He smiled, 'Good. If we play our cards right, and you get that second novel finished in time, we can count on at almost another million.' He paused, 'each, of course.'

I shook my head in astonishment, 'Hell!'

'What the devil do you think I asked you up here so fast for William? For peanuts?'

'Hells Bells!' I gasped.

'Don't worry, William, I'll be getting the same. But that talk will have to be perfect. I mean absolutely perfect.'

'Hey!' I cried. 'This is getting scary.'

'Come on, William. Don't worry. You just have to do the same as you always do. I'll ensure that we have full authorisation to use all the new data

published on the subject.' He sat back. 'You just have to fit it all together. Then be honest, entertaining, and convincing. Everyone out there knows you're not a specialist, and I guess that's precisely why they want to believe you.

I frowned, ‘I don’t know...’

‘Yes, you do, William,’ he smiled. ’Concentrate on the non-expert public and build your explanations for them alone. Simplify things to the maximum. You know how to do that.’

‘Yes.’

‘For example,’ he screwed up his eyes and looked at me, ‘tell me how you’re going explain why the tide suddenly goes way out, just before a Tsunami hits the coast. Without using any scientific terms.’

This sort of challenge was my favourite hunting ground, and I frowned slightly while I turned it over in my mind. Then I took up my napkin, laid it flat on the table and put my fork along the edge facing Mr Blancpoint.

'Imagine that this napkin is the sea's surface, and the fork is the seafront.'

'Ok.'

I slipped my knife under the napkin, which made a little bump.

‘Out where the sea is six or seven thousand metres deep, the seabed quake hardly disturbs the surface.' I slid the knife across the table under the napkin. 'The moving wave is so tiny, like this, that it goes unnoticed amongst the other waves.

‘I’m with you,’ smiled the man.

'Well, when it approaches the coast, the water quickly becomes shallower, and the wave height increases and becomes visible.' I lifted the knife under the napkin a little.'

‘If there is anybody there to see it.’

‘Yes. But when it reaches the much shallower coastal regions where the depth is only a few hundred metres, the wave abruptly rises to tens of metres.' I looked over at him, and he nodded, understanding.

'And because of this,' I said, 'water must flow inwards toward the wave to fill it.' I paused, 'now watch the seafront.' As I said this, I lifted the knife higher. The napkin edge was pulled away from the fork, and the man in front of me laughed aloud.

‘Ha, ha! And it sucks the water away from the shallow beaches, and the tide goes out... Brilliant William.'

I frowned, 'Anybody who was on a beach when this happened would need a fast car and a lot of straight roads ahead if he were to escape.'

‘If they realised what was happening,’ nodded Mr Blancpoint.

'Yes. They'd have a minute or two to spare, I suppose. I believe tsunami final approach speeds reach one hundred and fifty kilometres an hour.

The man pulled a face, 'Make sure of your facts before going public, William. But all the same, it sounds wise to live on high ground, with scenarios like yours around.'

‘Yes, if it were to happen,’ I laughed, ‘In the meantime, I love finding simple explanations like that. The only problem is that they invariably annoy specialists. The guys get terribly indignant because I leave lots of details out.’

‘Yes, I can imagine that,' said Mr Blancpoint. 'But everybody else can understand the principle of the thing without a single equation.'

'Exactly, that's because most people understand via images, not via equations.' I picked up my napkin.' It doesn't matter if most of the physics is missing if the basic idea gets across.'

'Except for experts, for whom the beauty is in the details,’ he nodded.

'That's where the trouble lies, though?'

'As I said, William, everyone knows you're not a specialist. Moreover, the public is very wary nowadays about what so-called experts tell them. In recent years, those guys seem to have lost much of their credibility.'

‘But,’ I said, ‘both sides will try to slip banana skins under my feet.’

'Christ, William! Of course, they will,’ he cried. ‘I damn well hope so too. If they don’t, I’ll do it myself. My arm is exceedingly long, you know.’

‘Polemic is good for advertising. Is that it?’

'Exactly. The more, the merrier. Anyway, I've seen you at work, you know. You'll have plenty of time to study the positions and arguments of both sides. Then you just have to prepare that set of answers to all the nasty questions you expect. After the first two or three conferences, you’ll have it off pat...’

‘Great. Can I have a bodyguard? Just in case.’

'Come on, William, I'm preparing some easy ones first, on home territory, before heading out into the wild world.'

So that’s what happened.

For the following twelve months, I became the pampered guest of fifteen different countries and fifty-three cities.

I knew this wouldn't last, so I made the most of each visit. Consequently, I managed to visit almost every major site of interest on the planet.

I ate well, slept well, and met many interesting people. I also learned more about the places I visited than I could otherwise have done.

I was also interviewed by most of the world's newspapers, and this was the only moment when I felt the presence of the long, professional arm of Mr Blancpoint. On these occasions, I was not permitted to be interviewed without one of his trusted local representatives being present.

'The future of your novel sales depends heavily on the tone of those articles,' he said before I left. 'My local representatives know how to ensure that that tone is just right.'

'I won't ask how they do that,' I smiled.

'Neither do I,' he nodded. 'That's their business, and they always get it right. Otherwise, I wouldn't still be paying them, would I?'

Well, all good things eventually come to an end.

One morning, Mister Blancpoint decided that things had calmed down on deep-sea mining issues and that it was time to call it a day.

In any case, my red-banded second novel had been an immediate success, and my bank account had swollen out of recognition, so I wasn't complaining.

We wound up the conference tour pleasantly, with a dinner at the Guy Savoy restaurant in Paris, just Mr Blancpoint and me.

‘Well, William,’ he said over our aperitif, ‘as your girlfriend Helene Macgregor predicted, public opinion went through the roof as soon the scenario was publicised. Also, as she guessed, governments were taken entirely by surprise and forced into action.'

'Not my girlfriend,' I emitted a scornful laugh. 'Anyhow, she should have guessed that most ministers would sidestep the problem by naming study commissions. Forming a group crammed to overflowing with eminent experts is the oldest trick in the book for gaining time.'

He nodded, and I said, 'They know damn well that experts inevitably disagree. So they bicker over unimportant details for the first year and

then take another year to write up their recommendations. Then the ministers stall for a further year, evaluating what they term "The adequate measures". And finally, they declare that conditions are ripe for international negotiations to begin,' I smiled. 'And so, the ministers gain four years. This enables them to relax and sleep well again because they know they'll be out of power when something eventually has to be done.' I shook my head, 'And then they can sit back and criticise anything their successor's attempt.'

Mr Blancpoint chuckled, 'You know William. I suspect the girl knew exactly what would happen. Anyway, things have cooled down now, and other scandals have taken centre stage,' He smiled. 'My feeling is that the public has come to distrust scientists almost as much as they do politicians nowadays. That's even more so if they wear visibly expensive suits on TV.' He chuckled again, 'The popular portrayal of a scientist is a poorly paid, poorly dressed, single-track-minded bore. So, when they're presented with a smooth-talking guy wearing an expensive suit, they assume he is either an imposter or must be cheating somewhere along the line?'

‘And,’ I laughed, ‘is probably in the pay of one of the multi-national industrial groups?’

'Yes. The public is fed up with the entire debate and is now counting on the environmental activists. People like your red-headed girlfriend are now having a lovely time poisoning the lives of mining companies and politicians.' He paused and sipped his cocktail. 'So, when are you sending me the third novel?'

I laughed, ‘It’s well underway. You’d perhaps prefer me to send the chapters to your “semantic polishing” service one at a time as I finish them. That would save time, no doubt.'

'Very amusing.' He smiled, 'Mind you, my guy has got a good feel of your style now, so why not? It might be an idea. I'll ask him.'

‘That was only a comment, off-the-cuff,’ I laughed.

'Like the off-the-cuff comment that spawned the "Stone Scenario"?' he nodded, 'I'd be wise to look into that seriously then.'

We both laughed, and he signalled to the waiter to approach.

During the meal, he questioned me about my plans.

‘You mean, other than making you even richer with my third novel?’ I joked.

He ignored this remark, clearly having something up his sleeve, ‘have you ever thought about setting up a foundation, William?’

‘A foundation? What about?’

‘Oh, the subject itself doesn’t matter much. Anything that people are willing to give their spare millions for.’

‘For example?’

'Well, in your case, it would have to be something to do with the environment.’

‘But for what objective.’

Mr Blancpoint frowned, put down his knife and fork, and gazed at me. 'For goodness’s sake, William. Foundations were invented to make money for the Founder and his board of directors. I would be a member, of course.’

I pulled a face, ‘Yes, I can believe that. Especially when I see the photos of the board members of some foundations. They often look more like well-fed, American millionaire politicians than people with an all-consuming cause to defend.’

‘Perhaps because that’s what they are. But don't get me wrong, William. Some of the "causes" out there do get some very welcome

funds from foundations. It's just that a small part of the donated money gets syphoned off to pay comfortable salaries and operating expenses.'

'Expenses like luxury suits and designer hair-dressing?' I laughed.

'Well. You can't expect them to look like under-nourished environmental activists, can you.'

I laughed and shook my head, 'No, I suppose not.'

'To make big money, William, you need to look like you don't need it.'

'Like you,' I laughed.

'Very funny.'

'No. That sort of thing's not for me. I think I'll go back to my reporting work. I really enjoy that.'

'But what makes you think that they'll have you back? I mean, will companies invite you now they've seen what trouble you caused the deep-sea mining industry?'

'I've always been sincere. And, don't forget, that's what you warned me about at the outset of our little collaboration.'

He nodded, 'That's true.'

'And it just happens that I've received several interesting invitations during the past year.'

'Really.'

'Yes. To start with, I'll be heading for the old coal mining site at Freyming, near Metz, next week. I'm visiting the new nuclear waste storage site.'

‘Here, in France?

‘Yep. Right on the Franco-German frontier.’

‘Freyming?’ he frowned, ‘That rings a bell. Wasn’t there some trouble there recently?’

‘Yes. The local population tried to put a spanner in the works when the government decided to reopen the mine.’

‘Ah, yes! I remember now.’

'So, the government gave them a simple choice. "Either we reactivate coal mining on a national scale, or we use the existing deep galleries to store nuclear waste."'

'Not an easy choice.' He gave an ironical smile. 'I suppose the new manager wants to show you how incredibly safe their installations are.'

I shook my head, ‘Not exactly. They want to have a completely independent opinion. One from someone who has absolutely no vested interest, one way or another.’

The man nodded slowly, ‘Yes... I can see that there might be a good deal of work in that direction...’

He toyed with his food in silence, then looked up at me, 'You wouldn't like me to look into how we could organise that sort of thing on a more professional footing?'

I burst out laughing, 'You mean, how you could make even more money out of a gullible but smooth-tongued scientist.'

'You'd just have to think about each problem and point out the major risks. I mean what the public would put pressure on the government about.'

'Thanks, but nothing doing. At least not for the moment. I'd like to savour a bit of the freedom of my remaining youth.

'You mean, like before we met, and I made you a few million.'

'Exactly. And thanks for the millions. I hope you liked yours.

'Could have been worse.'

We finished the desert with a bottle of excellent champagne and went our separate ways. He returned to his office, and I headed for my PC to book my ticket to Metz and reserve my hotel.

Chapter 6

Over the preceding few years, many abandoned mines across Europe reopened. So, the invitation to visit the Metz site interested me a great deal. Each reopening inevitably triggered a tremendous amount of protest from many quarters. There was also the predictable display of political posturing, or "opposition", as it is usually called.

The reason for this new wave of mining activity was easily understandable and, in truth, entirely justifiable.

The fact is that the rapidly rising cost of many raw materials was beginning to endanger the survival of an alarming number of European industries.

Ministers took pains to remind the public that, at the time, the mine closures had been due to untenable competitive pressure. They pointed to the responsibility of past industry leaders and their craving for huge, easy profits. The

availability of cheap imported minerals from outside Europe had influenced them to turn a blind eye to the catastrophic economic dead-end to which such choices inevitably led.

Economists had spotted danger at the outset. They warned that the long-term objective of the exporters was to kill off local production. They would do this through highly aggressive low-price strategies. The economists also warned that once the exporters had ensured a quasi-monopoly, they would put the prices back up and suck our economies dry. Such experts were naturally ignored.

One doesn't have to be an economist to understand that businesses are created to make money for the owners and shareholders. They are not there to ensure the long-term well-being of the world population.

However, now that unhealthy monopolies were looming on the horizon, fear of devastating consequences had eventually shaken governments out of their torpor. It had awakened them to the risks to their economies and the independence of their weakened industrial infrastructures.

The fear of the possible consequences finally shook the EU out of its dithering. So it braced

itself for the inevitable conflict and social unrest that reopening mines would trigger.

They agreed that deep-sea mining was one of the solutions to the crisis. However, they realised that putting all one's eggs in the same basket was risky. Eventually, this turned out to be a wise move.

Detractors argued that the cost of home-based raw materials would be higher and profit margins lower.

However, it had several advantages.

First, trans-oceanic transport would no longer be needed, which meant a massive reduction in CO_2 and particle emissions. Even the environmental agencies had to agree that this was a strong point in favour of local mining. They pointed out that maintaining such mines would also enable the capture and reuse of the methane that inevitably leaks out of mines in distressing quantities. Using this for municipal heating or electricity generation was among numerous possibilities planned.

Secondly, the enormous potential boost to local employment was one that trade unions jumped at immediately.

Finally, the significant improvement in the balance of payments was a welcome bonus to all European economies.

Subsidies were needed to get the wheels of hundreds of mines turning again, but this was considered a worthwhile long-term investment.

Inevitably most environmental groups were against the plans. However, governments could once count on support from the well-organised and highly motivated trade unions. Well-paid jobs for their members for generations to come were worth fighting for. Memberships would swell beyond recognition, and union leaders once more started considering the future with enthusiasm. Memories of the good old days, full of conflicts and revolutions, flitted through their happy dreams anew. This new rosy future pushed them to higher and higher levels of eloquence on public meeting platforms, flushed with enthusiasm and righteousness.

Thus, European industry ministers sat back contentedly and sighed collectively. Furthermore, they developed a distinct tendency to be looking elsewhere. This tendency was perhaps most pronounced when trade union members employed rather more vigour than the police would have in dislodging interfering activist

groups. Naturally, in such cases, the ministers would firmly condemn the unnecessary violence and issue warnings to the trade unions. However, surprisingly few legal measures were taken against them at the end of the day.

And so, after a few years, things calmed down, and mining became part of the tissue of European industry once more.

Raw material exporters did everything they could to throw spanners in the works. However, the vast sums they invested in anti-mining campaigns and manipulating environmentalist activists were to no avail. To the public, reduced unemployment and more funds for health services, education, and retirement pensions sealed their ears to their arguments.

But this new mining era had one major downside. It gave credibility to projects for reactivating coal mining and coal-fired electrical power plants.

The main argument for this was that nuclear power had one significant drawback. Although it eliminates CO_2 emissions, the spent radioactive fuel must be safely stored for thousands of years.

Any storage technique must guarantee a negligible risk of environmental contamination. It must also ensure that none of it can ever fall into

the hands of terrorists. Assuring safety for twenty generations or more was seen by most as a formidable challenge.

However, while casting about for counterarguments, the idea of using worked-out galleries in deep mines emerged as a viable solution. The regulatory authorities discovered that hundreds of closed mines across Europe and worldwide hid vast networks of worked-out galleries. Moreover, what interested specialists the most was that these galleries were at depths far beyond the minimum required. Furthermore, they were just sitting there waiting to be used, almost for free.

Many were more than a kilometre deep, and a few were four times that. This meant that they were far below the lowest water tables. Consequently, environmental pollution would be highly improbable, and the likelihood of terrorist access would be removed entirely.

Many such mines have unexpectedly huge networks of galleries, some totalling hundreds of kilometres and in some cases several thousand kilometres. The available storage space of worked-out galleries was estimated to be tens of millions of cubic metres.

Thus, within a short time, projects blossomed, and several nuclear waste sites were operational within a few short years.

Under the circumstances, I was understandably enthusiastic about visiting one of the first working ultra-deep nuclear storage sites, so I accepted the invitation without hesitation.

The following day, while wending my way through the crowds at the “Gare de l’Est" station in Paris, something caught my attention. A flash of red hair near one of the overhead information panels had stopped me short in my tracks.

Few people have hair like that, so I made a short detour to check my premonition. This proved to be correct. There stood Helen Macgregor, with her back to me. She was standing beside a tall slim young woman with a thick braid of light brown hair, talking with a group of well-dressed young men in suits.

She turned and noticed me as I approached, breaking into a broad smile. To my annoyance, I blushed, which she saw and shook her head, still smiling.

‘Well, well! We meet again, famous Herr doctor.’ She turned to the young woman at her

side, ‘This is Dr Stone, Elina, the man behind the “Stone Scenario”.’

The young woman turned her pale, stern face to me. 'Ah, yes! The man you met during the Red-Sea mining study. Pleased to meet you, Doctor,' she said with her pleasant accent but without the trace of a smile.'

'You know Elina, I suppose, Dr Stone,’ smiled the Scot.’

I nodded, 'Yes, indeed. Who doesn’t?’

This earnest young woman was the world's best-known advocate for climate action. Since she was thirteen, she had been troubling the sleep of statesmen and industry leaders. At twenty-six, she was still bothering them, having remained as determined and devoted to her cause. She had refused frequent propositions to join forces with big environmental organisations, preferring to choose her own battles.

This unconventional young woman continued to gaze coolly at me with a hard-unsmiling blue gaze as if evaluating my probable weaknesses.

'I read your books, doctor,' she said abruptly, 'I expected them to be more academic.'

Helen Macgregor shook her head and laid her hand lightly on Elina’s forearm, ‘That’s because they’re adventure novels, Elina. They are not

supposed to be serious. You should get out more,' she squeezed the girl's arm and laughed.

The brown-haired Elina did not smile but nodded, 'Yes, I suppose you're right. However, I suppose I can't expect the entire population to upset their existences with worries about their children's future.'

My friend shook her red mane again, 'You definitely need a holiday, Elina. The common and mortal human being needs a little distraction from the real world's troubles from time to time,' she said. 'We are not all like you, Elina. We weren't all born with an all-consuming passion for troublemaking.'

Elina's blue eyes turned to observe her, and she nodded with a slight twitch of her lips which was a close as she got to a smile, 'Yes, you're certainly right,' she paused, 'about the holiday, that is.' Then she turned to me, 'And what are you doing now, Dr Stone?' she asked, 'You haven't turned your attention to fracking by any chance? That might be useful.'

'Leave him alone, Elina,' put in Helene Macgregor. 'But,' she added, turning to me, 'now you've finished making a fortune out of globe-trotting, what's next on the agenda?'

The four others turned their stern gazes on me.

‘Well, I’ve gone back to reporting.’

‘Gone back to reporting!?’ exclaimed the red-headed Scot. In fact, they all seemed unprepared for this answer. ‘So, you’re not a fortune-hunter after all.’ Nodded Elina. ‘I’m pleased to hear that. Surprised too.’

'It's my publisher, the fortune hunter, not me.'

‘And of course,’ smiled Helen Macgregor, ‘being kind and considerate, you didn’t like to hurt his feelings, so you went along with his plans.’

‘Something like that,’ I laughed.

‘And a few spare million euros always comes in handy when one has been an impecunious and half-starved newspaper reporter.’

'Starving never seemed to suit me,' I laughed. 'Anyway, the thing I like doing most is writing. And the lecture tour triggered a host of interesting invitations and openings which I wouldn't have got otherwise. For example, I've been invited to visit the nuclear waste storage site near Metz. So I'm headed there today.'

Elina’s blue eyes squeezed themselves into the well-known frown that had warned many an opponent to tread carefully. However, in this case, she nodded slowly, ‘Ah! At Freyming-Merlebach,’ she said. ‘That’s interesting, coming

on top of the Red-Sea events... Premonitory perhaps... What do you think, Doctor?'

At this moment, however, Helene MacGregor shot me a frown which clearly said, "for god's sake, don't reply". She stepped forward and quickly slipped her arm through mine, 'You leave him alone, Elina,' she said quickly. 'I have some important things to discuss with him. I'll see you all on the train. Come on, Doc, you can buy me a coffee,' she said, tugging me away.

She chatted as we threaded through the crowd towards one of the cafes. 'We're off to a meeting in Luxembourg,' she smiled. 'Elina is absolutely brilliant at her job,' she whispered, 'but one must keep her at arm's length. Sometimes I am not sure that she is entirely human.'

I nodded, 'Yes, a bit serious.'

'Exactly. Not the best person to spend long dark winter evenings with, chatting beside a blazing log fire.'

She guided me to the bar. When I glanced over my shoulder, I saw that Elina was still observing me with those hard, blue, appraising eyes, her lips pressed together.

'Does that girl ever laugh?' I asked.

Helen MacGregor pulled a face, ‘Elina? Not often, at least not in public.’

‘But at least she gets things done.’

‘Oh, yes. But not as much as she'd like.' The young woman frowned. ‘I don’t know how she stays motivated. I, for one, could never put up with the continual setbacks she has to live with.’ I nodded, and she smiled back at me, ‘Apart from that, she is always being bombarded by requests from half-mad people with new “the-end-is-nigh” scenarios. They all want her to take up their half-baked causes.’

'I wonder how she heads people like that off and keeps them out of her hair. Can't be easy.'

Helen laughed, ‘Elina’s had twelve years’ experience of doing that sort of stuff. She's particularly good at it now. She usually tells them that the ideas are original and that the author should try to get them published. She wishes them well but says they will understand that she has so much on her plate that she can't offer more help.'

I nodded, ‘And the guy is happy because he got a nice reply from his idol. Then he spends years cursing the editors of magazines for repeatedly refusing his articles.’

‘Exactly. But although Elina never lets on, she forwards any innovative ideas to useful people.'

'But surely, it's the same for you. I mean struggling against indifference and repeated deceptions.’

‘Oh no,’ she said. ‘I can bail out whenever I want to.’ She shrugged, ‘I’m just a little cog in a big machine. Elina is a one-woman machine.’

‘Yes. I suppose you’re right.’

‘Anyway,’ she smiled, ‘tell me about this latest adventure?’

'They wouldn't let you down there either, then?' I laughed.

‘How did you guess?’

'Inspiration, I suppose,' I smiled.

I explained about the rapid development of the new nuclear waste disposal projects. However, she was obviously perfectly well informed about this. I then told her about the immensity of existing and stable deep storage sites, which interested her more. She was clearly unaware of the vast extent of underground mining galleries.

What surprised her most was that some working mines had between one to four thousand kilometres of galleries.

However, she was not all that surprised to learn that the South African gold mines boasted most of the largest in the world.

'The country surrounding Johannesburg must be like a huge lump of Gruyere. I wouldn't be surprised if the entire city suddenly disappeared down a gaping hole one day.'

'Maybe it will, one of these days.' I joked. 'You know,' I continued, 'I had an idea about those mines on the way here this morning.'

'Oh god!' exclaimed the girl, 'Not a new scenario?'

‘Not a catastrophic one this time.’

‘Thank God for that.’

'When I was reading up for this visit, I discovered that the town I'm about to visit is part of the vast coal-mining region of Lorraine. What's more, the total volume of galleries is astounding. My estimates are more than 200 million cubic metres of free space.’

'That's not much compared to South Africa,' she said.

'No, but that's just a single locality, and I'm only counting old coal mines. There are vast iron mines and all sorts of others too.'

‘So?’

I wondered why we couldn't use the worked-out galleries to put all our waste in. Instead of using it as landfill or shipping it to places where we can't see or smell it anymore.'

'It would still be landfill, though,' she said with a smile. 'Just underground where we couldn't see or smell it.'

‘Very amusing, but you could compact it, then seal the galleries when they’re full.’

'Hum...' the girl frowned, so I went on.

'The temperatures at those depths are around sixty degrees centigrade, which would speed up decomposition.'

'For organic waste, yes. But not for plastics,' she replied. 'Remember that the sun's UV radiation does a good deal of the initial breaking-down work. And, unless I’m mistaken, you don’t get all that much sunlight down at the bottom of coal mines.'

'Sun doesn't get at it if it's Landfill either,' I countered.

She nodded, 'No. You got me there. Yes, of course.'

I shrugged, 'But you could easily install UV lamps in the mine galleries. But if you also pump down enough oxygen, even the toughest plastics would decompose... Eventually.’

'But, my talented friend, when the "stuff" has decomposed, the residue doesn't disappear, does it? And that new decomposed "Stuff" doesn't go away.'

‘No, but it eventually ends up as atoms of the constituents.’

‘We environmentalists are wary about that word "eventually”. You mean that, after an indeterminate time, it all ends as carbon, hydrogen, and nitrogen atoms.'

'Yes, and quite a few other molecules, but it's likely to take...,' I paused, but she interrupted before I could finish.

'Several generations,' she smiled.

I shrugged, 'Possibly. But time is not a problem if it is sealed kilometres below the surface.'

‘Maybe. Maybe not. But anyway, I'll have to tell you a few of the facts of life before you go too far with your reasoning.'

I frowned, 'I suspect you are about to point out where my reasoning springs a leak.'

‘Well. Yes and no.’

I quickly looked at my watch, 'Isn't it time for your train?'

‘No, it is not, Dr Stone. And the Metz train is in another hour, so don’t try that one either.’

I groaned, ‘OK. Go on, give it to me.’

She smiled, 'Got any idea how much waste we produce, Herr Doctor?'

‘No.’

‘I thought scientists liked doing calculations...’

‘Get on with it,’ I sighed.

'On average, it works out at about one kilo per person per day in most developed countries.'

‘What does that give in cubic metres then,' I asked, 'one stores volume, you know. Not weight.'

She frowned. For your information, Herr Doc, I looked into that when studying waste transport by container ships. When you've compressed waste plastic and stuff like that, you need about two cubic metres per metric tonne.'

I nodded, “That means it’s about half the density of water then.”

She sighed, 'You scientists have odd ways of comparing things.'

‘Helps to put things into perspective and gives a handy check to avoid making silly errors.’

‘So?’ she sighed.

‘Well, if we take 60 million people as a reference for a European country, that gives sixty million kilos of waste per day.' I paused and frowned, ‘That sounds too crazy to be true.’

'But it's true. And remember, the UK is no longer in the EEC. Which is neither here nor there.'

'So, to estimate a full year's waste,' I frowned. 'I multiply that by three hundred and sixty-five days. That gives ...' I made a quick mental calculation, 'that gives about...' I frowned, 'No, that must be wrong.'

She shook her head, ‘Probably not.'

I recalculated and frowned again, 'That makes more than twenty billion kilos a year.'

‘Give me that in tons, and I’ll tell you if your right.’

‘About twenty-two million metric tons.’

'Yep ... Every year.' She nodded. That sounds about right. It's closer to thirty million for France or the UK, though. They chuck more away than some places.'

‘Great gods! I never thought about that in detail.’

‘We environmentalists do. That’s our job.’

‘So, if I use your estimate of two cubic metres of space per ton, we would need more than forty million cubic metres to store it all in.’

She looked at me with a wry smile, ‘Every year, Herr Doctor.’ She let this sink in, then added, ‘Per country, of course.’

‘Christ!’

'So, Herr Doctor. Your galleries will be filled in a few years. Perhaps with a little ingenuity, you might be able to stretch that to twenty or thirty years.'

I frowned, ‘No. there must be something wrong with my calculation.’

She shook her head, 'Half it or double it. It doesn't make much difference, really.' She turned and looked around. 'You would fill up London Underground with a single year's waste from the UK. The same goes for the Paris Metro or any other city. Puts the problem in perspective, as you just said.'

‘But if that’s true, where does it all go today? Surely it’s not all shipped to India or god knows where?’

For all reply, she cast her eyes skywards and pointed up, 'That's what municipal incinerators are for. Smoke doesn't take up much room on the ground. Perhaps you’d noticed that.’ She smiled, ‘You being scientifically minded.’

‘Very amusing. But surely, they don't burn everything?'

"No, of course not. Apparently, metal doesn't burn all that well, and neither do bricks,' she smiled. 'Anyway, the impact of waste incineration

on CO_2 emissions is nowhere near that due to container ships, tankers, cars or fossil-fuel electricity generation. Just a few per cent of the total, in fact.

‘Then we need to work out some process of accelerating decomposition in the storage galleries. That ought to be possible.’

‘So that you can refill them every few years?’

‘Yes.’

'Good idea, unless what you're left with at the end of the process is high-pressure methane and CO_2.' She laughed at me, 'So all you'll have done is to create an underground CO2 storage site. And that still scares everybody stiff.'

'You're not immensely helpful. It would be worth thinking about, though, don't you think?'

At this, she became serious again. 'Oh, yes. It's worth thinking about. In fact, we don't have that many options, so every new idea is worth exploring.' She checked her watch. 'I'll see if I can work the idea into a decent article. I promise that I'll give you full credit for the idea.'

‘Thanks a lot.’

‘Hey!’ she glanced at me. 'Don't forget that thanks to me, you made a fortune from that lecture tour.'

‘OK. Thanks. That bumped up sales of my novels beyond belief too.’

'I can imagine that. Anyway,' she said, 'your idea of squeezing abandoned mine galleries full of waste is like sweeping the dirt under the carpet, don't you think.'

‘Perhaps. But I suppose it has to go somewhere. It should be safe to let plastics and other stuff decompose down there slowly.'

‘It’s still like sweeping the dirt under the carpet,’ she said, ‘and waiting for it to rot away. I bet it would stink to hell down there under that carpet.’

I shrugged, ‘A multi-kilometre thick carpet, though and then the microorganisms would get to work too.’

'Don't tell me it will all transform, like magic, into life-giving compost.'

‘I wouldn’t go that far,’ I accepted.

The young woman shook her head sadly, 'Let's hope that no one lives down there, under that carpet. He might decide to sweep it all back out again.'

‘Agreed.’ I nodded.

'Mother nature lives down there, of course. And she has some pretty big brooms at her disposal.'

This seemed an odd remark, and after a few moments of silence, I frowned, ‘Helene?’

‘Yes?’

‘What did Elina mean by my something-or-other being premonitory.’

The young woman glanced at me with surprise, ‘Surely you saw the news yesterday or at least read the morning papers!’

I shook my head, ‘Too much to do.’

An amused grin slowly widened across her face, ‘Ah! Now that’s interesting.’

'So?' I said, a little annoyed.

'Well, Herr Doctor,' she said slowly, 'The deep-sea mining facility in the Red Sea and the others nearby have just ceased to exist.'

‘What!’ I exclaimed.

‘The seabed under them simply opened up and swallowed the entire infrastructure down a two-hundred-meter-deep chasm.’

‘Christ.’

‘And,’ she nodded. ‘The Sudanese oilfields have gone dry.’

‘Hell!’

'As I said,' she nodded. 'Mother Nature has some pretty big brooms.'

Chapter 7

The Paris-Metz trip only lasts an hour and a half by train. However, this was more than enough for me to catch up on the events I had missed. Once at Metz, a thirty-minute drive would bring me to the small town of Freyming-Merlebach.

I was disappointed with the newspapers. They had nothing of interest to add about the Red-Sea mining catastrophe. Robot cameras had been let down but could see nothing through the clouds of sediment thrown up by the subsidence.

All I learned was that there had been no warning signs. In fact, the seabed had simply opened up, and the machinery had gone crashing down a deep chasm.

Furthermore, the surveillance cameras installed on the machinery showed nothing of the beginning of the event. All the videos showed were the vague outlines of the massive yellow machines abruptly toppling and disappearing in

an even greater cloud of sediment. Almost immediately, the surveillance screens went blank as the signal cables were torn out of their fixings.

Were the pumping lines not equipped with explosive bolts, the fall of the machines would have dragged down and submerged the mother ship. But, happily, the detonation of the bolts automatically blasted the boat free from the falling machinery.

Within seconds, ten million euros worth of hi-tech apparatus disappeared into the unknown depths.

Identical scenarios occurred across the entire seabed mining region, with only the smallest sites left unscathed.

Sophisticated sonar imaging equipment was lowered to the seabed within an hour of the catastrophe. However, little could be extracted from the data because the fissures were narrow and extremely deep.

Experts were already at work, and announcements were expected that evening.

That is all I got from the newspapers.

As for the drying up of the Sudan mines, even less was known.

Specialists agreed that the two events were linked, but everything else remained unclear.

Most surprisingly, the oil mine shafts were not damaged. Instead, there simply seemed to be nothing left in the reservoirs from which oil had been drawn for years.

Sonar equipment was lowered down one of the shafts, and the results were astounding.

The reservoirs were completely and echoingly empty.

The crude oil had simply disappeared.

Surprisingly for the experts, the free space hadn't filled with methane gas, which had been expected. Instead, it contained atmospheric air, which was thought to have been sucked down the pipes as the oil receded.

The only specialist brave enough to hazard an opinion suggested the existence of a previously undetected network of caverns underlying the oil fields.

He proposed that geological instabilities set up by the seabed collapse must have opened fissures connecting the oil reservoirs to these free spaces.

He admitted that such underground caverns ought to have contained high-pressure methane.

Had that been the case, the gas should have come blasting up the emptied oil boreholes.

However, this was not observed, which caused a good deal of heated debate.

Regardless of this shortcoming, the emergence of a simple explanation immediately improved the morale of the mine owners. They could now believe that oil was still there and that they only needed to bore down a bit further to get at it.

However, no one was willing to hazard a guess about just how far this “bit” was likely to be.

Nevertheless, when billions of euros are at stake, decisions are apt to be taken without undue delay. Consequently, boring machines were already at work by the morning of my train trip.

Unsurprisingly, crude-oil prices dither about before making a move either. Needless to say, profiteers were soon making big profits from the catastrophe.

Later that morning, I turned my rental car off the motorway.

The road slipped between the twin towns of Freyming and Merlebach and followed the railway which marked the dividing line.

A few minutes more brought me to my destination, marked by a twelve-foot wall topped with security cameras.

I left the car in the shadow of this imposing wall and walked to the guardhouse. An armed security officer took my ID card and consulted a computer for a few minutes. Once my credentials were checked to his satisfaction, he hit a key, and a printer shot out my visitors' badge. It was stamped "Press" in bold red letters on both sides. From this, it was pretty clear that the site manager felt that his employees should be forewarned about visitors of my sort.

My host was then phoned, and I was shown to the waiting room, but he arrived almost immediately.

From across the room, I had the impression of a powerful broad-shouldered man resembling a rugby player more than a PR man. He came striding across the echoing entrance hall, a friendly smile covering his face. He seemed genuinely pleased to meet me.

‘Dr Stone,’ He called as he approached, ‘My name’s Jean. I’m your guide.’

The man held out a big hand, and I shook it.

‘You know,’ he smiled, ‘I’m really pleased to meet you. It’s great you could spare the time to

come down and visit the centre.’ He continued to shake my hand warmly, ‘By the way, I really enjoyed your book. One of the best I’ve read in a long time.’

I was still surprised by this unusually enthusiastic reception. 'I'm glad you liked it. Which one did you read?'

'The first one. I've had to order the second. The book shops out here in the wilderness don't keep much stock,' he laughed.

Letting go of my hand, he led me towards some tall, heavy oak doors, ‘I have to be honest though,’ he smiled, ‘yours is the first non-technical book I’ve read for more than ten years.'

Noting my surprised look, he sighed, 'I just never seem to find the time these days.’

‘Ten years!’ I exclaimed.

'Too long, eh! But when I discovered you were coming, it shook me out of my bad habit.'

‘Well, I'm pleased about that,' I said. 'Reading is great for keeping the little grey cells running smoothly.'

‘I know. I know. I’m getting back into the habit,’ He nodded. ‘But you’re not here to talk about that. Now let me see. Where shall I start?’

I quickly interrupted because I've found that this avoids wasting time wading through the

standard visitor blurb. I believe this town was one of France's leading coal mining sites. So when did all that end?'

He pushed open one of the massive oak panels, and we entered a long white corridor lined with dozens of black and white portraits of miners, 'Well, not all that long ago, in fact. The mine we're visiting today was opened in 1958, but they only demolished the "La tour d'extraction" in 2007.'

He noticed my frown and laughed, ‘Sorry. That means the headhouse and hoist house.’

I frowned again, ‘Which means?’

The man laughed again, 'Sorry! In these parts, most people have coal dust in their blood. It's passed down from generation to generation.'

I laughed, 'I suppose your DNA has graphite grafted into it.'

'Yeh.' he smiled, 'My Dad, grandad and great-grandad were mining engineers, you see.'

‘So?’ I smiled, ‘A Headhouse is?’

‘That’s where the pit cages came up. The hoist house is where the lift mechanism was.’

I assumed that this meant the lift or elevator and nodded. We reached the far end of the corridor, and my guide pushed through the second set of sculptured oak doors.

‘Local oak.’ He smiled, ‘In the old days, most of it was used to reinforce the gallery structures. Good strong, dependable stuff.’

We found ourselves in a vast circular room with a domed ceiling of glass, the inevitable visitor's showroom. The white walls were lined with posters describing the region's history, and I winced. Jean spotted my raised eyebrows and laughed. 'Don't worry, I'm not going to inflict all that on you. You get the special data file reserved for busy press writers.'

I wiped my forehead with a broad theatrical gesture, ‘You had me worried for a moment.’

He laughed, ‘I must admit that I sometimes feel sorry for my visitors. Anyway, they get value for their entrance fee. They usually retain something from their visits, and I suppose that’s what I’m paid for.’

As we crossed the room, I said, 'I read that the main shaft was blocked with twenty metres of concrete once the mine closure was announced. That must have made re-opening it one hell of a job.'

Jean stopped short, turned, and gazed at me shaking his head. Then a slow, friendly smile lit up his face. ‘Can you imagine,’ he laughed, ‘what a few metres of concrete would mean to a town

full of men used to boring shafts through thousands of metres of solid rock?' He shook his head. ‘Child’s play. That’s what it was for experienced miners. They could cut through that between afternoon tea and the end-of-shift whistle.’

‘So, re-opening the mine presented little difficulty?’

‘Difficulty?’ he laughed, ‘It was like a Sunday afternoon outing.’

‘Really?’

'The entire community here knew exactly what to do and how to do it. We had, and still have, all the know-how and the equipment to do any type of mining. Anywhere.'

Clearly, this man had inherited a large chunk of his ancestors' genetic makeup. 'But surely,' I added, 'the shafts and galleries must have been in an incredible state of disrepair.'

Once more, Jean shook his head. ‘You’re talking about a population who knows what goes on underground better than what happens up here.’ He said. ‘All the retired mineworkers knew exactly what must have happened down there since the place was sealed off. They knew what would need to be done, how to do it, and how long it would take.'

‘So,’ I said, ‘It was simply a question of giving them the go-ahead.’

‘And the money. Yes, that’s all,’ he smiled. ‘But this time, money was not a problem. Not like it was in the old days. So, we all knew that the job could be done better and faster than when maximising returns on investment was the law.'

I nodded slowly, 'So I guess all those involved had a great time getting the mine back into shape.'

'You bet. It was as if the sun had suddenly come out from behind the clouds.'

'And no one was against the idea of using the galleries to store nuclear waste?'

'You must be joking. Here, the entire male population risked their lives, sweating down there in the stifling dusty heat for years. They knew what the dangers were by heart and how we could ensure the stuff was safe down there.'

‘You all knew what the real risk was then?’ I asked.

'You bet. The local miner's union is not made up exclusively of choirboys, you know.’

‘Yes, I’ve heard a few things about them over the last few years.’

The big man chuckled, ‘our fathers and grandfathers were used to being lied to. So, they

got used to sifting the wheat from the chaff and figuring out where to find the true facts.' Then, he smiled, 'My generation is the same, except that we've had a better education.'

'Yes,' I laughed, 'A generation with brains and muscles too.'

He laughed too, 'it didn't take us long to understand how the vitrification process of nuclear waste worked. Don't forget that we miners know that gas constantly leaks out of solid rock walls. That's how poisonous or explosive atmospheres build up in mines. So everybody here understood why the vitrification process was the best and most stable long-term storage alternative.

‘So, there was no opposition?’

‘I didn’t say that. The opposition came from elsewhere and often from do-gooders of various origins. We simply explained the truth to them clearly, and once they had got the hang of that, they went away.’

'Yes,' I screwed up my eyes, 'And I heard those explanations often resembled free-for-all rugby matches,' I laughed.

‘Yeh,’ he chuckled, ‘Ones where the referee is forever looking the other way.’

‘It’s odd though,’ I frowned, ‘That your region seems destined to attract the attention of what you call do-gooders.'

'Call them what you like,' he said, 'The term "Environmental activists" looks better in print nowadays, though.'

'Anyway,' I continued, 'In the old days, they fought against you for polluting the planet by taking fuel out of the ground. Now they are fighting you for polluting it by putting fuel back down there.'

The broad shoulders shook with mirth, 'Ha, ha. That's amusing. First, we dug up live fuel, and that was bad. Then we bury spent fuel, and that's bad too.'

‘Must be in the genes,’ I said.

‘Those would be Blue genes,’ he laughed. ‘we got through a lot of those in the old days.’

‘Anyway,’ I said, ‘all in all, you miners are proud of what you have managed to achieve here. Against uneven odds?’

‘Yes. But as I said, money was not a problem this time, so the scales were heavily tilted in our favour.'

'A lot of work for many people,' I suggested.

‘Yes. And don’t forget the huge grants that the state now pumps into the local government. And jobs for life.’

By this time, we had reached the rebuilt headframe come hoist-house.

This was an equally well-protected building, surrounded by a tall barbed-wire fence and another but smaller guardhouse.

Inside the brand new and unexpectedly clean headhouse, I was supplied with a one-piece white protective overall, which I zipped over my clothes.

My guide, Jean, put on a yellow one of a heavier cotton and then handed me a safety helmet sporting a LED headlamp.

He then passed over a small backpack.

A gas mask was clipped at the front of the shoulder straps. From this, a tube ran back to an oxygen canister in the pack. A radiation detector was clipped onto the other strap, a thin wire running to the backpack. My equipment was completed by a pair of noise-cancelling headphones, identical to those I had used on the Red Sea mining ship.

Jean helped me get everything into place, then nodded, satisfied, 'This is your security pack.

Don't worry. Nothing ever goes wrong down there nowadays. All the same, it's best not to allow oneself to be lulled into a false sense of security.'

‘Especially when you’ve got a thousand metres of rock above your head,’ I added.

‘One thousand three-hundred, to be exact,’ he said.

‘We’ll need the headphones down there because of the ventilation system,’ he said. 'There are some pretty big fans down there. However, the guys who design them obviously don't include noise reduction in their calculations.'

I nodded, and Jean led the way across the shiny, white-tiled surface to the personnel lift, or cage, to give it its correct name.

When it arrived, I could see that the term "Cage" was entirely in keeping with the object.

It was designed precisely as of old. A three-tier iron framework, with room for about twenty men on each tier.

The only filled-in sections were the floors of each level.

As we stepped inside, Jean leant over, 'Not claustrophobic, I hope?' I shook my head. Then he nodded, 'This thing goes down pretty fast, you know. Don’t worry though, it’s got good brakes...’ he chuckled to himself.

He closed and locked the heavy iron mesh door and then pushed a button. 'Pushing this, tells the guy in the hoist house that he can let us down. All three cages must be locked before the security system allows him to start.

There was a very slight shudder then we started very slowly to slip downwards.

The newly concreted shaft walls were studded with LED projectors every few metres. These flashed by at an increasingly fast rate. Then, finally, the light from our entrance tunnel disappeared. I was just getting accustomed to this relatively sedate speed when Jean smiled at me. 'He'll take the brakes off in a moment, then we'll really get shifting. We'd take half an hour to get down at the present speed. Normally it takes two minutes.'

I opened my mouth to comment on this, but at that exact moment, the brakes were taken off...

We plummeted down into the shaft, the projectors on the walls outside blurring into an almost continuous, glowing line.

I gulped for breath as my stomach, and a few other organs fought their way upwards.

My ears were blocked, and air came whistling through the open iron framework.

The cage shot downward at a truly fearful speed. From time to time, a bright gallery opening flashed past as we fell deeper and deeper into the bowels of the earth.

I glanced over at Jean, who was whistling happily to himself. Then, glancing in my direction, he leant forward. 'Brilliant, eh?'

I did my best to look enthusiastic and unconcerned by the terrifying downward dash and nodded back.

I prayed that the man dealing with the brakes wouldn't get an unexpected phone call from his wife or decide to refill his coffee cup.

Two minutes is only one hundred and twenty seconds. However, even this seems like a lifetime when one expects to be pulverised against the rocks at the bottom. Try it. Counting slowly. I stepped gingerly towards the cage wall and extended my hand to grasp it. However, Jean caught my arm roughly, which gave me such fright that I thought I would faint.

'For god's sake, don't put your hand through. If anything out there caught it, it would rip half your arm off, and we'd probably never find the bits afterwards.

I looked down at my feet to avoid him seeing my whitening cheeks. However, the brakes came

on at this moment, and the cage slowed progressively. For a short while, my insides decided to see if they could find a way out by some lower path. Luckily, we soon came to a halt, and I staggered out into the brightly lit gallery.

I stood there for a moment and blew out my breath loudly.

'Yes,' smiled Jean, nodding, 'pretty impressive the first time, isn't it?'

'How long does it take to get used to flying down in that contraption?' I stumbled over my words.

'Oh. I don't know.' He hesitated, 'A week or two, maybe a month. But mind you, going up is fun too.'

'Fun!' I gasped.

He shrugged.

We had entered an entirely unexpected place.

It was a vast cavern carved out of rock.

The high arch of the roof had been reinforced and strengthened with white painted cement, and the floor itself had been treated similarly. However, the ground was also coated with white paint, which gave the whole place an odd clinical aspect.

Along one side of the cavern, several yellow-painted mine trains stood. These were parked on

rails that disappeared down several galleries leading off the chamber.

Jean pointed behind us. ‘Look,’ he said, ‘that’s the cage we came down in. It’s used for personnel transport. The one beside it, the big one, is used to bring the goods and equipment down in. You can fit two Land Rovers in that.

I nodded as he pointed to a line of vehicles and some squat bus-like personnel transporters.

'All the vehicles down here are electric,' he said. 'They're a rather special design, though. We can't risk having any sparks down here, just in case...'

I nodded, and a wry smile spread across my face, ‘In case we get blown to bit by a gas explosion...’

The man shook his head, ‘with the ventilation running, there’s no risk of gas accumulation. But, in any case, it’s impossible to stop gas seeping out of the walls. The coal veins are literally dripping with it.’

‘So, if the ventilation breaks down...’ I queried.

'We get out. That's what the masks are for.'

'OK, only joking. Anyway,' I added, 'I suppose the temperature down here would get pretty high without the ventilation.'

Jean knelt, ‘Here. See for yourself, touch the floor.’

I knelt beside him and lay my hand on the white-painted concrete.

‘See what I mean?’

‘Yes. Just warm.’

‘Exactly. The rule of thumb is that temperatures rise by roughly two degrees per hundred metres depth.’

‘Does that always work?’ I asked.

'Not so bad, but they use three degrees in some places. It depends on the geological structure. For example, the South African gold mines go down about four kilometres, and the walls in the deepest galleries reach sixty-five degrees centigrade.'

‘Sixty-five. Yes, I read that the other day. A little on the warm side, I thought.’

'Yeh. I can tell you that miners don't lean on them to rest. You can't even touch the floor. A few years ago, the Russians drilled a borehole down to about twelve kilometres. That's the world record. They measured a hundred and eighty degrees centigrade at the bottom.'

I did a quick mental calculation, ‘One point five degrees per hundred metres. Not far off.’ I paused, ‘Mind you, it has to rise anyway. I mean,

considering that the earth's centre is around seven thousand degrees.'

‘So, you’ve been down to measure it then!’

I laughed, 'Not this week. But mind you, it's lucky that's seven thousand kilometres down, not just seven thousand metres.’

He nodded. 'Yeh. But when you think about it, we don't know much about things. For certain, I mean.'

I frowned at this because I had heard similar remarks from others during the last few months.

He clapped his palms together and became brisk once more, 'Anyhow, I guess the planet can manage without my opinion. Come on, lets' get going. We'll use one of the four-wheel-drive trucks. It'll take us half an hour to reach the storage site.'

‘Half an hour!’ I exclaimed.

‘Yeh. To start with, we can't drive very fast, and second, some of these galleries are nearly ten kilometres long.’

‘Ten kilometres! Really?’

'In the old days, miners travelled in special wagons added to the trains. They were almost the same as those ones over there. What's more, that only took them to the end of the transport gallery. Sometimes they still had to walk another

kilometre or more down the coal vein to the work front.'

‘And back again when the shift was finished, ‘I added.

'Yeh. They didn't have much energy left to play football after work in those days.'

‘Happily, they had enough energy to breed. Otherwise, you wouldn't be here today.'

‘They did that on Saturdays, after the pub.’

We laughed together.

'A tough life, though? I frowned.

‘Yes. But any worker’s life was hard in those days. Anyway, thank God that coal dust and the gases didn’t interfere with the reproductive functions.’

‘I wonder if the wives agreed,' I smiled.

He chucked, ‘Yeh. Maybe not.’ Then he became sober.

‘Now,’ he said, ‘Take your radiation detector, and I'll show you how it works.'

I unclipped the little plastic box from my shoulder strap. It was the size of a small smartphone. ‘The electronics and the batteries are in the backpack,’ he said. ‘If you press that button, it'll come on. Yes, that's it.'

The screen lit up, and the display showed a big blue dial with a needle indicator. Beside this was

a vertical LED bar graph with green, orange, and red sections. Finally, across the bottom were two readouts with numbers flickering.

'All the indicators show the same data in different formats. You choose the one you prefer. The natural background radiation level is about a quarter way up the green region. Orange means don't stay unless you're wearing protective clothing, and red means get out fast. Got that?'

I nodded, and he pointed to the screen, 'The numbers at the bottom change colour to reflect the level. Like that, you don't have to remember a value at all. The needle changes colours too.'

The bar graph gauge was flashing slowly at the natural radiation level. Sometimes it went a bit higher, sometimes a bit lower and I found this reassuring. Finally, Jean opened the vehicle door and dragged out a heavy metal container about the size of a shoebox.'

'This radiation calibrator has a radioactive source inside a lead case. If I open it, your indicator should climb to just below the orange region. It makes sure everything is working as it should.'

At this, he opened the lid. As he had said, the three indicators shot up and settled down just under the orange level.

‘See, all working perfectly. I checked my equipment before collecting you.’

‘So,’ I said, ‘as we get closer, the indictors should rise. How high?'

To about the orange limit. We'll be able to open the observation window shutters, but we can't go into the storage corridor.'

'I suppose the window is made of lead glass then, like the old-time TV screens.'

‘Exactly, and the walls are four metres thick too and block almost all radiation.'

'So, the storage location doesn't need to be so far down.'

'No, of course not. Not for the direct radiation problem. But for maximum safety, it's always better to get as far below any water tables as possible. Also, it means it's too difficult for any terrorist to get at, even by setting off a bomb, which might spray the waste all over the countryside."

‘So, putting the stuff down here is ultra over-kill, then.’

'Yeh, if you put it that way. But it also allows everyone to sleep in peace. Once the mine is full, which it nearly is, the accesses will be sealed, and only a single inspection shaft will be left.'

We jumped up into the vehicle. The thing started with an electric drive's characteristic smoothness and silence.

At first, I watched the dials on my indicator. But as they seemed unwilling to do anything spectacular, I settled down to watch the gallery wall slip by.

About halfway, we met a similar vehicle coming in the opposite direction. The gallery was as wide as a three-lane road, so passing was no problem, but the driver slowed down and stopped. Jean stopped too and wound down the window. 'Hi, Jean. OK?'

'Yeh. Bit of movement this morning. Barely more than usual, though. Level's staying stable.'

'Great,' called my driver, 'see you later.'

'Yeh.' And the cars pulled away from each other.

'What did he mean by movement?' I asked.

'The whole place is always shifting, you know. You can't dig out millions upon millions of tons of rock without weakening the structure.' He said, keeping his eyes on the track. 'In the old days, they only had wooden posts and beams to hold the place up. Sometimes that wasn't enough, and the roof came down on them.'

'Great,' I said.

'But nowadays, the roofs here are reinforced with girders. So we know how to do it properly, and now we have all the money we need.'

‘But that doesn’t stop things moving a bit,’ I said.

'No. Nature doesn't like empty galleries? Especially when ten million tons of rock are pressing down on them.'

‘You’re really reassuring,’ I laughed.

'Oh, we're all right for the moment,' he said, 'there have been no collapses in this part of the mine for twenty years. This is the most stable part of it. But mind you, nature will eventually squeeze the entire network of galleries and seams closed. It might take her a hundred years or a thousand, but she’ll finish by doing it.’ He frowned. ‘Mother nature is infinitely stronger than we are.’

‘And then this stuff will be safely enclosed until the end of time,’ I said.

A little dust floated down from the roof a hundred yards ahead of us. 'That's what we call a movement,' he nodded. 'We have vibration detectors all over the mine to see exactly what's going on.'

‘Like seismographs?’ I asked.

‘Not like them,’ he smiled,’ they are seismographs. We've got dozens scattered down these galleries and seams.'

He looked over at me, ‘You should start to see the radiation level rising now.’

'I glanced down at the indicator, 'No, nothing for the moment. Are we still a long way off?'

‘Nearly another kilometre,’ he frowned, ‘let me have a look.’

I passed him my indicator, and he pulled a face. Then he extracted his own detector. 'Odd that. It should be rising a bit now. I'll have to have the calibrator checked later.'

We saw another dust fall a little further down the gallery, and he turned and looked at me, 'see?'

I nodded, ‘Does it do that all the time?’ I asked.

‘Yep. All the time. Just don’t think about all the weight above you. That’s all.’

‘Thanks, I’ll do my best.’

At this moment, the gallery made a gentle turn to the left, and I noticed that my indicator was at last rising. 'The radiation level's increasing now,' I said.

‘Great,’ replied Jean, ‘It should go up fast now. You’ll soon be able to see the end wall too.’

We then came out onto a straight part, and I could make out a white barrier a few hundred metres ahead.

When we reached it, I discovered that this was far more impressive than I had expected. It filled the entire space, at least thirty metres wide and the same height.

Over against the left-hand wall, another vehicle was parked, and a group of men were at work. One of them was holding up a thick bundle of electrical cables. These looped from hook to hook back down the gallery from where we had come. A second was bolting a heavy metal box onto the rock wall, while a third, white-clad and helmeted, held a laptop at which he was peering intently.

Jean smiled, ‘The wall is twenty metres thick in three separate sections. The roof's not likely to come down here for quite a while. The main entrance has now been sealed with concrete. We've only left the inspection door over there.

The last of the three walls is only two metres thick, and that's the one with the window. Next week, the inspection corridor will be filled with concrete because the gallery is full. The whole site is, in fact. That's why we wanted you to come

and have a look before we finally sealed the mine entrances completely.

‘Even the inspection galleries?’

‘Yep. Everything. We’ll seal the main shaft with thirty metres of concrete, the same as before.'

‘But what about all the equipment and the diagnostic stuff?’ I asked.

‘It’ll all just stay down here.’

'Like in Tutankhamun's tomb,' I smiled.

'Yep. Exactly. We'll keep an eye on the diagnostics and measurements until they stop working. That might be a few years or ten or a hundred. Who knows. At least, that's what those guys over there hope anyway.'

'What are they up to?' I asked, frowning across the gallery at their backs.

‘They’re setting up a network of sensors to measure wall potential or something like that.’

‘Wall potential! down a mine?’

‘Maybe it was electric currents. I can’t rightly remember.’

However, as I watched, the tall, thin man holding the laptop turned, and I started. 'Isn't that Professor Lappov?’

‘Yeh, that’s right. He’s a geophysicist.’

I frowned, ‘Not only. The man also happens to have been awarded a Nobel Prize for physics five years earlier.’

Jean pulled a face, ‘Hell! I didn’t know that. An important boffin then.’

‘Yes, best known for his work on the sun’s magnetic field. I wonder what he’s up to down here?’

‘Maybe some sort of particle detector. Several research groups tried out things like that a few years ago.'

‘Searching for neutrinos?’ I asked.

He pulled a face and rubbed his chin, ‘Sorry. No idea. I had too much on my plate at the time.’

I glanced over at the little group who were now connecting wires inside the metal box, which was now firmly bolted to the wall, ‘Have we time for me to go over and say hello?’

'No trouble, let's go.'

We stepped over, and the professor lifted his head and smiled as we approached, 'Hello Jean,' then, turning to me, held out his hand, 'I believe we have met before.'

‘Yes,’ I said, ‘I interviewed you for the "International Science Digest" after your Nobel prize. My name is William Stone.'

'Ah, yes! Of course, Dr Stone of the famous “Stone Scenario”.’ He nodded, ‘Ian MacGregor told me about you.’

Jean laughed, ‘Well, your name seems to get bandied around by some rather illustrious people. I thought you were just another reporter.’

‘I am.’ I laughed.

'Oh no.' said the Professor, 'Certainly not. Not just another reporter. A good one for once.'

We all laughed, and I asked, ‘If it’s not confidential, what are you doing down an abandoned mine? I thought you still specialised in solar physics.’

The professor cast a quick look at Jean and frowned slightly. He seemed to be weighing up the risk of speaking in front of Jean. However, the latter appeared to detect the delicacy of the situation and nodded, 'I'll be over there when you've finished. I've got to check the gas detectors.' and off he strode.

'Nice boy, Jean,' said the professor, 'I wonder what will happen to him when they've sealed this place off.' He then turned and called out an order in Russian to the men behind us. 'And you'd like to know what I'm up to, eh?'

‘For personal interest only. Not for publishing.’

‘That suits me. This work is not ready for publishing yet.’

‘Jean said you were measuring wall potentials or currents.’

‘Both. But let me go back a few years. Otherwise, you won’t follow.’

‘Suits me.’

'Well. After the prize, we obtained some welcome funds to try out my new detectors. However, I needed to screen them more than was possible in the lab.'

‘So, you took the lab down a mine.’

‘Exactly, we used a South African gold mine, and the screening of four thousand metres of rock turned out to be just right. So, the experience was a success.'

‘Yes,’ I said, ‘I read the publication in “Nature”.’

‘But while we were down there, we stumbled on some peculiar things.’

‘Oh!’

'Well, we had a lot of trouble when we tried to connect parts of the detector separated by multi-kilometre long cable runs down the galleries. Every now and then, all the data went wild.' He glanced at me, 'Any idea why that should be?'

'I'd say earthing problems. Some potential differences between the two distant points. It happens all the time in big experiments.'

'Yes, so we had to use fibre optic links, which solved the problem.'

“So?’ I frowned.

'Well, I don't like not understanding things. So when the main experiment was finished, I did some extra measurements of my own.'

'You wanted to know where the disturbance was coming from.'

‘Exactly, and what I found was very odd indeed.’

‘Really?’

'Yes. When I connected my sensitive voltage measurement to metal rods set into the old coal-seam walls, I detected a continuous train of signal pulses.'

‘That’s odd.’

‘Yes, I’ll show you in a moment. But I only found the pulses in a few of the galleries. And even then, only in those below one thousand metres. So, the signals seemed to depend on the direction of the galleries too.'

'And you had an idea about the origins?' I asked. Couldn't they just be some odd telluric current?'

'Well, no. They are far too localised and too strong for that. I first suspected they were linked to fluctuations in the sun's magnetic field. But that idea quickly fell through. The surprising thing was that the pulses were quite repetitive and bigger than I would have expected. Then sometimes, the frequency of pulses would fly up, and the shapes would change.'

‘That means that the electric current must have been remarkably high. But you had no idea where they were coming from?’ I asked

At this, the man laughed, 'Ian warned me that you often said unexpectedly valid things.’

‘Sorry.’

'I didn't know where they were coming from, but I soon discovered they were seemingly going somewhere.' I frowned, and he chuckled to himself. 'Look.'

He turned the laptop, 'I'll show you. I've installed ten detectors along the gallery containing the nuclear waste cylinders. It's several kilometres long, and I've spaced the detectors at equal distance, every three hundred metres.' He paused and flipped the screen to another view. 'Now, look at the shape of this voltage pulse.'

There was nothing particularly earth-shattering about the waveform. It was a blip shaped like the Matterhorn and lasted about a second.

'Now,' he said, that one is from just behind the wall over there, and this one,' He pointed, 'Is measured two kilometres further down that tunnel. The waveform is of exactly the same shape. Surprising, eh?'

I nodded, and he smiled, 'but now look at this.' He switched pages and brought up a real-time graph showing the output of all the detectors down the gallery, one above the other.

'Oh! Now that's interesting,' I said, getting closer. 'It looks like that voltage pulse is travelling along the gallery wall.'

'Brilliant. Ian told me you were sharp. Well spotted. Yes. The pulses always move as if travelling down a wire wherever we find them. Fascinating, no?'

'Incredible,' I admitted, 'but what's causing this effect?'

He didn't answer this but went on. 'The pulses never go the other way. Since we discovered the effect, we've done measurements down dozens of mines. We've had other teams make measurements in many countries, and we always find the same thing. So, first, there's a critical

depth, and second, the pulses only go one way. Sometimes the signals go wild, but they usually settle down again after a day or two.'

'That seems incredible,' I pulled a face. 'And you have no idea what causes it?'

‘Well, maybe we’ll touch on that later. But that's not the most remarkable bit about it,' smiled the professor.

‘Oh?’

"Well. Once we had several hundred mines cabled and working, we set up an internet transmission network. With this up and running, we could compare the outputs from all mines in a given country or the entire system output.' He smiled, 'And that's when the big surprise came.'

‘Because there’s a bigger surprise?’

'Oh, yes. Several. First, we marked the galleries on maps of each region of the globe. Then, we discovered that the signals ran in a specific direction, all pointing to a single geographical location. However, when we located the spot and went there, we found nothing obvious.'

‘At ground level,’ I interrupted. ‘But perhaps there’s something deep underground.’

He shot me a quick sideways look, ‘Oh Yes. There’s a lot of stuff down there we don’t

understand yet. The trouble is that the interesting stuff is lower than we can get. The important region might be as far down as a hundred kilometres.'

At this, I raised my eyebrows, but he smiled. 'Don't forget that the earth's centre is over six thousand kilometres deep, and the deepest borehole we have ever drilled is only about ten kilometres.'

This rang a bell for me. I used a simple analogy during my conference tour when discussing the oil mines. To help my readers visualise the depths of the mines, I likened the earth to an inflated beach-ball. I explained that the deepest mines wouldn't even puncture its thin plastic skin.

The professor went on, 'But even boring down only that far costs a fortune. So, we'd need some very persuasive arguments before we could expect to get funds to do anything serious.'

I nodded, 'Yes, I understand. But this directional flow reminds me of currents flowing towards one of the electrodes of a huge underground battery.'

'That's one way of looking at it,' he said, 'but not the only one.'

'But?' I asked, 'couldn't the currents you measure just be a small part of the giant ones that

are supposed to create the earth's magnetic field. If that were the case, maybe you're simply measuring part of it flowing back to join the main current lower down?' I asked this with enthusiasm because I was becoming more and more fascinated by the subject.

'The dynamo effect, you mean,' He shrugged. 'Not everybody is satisfied by that explanation, including myself.'

'And Professor MacGregor,' I added.

'Yes. But if that were the case, why are there pulses while the earth's field is stable?'

I nodded, 'Yes, that's true.'

'Anyway,' he continued, 'We haven't ruled anything out yet, but here's the most unexpected result.'

I looked up, '*more* unexpected!?'

'Yes, there's more.' He chuckled, 'Once I had all the data on the super-computer, I played about with it. I tried to correlate the periods of rapid or unstable pulses with major geological events occurring around the planet. What astounded me was that these unstable periods always preceded the events by two to three days.'

'You mean before seismographic signals were detected?'

‘That’s exactly what we found.’

'But that means that your measurements detect precursors to geological events before they occur.'

'Yes. Exciting, isn't it? But remember, seismographs only measure the vibrations caused after the forces have built up enough and then trigger movement down there.'

'I see. You're implying that your signals are produced during the force build-up phase. A bit like the swelling of a man's muscles as he starts to push against an object and before it starts to move.'

The professor nodded, 'Good image. yes.'

'Brilliant! An early warning detector. But what causes the signal?'

Professor Lappov started and frowned at me with a surprised look, 'Decidedly, Ian was right when he said you were quick on the uptake.' He paused and seemed to be turning something over in his mind, 'Your image is excellent, but with a slight refinement. The signals might be caused by some sort of stressing mechanism occurring during pressure build-up, such as the compression of the rocks. But, on the other hand, they might be a precursor to it.'

‘A precursor?’ I frowned.

'In your comparison with a man pushing an object, the signal might correspond to the signals telling his muscles to contract. And before they start to do so.'

I nodded, 'Yes, I see. You mean there might be several steps before any movement occurs.'

He gazed at me and smiled, 'Who knows?'

'But I've seen nothing published in the scientific press.'

'No. That's because I am the only person with access to all the data. Well, me and my team.'

I frowned and glanced up at him, 'and of course, the Nobel prize secret society.'

At this, the professor started, 'And what pray, do you know about that?'

'I'm only guessing.'

'Your guessing is disturbingly close to the mark. Mind you,' he laughed, 'Ian warned me about you.'

I laughed, 'Have I really got such a terrible reputation?'

'Not terrible. Anyway, we don't understand what is causing the voltage pulses. So, we're trying to find ways of processing the data to determine where an event will happen.'

I nodded, 'Difficult.'

‘Yes. For example, we detected the Red Sea event three days before it happened but didn't know where it would be or what would happen.'

I was astounded by the implication of the professor's discovery. I felt that it was an even more extraordinary discovery than the one for which he had been awarded the Nobel prize.

I frowned, 'But why should these current signals only exist in mining galleries. Maybe they are flowing everywhere deep underground.'

The professor smiled and sighed, 'I should say that that is a very distinct probability. It also fits in nicely with some revolutionary ideas of one of our other Nobel Prize pals.'

At this moment, one of the men behind us called, and the professor nodded, 'Well, there you are, Dr Stone. Remember though, that all this is confidential. I can count on you to keep it to yourself, can't I?’

I nodded, ‘It was a pleasure to talk to you again, professor. Please contact me when you’re ready to publicise your findings.’

The man shook my hand, ‘You’ll be the first.’

He turned and started talking rapidly in Russian again. The three men then climbed into the car and drove back down the gallery.

As I walked back, Jean was messing about with something in the boot of his car.

My indicator had now risen to the last quarter of the green range. However, as soon as Jean unlocked and pulled open the lead shielded door, it jumped to within a millimetre of the orange section.'

‘See,’ He nodded.’

We made our way through a shoulder-width corridor in the concrete block and came out into a four-metre-long open space. We then entered an identical passage in the second section of the wall.

My detector rose gradually, flirting with the bottom of the orange range.

Finally, we came out into a two-metre-long area in front of the final wall.

In this, a window was set. It was about a metre long but only thirty centimetres high. Jean stepped over and tapped it with his knuckle, 'two metres of lead glass,' He smiled. ‘In several sections, of course.’

'I'll put the lights on to get a good view. You can take photos if you like, but there are some good ones in your press file.'

He stepped over to one side and pushed a button on the wall.

‘Christ!’ I exclaimed and drew in my breath, ‘Holy Moses...!’

‘Surprised?’ he laughed.

Extending away from me into the distance were row upon row of barrel-shaped metal cylinders glinting in the light.

The sight reminded me of the Terracotta Soldiers in Xi'an. However, here in the mine, they marched off in serried lines until the eye could no longer distinguish them in the distance.' 'Good heavens!' I exclaimed, 'I never guessed there could be so many? There must be thousands.'

He smiled, 'Yes, thousands *and* thousands.’ He paused. ‘And this is only one of our four storage galleries.’

‘Great gods!’

‘Amazing, eh?' he nodded, 'What's more, this is only one of the five sites in France. What you see in front of you is the remainder of the backlog of French spent fuel.' He seemed pleased with this, 'So we have finally got over a million cubic metres of spent nuclear fuel out of the way for good. The fifth mine will open this winter and take over.

‘We could have put much more down here, but it was decided only to use the main galleries. I suppose that's probably best in the long run.’

I was flabbergasted by the sheer enormity of the project. 'So, we've enough safe storage in France for years then.'

'I'd guess it would be closer to a hundred years than ten. May two hundred.'

I pulled a face, ‘More than enough for us to find a better way of treating the waste then.’

Jean nodded, 'But on that time scale, I'd put my money on fusion reactors. They don’t produce waste like fission does.’

‘Not renewables or solar cells, then?’

'Try to run a big factory off solar cells and see how far you get.' He pulled a face. It's high time we stopped trying to pull the wool over everybody's eyes. Try supplying a city like Paris using solar and wind energy alone. Then come back and tell me how you did it.’

I must admit that I agreed with him. Still, I tried to be optimistic, 'Given the time scale, as you say, we may discover some new technology we haven't thought of yet. Perhaps we'll find a new material which will boost solar panel efficiency from ten or fifteen per cent up to eighty per cent.’

Jean shrugged, 'Yeh, of course. In that case, things would really get interesting. Unless, of course, China had a monopoly of your new magic material.'

I laughed aloud, 'Optimism doesn't seem to be one of your strongest points, Jean.'

'Maybe, but realism is. We might not be around long enough to get that far.'

‘Optimism again.’ I laughed.

However, at the very moment, there was a slight tremor, followed by a fall of dust a little way down the tunnel.’

Then there was a crackling, and a voice came over Jean’s interphone.

‘Jean?’

‘Yeh.’

‘A bit of seismic activity down your way. Seen anything?’

‘Yeh. A bit further down the storage gallery.’

‘Oh!’ Came the voice again, ‘There it goes again. See anything?’

‘Nope. Nothing here.’

‘Coming up soon?’

‘Yep. Just on our way.’

'OK. Oh! There it goes again. See anything?'

‘No. Nothing.’

‘OK. See you.’

‘See you.’

He turned to me, ‘I can’t open the door here. I haven’t got authorisation when I have a visitor. I'm not even allowed to have the key. Security...'

I turned back to the window, and then without warning, all hell broke loose. A cloud of dust appeared in the far distance and came billowing towards us.

‘Hey!’ shouted Jean, ‘what the hell?’

There was a crackling, and the voice came on again.

'Hey, get up here quick. There’s something big on the way.’

‘On our way.’ Jean shouted back.

'But as we turned back to the window, something incredible happened. The ground beneath the gallery fissured to within twenty metres of our standing place. Then without warning, the floor fell away, and a gaping hole opened.

The lines upon lines of storage cylinders toppled and fell into this chasm and disappeared in a swirling cloud of dust. Even through the two-metre-thick wall, the roar of the collapse could be heard, and above all, felt.

I stood riveted to the spot as the unbelievable played itself out before my very eyes.

The entire thing took no more than thirty seconds.

‘Look!’ I gasped, pointing at my detector.

The indicators had all fallen right to the bottom of the scale. Lower even than the level of the background radiation.

Jean checked his own, 'Christ!' he cried, ‘What the hell has happened?’ Then he hesitated an instant. ‘Take a photo quick, and let's get out of here fast.'

By this time, the dust seemed to have been sucked down the chasm with the cylinders. The lights now showed a vast expanse of emptiness for as far as the eye could travel. Not a single cylinder remained.

There was a crackling, and the voice shook us out of our stunned state.

‘Get up quick. Something big is happening down the other storage galleries too. Can you hear me?

‘Yeh. The entire stock has just disappeared down a great fissure. We’re on our way.

We darted down the narrow concrete passages and finally out into the gallery.

However, here we stopped short. A huge block had detached itself from the roof and had crushed our vehicle flat.

'Oh, balls!' cried Jean, 'come on, we'll have to run for it.'

He whipped out his gas detector. And sighed, 'We're OK. No gas at all. We're damn lucky.

I considered that his idea of being lucky didn't precisely coincide with mine.

'Can you run?' he shot me a worried look.

'Yep. I'm in pretty good training.'

'Let's go then. Seven or eight kilometres, though.'

'I can do it.' I nodded, starting off at a gentle trot.

'It's too damn hot and humid to go fast,' he said. Then looking about, he said, 'Doesn't seem to be any trouble out here though. Odd that.'

He then pressed his intercom button, 'We're running back up the gallery. The roof came down on the car.'

'OK,' came the reply. 'I'll have the cage down there waiting.'

'Put some water in it so we can drink. With these damn backpacks, it'll take us the best part of forty minutes to get back. It's far too hot for sprinting.'

'OK. I've got some cold beer up here too. Make it as fast as possible. Somethings wrong down there.'

‘We noticed that,’ he snorted. ‘Thanks for the information.’

At such moments I was pleased to have carried my running gear with me during my year-long conference tour. I must have trained in thirty different countries in that single year, and although no champion, I felt no anxiety about the present short run.

We ran on in silence as we gradually got into the stride. Then Jean turned to me, 'Notice anything odd?' he said.

‘No. Except that thousands of canisters of highly radioactive waste have just disappeared down a hole in the ground. Apart from that, no, nothing out of the usual.’

Jean was breathing hard, and I guessed he wasn't in quite as good physical condition as I was, ‘Shall we slow down a bit?’ I asked.

‘Yeh. A bit fast for me. Doesn’t seem to be much danger here anyway.’

I slowed a little until I noticed his face relaxing slightly.

‘What did you mean, anything odd?’

'Well, the roof didn't collapse.’

‘No.’

‘So that fissure we saw wasn’t a crack opening up in the rock floor.’

‘Why?’

‘Because if it was, the gallery floor would have widened, wouldn’t it, and the wall would have been pushed back.’

‘OK, I see. And the roof would have caved in.’

‘Exactly.’

‘So?’

'That implies,' he puffed, getting his breath, 'that the gallery floor collapsed into some sort of cavern.'

‘Got you.’

‘So...’ he pulled a face. ‘Oh, Christ! I’ve got a cramp in the stomach.’

‘Push your fist into it, bend over it, and blow out as deep as you can.’ I called, having been through the same experience many times in the cross-county races of my younger days.

After a few moments, he straightened himself, 'It works, incredible. Thanks.'

‘Well?’

'Well, before we chose that gallery, we put down four test boreholes along the length to check the stability of the underlying rock. We hadn't ever been lower, you see.'

‘Yes, I understand that. So?’

The four places we tested showed no sign of anything except solid rock. So, we went down a hundred metres,' he panted.

'But all that stuff has just disappeared down a huge cavern. So, it must have been there all along without us knowing. After all, it couldn't just have formed there overnight.'

Jean turned his head and gazed at me, his face wearing a curious look. 'But it was there this morning, and it wasn't two months ago.'

Chapter 8

On the train back to Paris, I sat watching the countryside flash past. My "stop-press" report was already in the hands of the editors. So, thanks to e-mail and 5G, my day's work was finished.

The last hours at the mine had been dreamlike, and closing my eyes, I went back over them in my mind.

Jean and I had reached the lift exhausted, soaked with perspiration, but without further incident.

At the top, we found the hall swarming with people. I transferred my photos to a computer, and dozens of men crowded around the screen. To me, many of them looked like retired miners.

After a good deal of animated discussion, several older and more experienced men volunteered to go down. Within minutes, they climbed into the cages. They took coils of cable,

spotlights, and measurement apparatus with them and disappeared down the mine shaft.

Half an hour later, the intercom whistled. The group of men had reached the storage gallery.

'We've lowered the gear,' came a clear voice. ' They're a hundred metres down the crevasse. That's the limit of the length of cable.'

'See anything?' asked the man in charge beside me.

'No. Nothing. No sign of the containers, or anything for that matter,' he replied. 'But what's odder is that the radiation detectors indicate absolutely nothing. Only a fraction above the background level.'

The man in charge frowned. He then gazed around the hall, 'That means that either the fissure has closed again further down, or the cylinders are deeper,' he replied into the intercom.

'Yeh,' came the crackling reply. 'If the radiation metres are calibrated properly, then I'd guess at least a thousand meters further down.'

'The detectors are one hundred per cent reliable,' replied the chief. 'You all know that.'

'Yep,' came the reply. 'We know.'

Later that afternoon, the men went back down, taking several cable drums. This time they let the

detectors and cameras down the fissure almost a thousand metres. Even at this depth, there was nothing to be seen. Furthermore, the radiation detectors continued to show barely more than the background radiation.

The only plausible explanation was that the thousands of cylinders of radioactive waste had found a final resting place far beyond our reach.

I took leave of my somewhat dazed guide, Jean, and drove back through the evening to Metz, where I caught the train.

No one could suggest an explanation as to what had happened. However, the more experienced miners confided with shrugs and headshaking that they were not worried.

'The stuff's gone. That's all,' one said to me. 'And that's good news.'

The miners didn't even appear unduly surprised. Another said, 'when you've spent all your working life struggling about underground, you get used to unexpected things happening,' he nodded. 'We've all lost friends down there. You just have to get used to the idea that Mother Nature is in charge down there, and that's that.'

This final comment seemed to sum up the feelings of all the miners I left behind at Freyming-Merlebach.

The following day I received a letter from Professor MacGregor. As usual, it was brief and to the point; “I read your press release about Freyming. It's high time you met André. You'll be interested in what he has done since his Nobel prize. He'll see you next week.”

The address he gave surprised me enormously. It was one of the rural-skills theme parks that had sprung up over the past twenty years all over Europe.

These parks had become extremely popular with the public, and several were now thriving in France.

The motivation had been to revive traditional methods and demonstrate them in fully functioning community environments. The concept had at once caught the public's imagination, and the places had flourished and grown.

I wondered why a Nobel Prize for Medicine winner would choose to meet me in such an unusual environment.

Since opening, many of these theme parks had blossomed into entirely autonomous communities in which no modern technology was used. The founders had ruled that there should

be no electricity, no petrol, and electronic equipment was totally banned from the sites.

They had drawn to them people stimulated by the challenge of reviving forgotten trades. Most of these were neither dreamers nor intellectuals but people ready to embrace a more rustic way of life.

As everything was done by hand or with the aid of farm animals, as our ancestors had, a lot of physical work was involved. To their dismay, some participants realised that enthusiasm alone was not enough to live such an arduous way of life. As a result, intellectuals, dreamers, and would-be hippies typically left within the first week or two.

The unexpected success of the sites brought with it welcome income from entrance fees and the restaurants. And this enabled the community to purchase adjoining farmlands and tracts of forest. So, from their beginnings, the centres had not ceased to expand.

All dwellings and buildings were built by hand, using on-site materials. Thus, even the strongest men discovered just how hard it was to fell a tree with an axe and, even more so, to saw it into planks by hand.

Others gradually mastered the skills required to make bricks, roof tiles, glass panels, and pottery for utensils.

The only thing borrowed from present-day technology was modern know-how and how to apply it to optimise traditional methods.

Traditional farming and growing techniques were the quickest to be mastered. However, the absence of pesticides and synthetic fertilisers meant reduced crops and greater sensitivity to atmospheric conditions. One had to adapt to the uncertainty that our ancestors had lived with. This meant ensuring there was always something to fall back on in case of crop failures.

Farm animal breeds were chosen not for their high meat production but for their resistance to disease and good reproductive qualities.

The sites were always located in regions with plentiful springs, streams and lakes. Where possible, fast-flowing water was harnessed to provide mechanical energy for some tasks. In contrast, slower flowing waters were used for irrigation.

So, by the time of my visit, the teething problems encountered at the beginning of the adventure fourteen years earlier had long been overcome.

However, health remained a major stumbling block because man has come to depend heavily on modern technology to cure ills.

I was thus interested to see what this Nobel prize for medicine had to tell me.

The fact that he had offered to meet me in one of these theme parks was clearly significant, and I looked forward to interviewing him.

So, four days after receiving Prof MacGregor's message, I took the high-speed train to Lyon and rented a small car.

I left Lyon and headed west across the centre of France.

The drive took more than three hours. I eventually found the park isolated amongst forests interspersed with tracts of farmland. It was five kilometres from the nearest hamlet and fifteen from the first village.

The tourist season being well and truly finished, I passed no other cars once I left the main road. However, as I wound my way slowly between the fields, it was clear that, tourists or not, work went on.

The orchards were full of people picking fruit, one or two of whom paused to watch my car pass.

I parked my car in an empty car park and followed a bubbling stream through an ancient cork-oak wood. The path came out into a clearing surrounding an oval lake, roughly fifty metres wide and a hundred long. Into this leapt the stream.

The lake was encircled by about twenty cottages, each standing in its own fenced garden.

I stood in the warm autumn sun, gazing at the unexpected tranquillity of this pastoral site. I wondered where one might find a Nobel prize winner in such a place.

However, I didn't have to wonder long. A cottage door on the far side of the lake opened, and a figure appeared. The man gazed in my direction, shielding his eyes with his hand.

He was short, broad-shouldered, and seemed slightly bent with age from a distance. He waved in my direction and set off along the cobbles towards me.

I immediately started off in his direction, startling a family of ducks, which paddled and flapped away from amongst the nearby reeds.

We met halfway along the path, and the old man smiled as he extended his hand and squeezed mine with unexpected strength. 'Not what you expected, eh, Dr Stone? Ian told me

your Christian name's William. I'll call you that, shall I? You can call me André.'

He was dressed highly unconventionally for such a famous person. His feet were clad with heavy leather boots and his legs with shapeless trousers made from thick homespun linen fabric. His shirt was of the same material, and a dirty broad-brimmed felt hat of undetermined shape protected his sun-tanned face.

He picked at the trousers and nodded, 'All home-made. Perhaps not up to Dior standard, but comfortable and lasting. Also, dead cheap.'

He held out his arm, ‘Here, feel.’

I took the sleeve between my fingers and nodded approval.

‘We’ve got linen, wool and leather here. With that, you can make almost things you need in the way of clothes. Mind you,' he smiled, 'making it look nice is another matter altogether.' The man pulled a face and smoothed down the arm of his shirt. 'Come on,' he said, 'I'll introduce you to the manufacturer, my wife. You'll eat with us, of course. It's time too.' He strode off, 'I suppose you've been on the road since six, so you could certainly do with a bite of food.' He then turned his head and gave me a wry smile, 'and a drop to drink, of course.' He winked, 'Ian told me you

appreciate a good vintage.' At this, he chuckled happily to himself. 'Be prepared though. We make the wine ourselves too.'

I smiled, ‘I’ll no doubt survive,’ I said.

‘Oh yes, not much doubt there. But you may also be surprised. Remember, you’re in France, my boy. Just because one hasn’t the expanses of vineyards for producing fifty thousand bottles doesn’t mean that what you *do* produce has to be dreadful.’

I nodded but prepared myself for the ordeal all the same.

Seen close too, the cottages were more sturdily built than I had expected. The inner walls were constructed with irregular-sized bricks insulated on the outside by a thick layer of wool-like material. The structure was completed by a weather-resistant outer layer of overlapping rough-sawn wood planks.

André followed my gaze and stopped, his hand on the heavy oak door. 'From a distance, these places look horribly rustic, don't they?'

I nodded, 'A bit, yes.'

'A lot, you mean... Anyway, we've applied modern thermal management procedures using the natural insulation materials available. Wool to start with, then hemp fibre, wood shavings and

cork fragments. We've got plenty to choose from, so in the end, it comes down to making the best compromise.

Don't forget that the only heating source in winter here is wood fires, so the better the insulation, the less wood one burns. And as firewood had to be cut by hand, the less one needs, the more time one has for other tasks.'

'So, you don't need cheap synthetic materials at all?' I said.

'No. Admittedly, wool doesn't grow on trees,' he chuckled. 'But it does grow on sheep. And we have hundreds of those.'

I laughed with him, and he went on.

'No, No synthetics at all. The roofs are done the same way, but you must be more careful to keep the rain and snow out. Some years, the stuff stays on the roofs for months.' He rubbed his chin.

'But, once you get it right, a single wood fire is enough to keep the cottage at twenty C. Even when the outside temperature goes down to minus fifteen,' he smiled. 'Especially when you add good thick wooden shutters on the doors and windows. That keeps us nice and snug.'

During this, I had been troubled by something, and I frowned. 'But you surely don’t live here all year round!’

'Oh, yes, I do. Been here for ten years now.'

‘Ten years! Really?’ I was astonished. 'Surely not in winter too?'

André smiled. 'Oh yes, I do... After my prize, I naturally had to travel a lot. But once all that had calmed down, I drove to the lab weekly. However, most people come here nowadays, and we have our meetings in the main assembly hall, down there.'

He pointed to a long, low building at the far end of the pond. Beyond this, I could see a water wheel slowly rotating in the outlet stream.

'Most of the workshops are down that end too. We use the wheel to power the machinery. We'll have a look after the meal if you're interested.'

'Yes, I'd like that,' I said, becoming more and more fascinated by this enterprise.

‘Come on,’ he smiled, ‘let's get a drink and meet the wife.'

As he pushed open the heavy door, I heard a wooden knocking coming from an adjoining room. André called out, and the noise ceased. Then, a moment later, a door opened, revealing a short, sturdy-looking woman, behind whom

towered the form of a weaving loom. 'That's where the shirts come from,' said André.

‘The trousers and the rest too,’ smiled the woman. ‘Welcome to our humble abode, William. I can call you William, can’t I? Ian told me I could.’

I held out my hand, but she darted to one side and reached up to kiss my cheek.

‘You must be starving,’ she cried, gazing up into my eyes, ‘Shall we eat, André?’

‘The man nodded, ‘I’ll get some wine, shall I?’ He hesitated and glanced at his wife, ‘or shall I bring up some beer or cider?’

'I'm sure William would be interested in tasting our wine,' she said, then turning to me, added, 'Ian prefers the wine. I know that doesn't mean it's excellent, but at least it points to it being more palatable than the other two items.'

I laughed with her as André shook his head and pulled a face.

‘I’m sure that if Ian MacGregor can take it, it’ll be ok for me.’

‘Ah,’ she smiled, ‘But Ian has had a lot more training than you,' she chuckled.

‘Does he come here often?’ I asked.

‘Oh yes. Several times a year,’ she smiled. ‘They all do. Ian looks after a similar…’ she

paused. ‘But André will explain all that this afternoon.’

When André disappeared through another heavy door, the women smiled and stepped over to a substantial wood-fired kitchen range. 'I hope steak and chips will do. All our own produce, of course. The meat as well.' She lifted a massive joint out of a heavy icebox and cut some large slabs from it. 'My name's Cécile. André always forgets to do the introductions properly.'

I frowned, 'Where does that ice come from?'

Cécile smiled, 'During winter, we compact the snow into ice bricks and store them in a cave deep under the hill. If we are careful with the insulation, we can keep enough to last almost all year around.'

We chatted for a while, and then she said, 'If you wondered what André did with his prize money. You're looking at it now.'

‘The steak?’ I laughed.

Cecil laughed a little twinkling sort of laugh, ‘No. The village.’

‘The village !?’

'Yes, The village. The project management was catastrophic, and the whole place was doomed. So, he took over.'

‘But surely he’s a scientist, a university man, not a manager.’

She smiled, 'No. And certainly not an empire-builder, that's for sure. But he decided that the thing would be a good long-term investment.' She looked up, 'It fitted in perfectly with his ideas. But he'll explain all that later.'

The meal was unexpectedly good and the wine even more surprisingly so.

'Traditional methods coupled with modern know-how, William,’ smiled André. ‘That can work wonders when the objective is quality rather than quantity.’

I nodded, ‘Really nice.’

'Yes. I don't know if it will keep, but I doubt we'll ever make enough to test that.'

Cécile laughed, 'In our case, the limiting factor is the quantity you get through, not the amount you produce, André.'

‘Very amusing,’ frowned the man.

I waved away a second helping of apple tart, and André pushed back his chair, 'No coffee, I'm afraid, nor tea. The stuff won't grow here. At least we haven’t managed yet. Come on, we can sit outside a while, then I’ll show you around.’

'Don't worry about the washing up, William,' Cécile took the plate from my hand, 'you go and chat with André.'

The man grabbed his hat and led me to a wooden bench beside the pond.

'This isn't an official interview, William,' he looked me in the eyes, 'so what I'll tell you isn't all for the press.'

I nodded, frowning a little.

'Ian told me you could be trusted. He also told me about some thought-provoking ideas you advanced. He guessed you'd be interested to hear some of my more radical thoughts.'

'I'm all ears,' I said, wondering where all this was leading and, even more so, why he wanted to tell me if it wasn't for publication.

'Good. First, let me tell you what I've been up to since the prize.'

'Great.'

'Well, if you remember, my "Grande Coup" was to devise cheap and easy methods for local production of vital medicines.'

I nodded, 'I seem to remember that you wanted to enable poor or isolated communities to be able to look after themselves health-wise.'

'Exactly. That was about it. The initial work got me the prize. After that, we managed to work the

trick for quite a few handy health-care products.' He paused here and seemed to be collecting his thoughts. Then, finally, he turned and gazed at me. 'But then, with a few friends, including Ian, we decided we should refocus our efforts. I believe he mentioned that we Nobel Prize winners get together from time to time to discuss things.'

‘Yes, he joked about a secret society.’ I laughed.

The man nodded, 'Well, we agreed that a more reasonable goal would be to focus on finding substitutes for as many simple medicines as possible. But, above all, the aim was to find ways of doing this without hi-tech facilities. The goal was to do this using only readily available raw materials and simple processes. Above all, no electricity.’

I whistled, ‘A huge challenge.’

He shook his head, ‘We’re supposed to be a team of pretty bright guys, William. So, the least we could do was to have a crack at it.’

I pulled a face, ‘A big job still.’

'But don't forget we had teams of world-class scientists with us. So, you don't think we were expecting to do it in the kitchen sink, William,' He

smiled. 'We also had quite a bit of cash between us...'

The man then surprised me by dragging out an odd-shaped pipe from his ample pocket, which he began to suck. 'The idea was to favour processes that produced only very small quantities, when and where they were needed. This allowed us to avoid the problems of stabilising the products to give them a long shelf life.'

'I bet that set all the pharmaceutical groups at your necks like a pack of wolves,' I frowned.

'You bet!' he laughed. 'They used all the tricks in the book to try and have our funding cut off. However, even the most experienced lobbyists found the going unexpectedly heavy when they came up against ten Nobel prize winners. We kept our funding,' he chuckled. 'And the lobbyists didn't get paid for their troubles.'

He hunted about in his pocket, brought out a small leather pouch and filled his pipe with tobacco. 'Local produce again,' he smiled apologetically. 'Smells foul but tastes...' he paused. 'Well, it tastes pretty foul too, really.'

'So, how did the research go?"

He shrugged. 'Well, our aim was to create a strategy to prevent as many people as possible

from dying unnecessarily and make their lives supportable. We've cracked the problem for a good number of handy medicines and pain killers.' he paused and sniffed. 'The solutions have been tried and tested and are now freely available for anyone to use.' Here he paused to light his pipe with a very odd stumpy match,' Seeing me raise my eyebrows, he laughed. 'Home-made matches too. They work too... sometimes at least.'

‘But your processes need raw materials,’ I said.

‘Yes. That’s where the difficulties come in. One requires a varied supply of vegetation, access to a good number of minerals, lots of water and fire.'

‘Ah, but...’ I started, but he held up his hand to stop me.

'Yes, I know. That means that the solutions won't work in arid countries. Yes. We realised that. Unfortunately, we knew we wouldn't be able to help everybody in the world. It's sad, but that's that.'

‘But your techniques will work in many places.’

‘Yes.’

'And that's why you're here now, is it? To try out your methods in real-time in a real-life community.'

‘Yes, but on myself and my family first.’

‘But there must be an enormous number of drugs you won't ever be able to recreate without modern technology?’

‘Of course. If one day we were forced to rely only on our new methods, then people would die more often. That’s obvious.’

'But using modern knowledge about healthy diets must improve things too.'

'They do. You'd be surprised how few of the people here fall ill.’

‘Except during the tourist season, I suppose.’

'Yes, but we escape the big epidemics of Flu and Gastroenteritis, which usually hit Europe in winter. We've also had a lot of feedback from the other centres.' He cast a look at me and nodded to himself, 'I don't suppose you know how many places like this there really are, do you?'

‘No,’

'There are four in France and two or three in each European country. That makes quite a lot to start with. We have ten in the USA and Canada and several in South America. When you add to that, the ones in Russia, China, India, Japan, and a few more scattered here and there, we end up with about three hundred sites.'

‘Three hundred!’ I was astonished and looked at him with surprise, 'And they're all testing your new methods?'

'Yep. So, as you see, we have plenty of feedback, which has helped us fine-tune our methods.' He smiled and nodded, 'I'm quite pleased with what we've done so far. More so than with my Nobel prize work, in fact.’

‘I can understand that,’ I said.

André then pushed himself up from the bench and led the way along the cobbled path, 'Let's have a look at the workshops. Oh, and you can publish what we’ve discussed up to now? I’ll let you know when it’s off bounds.’

'Ok.'

As we walked on, he puffed the smelly pipe and then pointed, 'Look!'

I followed his finger and spotted a shoal of fish flash just under the surface. 'Salmon?'

‘No. Carp. They breed almost anywhere. Not brilliant to eat, but my wife manages to make them taste good all the same.’ Then the man abruptly changed the subject. ‘Did you know that I did a lot of research on the brain and the nervous system, William?’

‘No.’

'Well, that was my research topic before starting the medicine production project.'

‘I didn’t know that.’

The man shrugged, 'It's odd that I spent fifteen years studying how information is transmitted around the human body. Odd too, that only a handful of people remember that.'

‘Perhaps I should have done my research better.’ I was embarrassed by my failing on this point.

'Don't worry,' he laughed, tapping me on the shoulder, 'At the end of the day, I had to admit that I hadn't solved any of the fundamental questions.'

‘Was that why you changed your topic?’

At this question, the stocky man frowned and walked a few steps before replying, 'Absolutely not. But I'd better explain.' He paused. 'Well, after a while, I was forced to accept that I didn't understand much about how things worked.'

I laughed out loud at this, and he shot me a surprised and slightly annoyed look.

'Sorry.' I laughed, 'It's just that that's exactly what Professor MacGregor said to me about the origin of the forces of nature. When I interviewed him recently.'

'Ah! Yes, of course.' He shook his head and smiled indulgently. ‘We’ve often discussed that. All these ideas are linked together, as you’ll soon see.’

I frowned, and he went on.

‘You met Loppov the other day, down that mine.

I bet he said more or less the same thing.’

I shook my head in surprise, 'How on earth did you know we'd met? You guys are really like a secret society.'

He laughed and got back to his subject. 'At the time, I was fascinated by how and where data from our body's detectors, such as eyes, nose, ears and nerve endings, was analysed and stored. I wanted to know how this data was processed to form a clear mental image or recognisable sound or smell. It must also be stored somewhere because weeks later, we can recall an image in our mind's eye or hear a piece of music. So where was all this kept? How do our bodies store such incredible amounts of data using only chemicals? That's what I wanted to know. How do we do it with simple everyday chemicals?'

He walked on for a few moments, then sat on another bench near the end of the pond. Once seated, he prodded at his pipe with a stick.

'I'd like to stress that point, William. The data must be stored and stored only using simple chemicals. Furthermore, it's stored in such a way as to remain intact and immediately accessible for an extremely long time. Now that’s pretty incredible, don't you think?' He nodded. 'Try to build a computer without high-tech transistors and see how far you get.'

I frowned. 'I see what you mean. But surely we've made enormous progress in unravelling how each individual element of the nervous system functions?’

'Yes, of course. But the only thing that was important to me at the time was understanding how we analyse incoming data. I wanted to know how we decide to react in a given way.’

I frowned, ‘So you’re saying the same thing as Professor MacGregor. We only know roughly what things do, not why.’

I could still not understand where all this was leading us. The man was clearly working up to some point he wanted to make. However, I had no idea what that might be.

At this point, the Professor changed the subject slightly.

‘Another point which struck me as particularly interesting was how damaged nerves repaired themselves. Sometimes they manage to do it in a few days, sometimes in a month or so but on some occasions, it takes several years.’

'I nodded, 'Yes, that happened to me when I cut my finger once.’

‘And now you’ve recovered both feeling and movement?’

‘Yes. At least, almost.’

'Well, as you probably know then, following injury, the nerve tries to repair itself by sprouting regenerating nerve units. The new segments then try to grow back down the original path. If they find where the connection was cut off, they bind onto it, and you'll recover muscle functions and skin sensation.'

He looked at his pipe again and shook his head in annoyance, 'Still, some progress needed to get this tobacco right. Ah well, plenty of time yet. Where was I? Ah, yes.' He paused

'I suspected that when nerves were badly severed, the brain detected that it wasn't getting the signals it should be. So, I hypothesised that it sent some sort of "repair-me" message back

down the nerve to activate new growth. I imagined this growth as a sort of system of fine roots growing out in a semi-circle until one of them found the opposite end. At this point, it binds on, and the brain signals the other fibres to stop because the job is done.'

I gazed at the man, still wondering where all this would end, ‘What sort of growth time scale is involved?’ I asked.

'A few millimetres a week, on average. But if the distance to be bridged is too long, it can take too long. In this case, the muscle or receiver seems to forget how to send the signals back up the nerve. When that happens, even though the system is fully re-cabled, the thing doesn't work anymore.'

‘And that is that?’ I asked.

'Well, I'm not as certain of that as I used to be. It might just need more time than we have available, William.' He paused and shot me an odd look. 'This is where we reach the part that I'll ask you not to publish. We can change the subject if that's a problem for you.'

I shook my head, ‘No, go on?

‘Well, I suspect that this failure is due to a sort of “die-back” of the downstream bit. In fact, I found indications that in such case, the brain tries

to solve the problem by replacing the entire length of the original circuit.'

I frowned, 'But at the growth rate you mentioned, that would take years. Perhaps ten or twenty.'

'Exactly. That's what I said. It might take longer than a person's lifetime. But our bodies go on trying regardless of that.'

I nodded, 'Because that's what they're programmed to do. So, try to repair, regardless...'

'Exactly.'

'But what use would that be. In practical terms, I mean.'

'None whatever, if one has only twenty years left. But it would mean that an automatic repair machine is active in the background, independent of anything else.'

I suddenly got an idea, 'You wouldn't have found some way of accelerating that growth rate, would you?'

At this, the Professor burst out laughing, 'Brilliant, William. I wish I had. But no.'

'I'm still at a complete loss to see where all this is leading us,' I confided.

'That's perfectly normal, as you will soon understand.'

I frowned.

‘All the craziness will be revealed soon,’ he chuckled.

'I hope so,' I smiled, still unsure of myself.

‘Well. Hold tight because here we go.”

‘I’m glad I had that extra glass of wine then,’ I laughed.

'Well, if you had a lifespan of two hundred years, like some trees, you'd have time to get things all set up properly again, wouldn't you.'

'If I was a tree, yes. But then I wouldn't have a brain to organise the repair work.’

He chuckled, ' And this is where we get into deeper waters, William.

I frowned.

'Well, William. How do you know that trees don't have brains?' he smiled.

I started and looked at the little man in amazement. Could he be mad, after all?

He shook his head. 'How on earth can we say that a tree isn't conscious of what is happening around it. Because it doesn't jump into the air and flail its branches when you bang a nail into it or cut off a branch?'

'Now that is going a bit far for me.' I said, trying to remain polite. After all, he was a Nobel Prize scientist.

André smiled and shook his head sadly. 'Let me tell you about an eye-opening encounter I had while hunting for medicinal plants in the Amazon Forest. It will pave the ground and help you understand why we've done what we have.'

'I'm all ears,' I said, more and more disturbed.

'Well. I was being guided by the head-man of a tribe in a remote northern part of the Amazon,' he said. 'This man wanted to explain his people's relationship with the forest. So, he started by talking about trees.'

'Ah!' I nodded.

'For them, a tree is a small but essential element of the entire forest. In practice, they don't consider a tree to be an individual entity at all. Instead, they see it as an extension of a complex structure filling the earth under their feet.' André glanced at me to see if I was following. 'After a good deal of pointing and miming, I understood that his tribe saw trees and plants in a similar way to the hairs on our arms and legs.

André paused and nodded to himself. 'To these people, trees and plants form the interface between the atmosphere and the earth's inner layers. Their function is to link the two. They believe that most growing things transfer substances and information in both directions. To

the tribe, trees and all plants are linked together. They are, in fact, all part of a single living entity.'

'A wise man,' I said, quite astonished.

'A wise people, in fact. They believe that the part we actually live in is the least important. Like our bodies, it's what goes on under the skin that makes the thing work, not the outer part we can see.'

The man said, "Go and dig a deep hole in the forest floor and get down into it. Then see if you can explain what role each object you can see plays. Each fibre, each insect, everything. Which bits belong to a tree, which to ferns, which to plants and which to unknown things?"'

I nodded. 'I guess that's a challenge that would make even the best botanist hesitate.'

'Oh yes! You see, these people assume that trees and plants use their intermingled network of roots to communicate with each other,' he said.

'Like an animal's nerves?' I asked.

'Nature is a sort of animal to them, William. Albeit a huge one, that they live on.'

André stretched and sighed, 'Sorry, William. That was rather a long aside.'

'Surprising too,' I admitted.

'So... Let's get back to Brains. Remember what I stressed earlier. Our nerve networks and brain

functions depend on simple chemicals and elements which are connected in clever ways.'

'Yes, but we haven't seen signs of this in plants, though. Even if you head-man thinks so.' I paused as I considered the point in more detail. 'I suppose you are going to say that plant roots might be a simplified version of a nerve.'

'No, William. I wouldn't say simplified.'

'And then you'll remind me that all the chemicals required exist in huge quantities in every gram of soil.'

'You've done it for me, William. Thank you.'

'But a root is not a nerve. It hasn't the same function at all.'

'Let's be more precise, William. We haven't found anything resembling a human nervous system in any vegetables. But then again, has anyone thought of looking for one. Has anyone tried to measure data transfer between parts of a tree or between trees?'

‘You’re surely not implying that plants are capable of consciousness and thought?’

'Consciousness and thought are not the same things, William.'

‘Yes. I know.’

'I'm saying there may very well be things that happen on time scales longer than ours. For

example, the time between a stimulus and its related action might be so long that we simply don't notice it. In that case, we say that the entity in question is inert.'

He was quiet for a moment letting this sink in. For my part, I had no idea how I could respond. But luckily, he went on.

'As I said earlier, we don't know how our brains work, how they store data, and how they decide on what to do with it. You agreed to that, didn't you.'

'Yes, I'll admit that.'

'Good. We *do* know where the processing occurs because we traced the signals back. So it's all more or less in the same spot in our heads.'

‘Yes.’

'Mind you, we discovered that because we were looking for it.’

‘Yes, I see what you mean.’

‘Since then, we've done millions of experiments. However, we haven't got much further with understanding thought or memory.'

I frowned, ‘I suppose not.’

'So where, William, would you look in a tree to find out if there was any sort of transfer of information? How would you detect data processing or decision-making if it was on a time

scale of tens of years? What if this were done entirely chemically? Would it have to be in the visible part of a tree itself, or could it be carried out in some part hidden underground? After all, the underground part of most plants is just as extensive as the parts above ground. What would you reply to that, William?'

‘I’m afraid that’s too wild for me to consider.’

He looked up at me sharply, 'Oh, is it now?' he screwed up his eyes. 'Remind me now. Was it, or was it not you, who suggested to Ian MacGregor that the earth might have its own immune system?’

‘Yes, yes,’ I laughed. ‘But that was just a remark off the cuff...’

I paused because I felt something odd was about to happen. ‘But I can’t see the link with what we were saying earlier.’

'No?' he smiled, 'What do you think about professor Loppov’s underground current pulses?’

I stared at him, unbelieving. 'What, in the heavens' name, are you implying now?

‘I’ll come to the point, then, shall I?’

I nodded, ‘Please.’

‘Ian asked me to see you because things seem to be coming to a head.’

I pulled a face, ‘I suppose that all you Nobel prize winners are in this together.’

‘A good number of us, yes.’

‘So, it’s not the invention of a single crazed brain then?’

'No. Even though that's what you've been thinking for the last half hour...’

‘Well, you’ll have to admit that where you’re headed is difficult to believe.’

'Innovative discoveries always are. And they're never what we expect.'

‘So, what are you really saying?’

'Over the last fifteen years, our little Nobel community has gathered the loose ends of many apparently unconnected threads. As a result, we have concluded that many things that we all considered inert actually were not.'

‘Including the earth?’ I cried,

'Including the earth. Yes. We concluded it was plausible that when the tectonic plates were forced apart, this damaged the underlying structure enormously. This underlying structure had taken millions of years to grow.'

At last, I saw where all his preparatory discussion had been aiming. 'Like the tearing apart the nerves in my finger? And you're

implying that ever since, the planet has slowly been repairing itself.'

‘Exactly. That’s what my work on nerve systems led me to imagine.'

‘That’s just far too hard to believe.’

‘Naturally. This is the first time you've heard about it. But remember that we started exploring these ideas fifteen years ago. Once we saw this possibility, we quietly went back to work. We re-examined all the peculiar data we had observed over the past decades. We paid special attention to all the things which hadn’t ever seemed to fit.’

‘It still seems crazy.’

‘It is, I suppose.’

‘And Professor Loppov’s measurement closed the loop.’ I stopped short, and I believe my mouth fell open. 'Great heavens! You’re not implying that Lapov’s current pulses are part of the Earth's nerve signals!?' I pulled a face. 'That's going too far for me.'

The man smiled and tapped me on the shoulder? ‘That’s it. Nerve signals of some sort. But more importantly, once we decided this was a possibility, we analysed our data anew. We wanted to check certain ideas which had been flying around our little group. In particular, we investigated the correlation between the current

pulse behaviour and any geological events observed since he set had up the network ten years ago.'

‘Have there been all that many then?’

The man smiled, ‘Oh yes. Plenty. Four hundred and seventy positive correlations over the last five years. Would you consider that sufficient data to work on statistically?’

‘And what were the results of the analysis? Did you find any correlation?’

‘Oh yes. Ninety-two per cent correlation. Is that good enough for you, William?’

‘Great gods! I just don’t believe it. It can’t be true.’

'But it is. The most recent confirmation came from the event you witnessed down the mine.’

‘Christ!’

'We detected that from our installations in Australia, Russia and Asia two days before it happened.'

‘I don’t believe it.’

‘Don’t you?’

'I mean, I *can't* believe it. You're implying that the earth is alive. It's a living thing.'

'No. What we are implying is that the earth is not inert. That's not the same thing. We observe that electrical signals circulate deep underground

preceding each major geological upheaval. However, we have no proof that those signals are *consciously* sent from one place to another. Furthermore, we don't know if the signals constitute information or data transfer either. Or if it were, if something exists to analyse it and react.'

He paused again and smiled briefly at me. 'All the same, most of the events we have witnessed recently could be interpreted similarly. They resemble actions aimed at preserving the planet from what it might consider major risks.' He paused, 'Your "immune system", in fact.'

'Sorry,' I said. 'This seems far too incredible to be true.'

The man laughed, 'It's no more and no less than your off-the-cuff proposal. Shall we call that the "Stones Global Immune System"?'

I let myself fall back against the hard bench backrest. 'No, I just can't believe it. It's just too big for me to take in.'

'However, when you made your remark to Ian, all our observations finally clicked into place.'

'Oh, God! Not "The last piece of the puzzle",' I cried.

André Laughed, ‘Yes. The last piece of the puzzle. Ian thought you’d appreciate that little detail.’

'Oh, God!'

'We decided to take you into our confidence because something has happened.'

‘Something more!’ I groaned.

‘Loppov’s current pulses have changed radically over the last six months. There is much more activity, and the pulse shapes change more frequently. We have no idea what is happening, but clearly, something is afoot.’

‘What?’

‘How can we tell?’ he sighed, ‘We have no idea how these things work. None at all. Loppov thinks it might indicate that the system has finally been repaired. The final interconnections made.’

'You mean that the Earth’s immune system is fully operational after millions of years of inactivity?'

‘That’s a possibility.’

'Oh, God. If what you say is correct...' my voice trailed off.

‘Exactly. The Earth might discover the full extent of the damage man has wrought? That’s what you mean.’

'Yes. If you are right? What would happen.' Then suddenly, something said by one of the old miners at Freyming-Merlbach came back to me. I repeated his words to André, “You just have to get used to the fact that Mother Nature is in charge down there, and that’s that.”.

André nodded, 'That's exactly the conclusion to which we came. However, we have no idea if we are right. If we are, we have no idea what will happen.'

‘But perhaps you’ll discover how things work and then find a solution.’

He shook his head sadly. ‘Maybe, but what if the planet finds a solution to her perceived dangers before we crack the problem?'

‘Christ!’

‘That's what we've been working on together for fifteen years. That's why we formed what you called our "secret society”.’

‘Do you mean that the Red Sea seabed collapse and the mining event were intentional actions on behalf of the planet?’

‘The term; "Intentional" implies an underlying intelligence and a capacity to analyse and react in consequence, William. We have no proof of that. All the same, direct reaction to a stimulus

seems a perfectly viable explanation, given our data.'

'And what next? It seems too incredible to think about.'

‘Yes, it does, doesn’t it? And we’ve been living with it for nigh on twenty years.’

‘But what can we do about it?’

'Ah!' the man slapped me on the knee, 'I like that. You said, "we". That's good.' He nodded, obviously pleased with this. 'Well, we go on working, but we prepare for the worst in the meantime.'

‘Sorry?’

'Well, our backup system is at last fully operational, and we have checked that it functions reliably. So that's the by far the most important point dealt with.'

'A backup system?'

He stood up and waved his arm in a broad gesture, 'This. This is our backup system.'

I gaped, ‘The village? Oh god! You mean that this place is a sort of sanctuary.’

'I prefer the more modern term of backup. But yes, a sanctuary for human life.'

I gasped. ‘And that’s why you all did that work on medicine processes?'

'Exactly. That's why we funded these places and made certain that there were hundreds of them where humans could survive if the worse came to the worst. That's why they are isolated and also why we have taken such pains to ensure they're fully self-sufficient. That's why we have been so careful to include such a wide variety of genetic backgrounds in each centre. Again, survival. That's the key.'

‘Oh my god!’ I cried, ‘And these people know that that's why they are here?'

'Oh, no. They will never learn that, whatever the outcome.'

I stood up and walked to the water's edge, 'But why tell me?'

André came up and laid his hand on my shoulder.

I turned to him, and he held out a little brown leather-bound book. 'This contains the addresses of all the centres in the world. It also gives detailed instructions on how to reach them. Carry this with you at all times.'

I took the little book and leafed through the maps in its pages. I then looked up at him,

‘Are things that bad?’

He nodded, 'I advise you to keep your petrol tank full and a few extra jerrycans in the boot.

Then, if you are at home and one of us calls you, get in the car and come here immediately. Alone.’

Chapter 9

The remainder of that day with André slipped past like an odd dream, and the trip home seemed interminable. Assimilating the extraordinary revelations which had been made would take time. That at least was clear.

With his astonishing revelations, some apparently unconnected facts fell into place. The revelations could not be written off as the ravings of a band of mad scientists.

Nobel prize winners rarely are.

In any case, the precautions they had taken towards safeguarding the future of their little communities were far too well thought out to be the work of unbalanced minds.

Of course, there was no way of knowing whether their conclusions were correct, but André was the first to point this out. If they were wrong, no one would ever know what they had thought or had done. So, they had prepared a

backup for mankind in case their ideas were proved correct. What's more, they had financed it with their own prize money.

The illustrious scientists had also invested a great deal of their time in setting up theme park projects all around the globe. But not one of the men and women working in them guessed the real reason for their existence, except for me and an exceedingly small number of others scattered across the planet.

Had I been chosen because of some desirable quality or quirk of our genetic background? I don't know, and André would not tell me.

"Carry on as usual, keep your mouth shut and be ready to move at a moment's notice," was all he was prepared to add.

When I got home, I found a letter from Professor MacGregor.

On a single page, he excused himself for not passing on the information earlier. André was, he said, the only member of their group authorised to do this. He added that there were twenty-two of them all told.

He finished by writing, "whatever you do, don't lose that book".

After that first troubled night, it took me the best part of a week to recover from the shock of André's revelations.

However, I was finally shaken out of my torpor by a call from my editor. She asked me to drive down to Beziers in the South of France to report on a new plastic waste storage and treatment process.

I agreed without hesitation but for once didn't take the high-speed train or the plane. Instead, I decided to rent a car and drive. Of course, this would mean an eight-hour trip instead of four. But André's words and repeated warnings had troubled me more than I liked to admit.

I even went as far as lashing out on a big four-wheel-drive pickup and adding two big jerrycans of fuel. I also packed several changes of clothes, as if I was off on holiday. I had more than enough free space in the outsized vehicle, so I added a separate suitcase holding my warmest winter clothes.

Had anyone asked what I was carrying, I would have had difficulty explaining.

I received the call on Friday morning, but as the RV was fixed for Monday, I was in no hurry to reach my destination. All the same, I felt the

pressing need to be up and doing something. Thus, I decided to leave straight away but take the long route, first towards the Atlantic coast via Bordeaux and then through Toulouse.

I spent Saturday night at my favourite hotel in central Toulouse. I even managed to fit in a few hours in an over-crowded and sweaty jazz club a short walk from the “Place Du Capitol”.

Although the musicians and the female singer were excellent, I couldn’t work up the enthusiasm I usually did in such cases.

On Sunday, I headed east into the Languedoc national park rather than taking the direct route down to the Mediterranean coast. I wanted to visit an old friend of my father in an isolated hamlet down that way. The man had made a reputation as an acoustic guitar maker, and his name had become a byword amongst the planet’s top guitarists. He had repeatedly shunned the siren call of mass production, preferring to savour the unique pleasure of creating perfection. As a result of this combination, the one or two instruments Rémi built per month were ordered well in advance, custom-built, expensive, and treasured by the owner.

Rémi’s son, John, was now gradually taking over the workload. However, a few elite

musicians could still count on having their instruments personally built by the old master himself.

My father had been a professional guitarist and travelled the world with big-name artists on stage and in the studio. However, he had died unexpectedly ten years earlier. His death had not been due to any of the frequent excesses related to his calling. Instead, he was killed on stage by the fall of a massive, suspended loudspeaker array.

That day the equipment lorries had been held up on the motorway, and he had volunteered to give the stage crew a hand to finish the set-up in time for the show. However, in the rush, someone forgot to lock the suspension chain in place, and a gust of wind brought the whole structure down on my dad.

He had been fifty at the time.

I had kept his treasured guitars, and, stimulated by André's revelations, I decided to have them overhauled by the maker. I felt that if things came to the worst, I would have infinitely more free time to play. Many long years if the predictions were proved true.

On arrival at his sprawling converted farm, Rémi stuck his head out from the workshop and

came striding over to meet me. 'Hello there, William. Long time no see. How are you?' Then, to avoid embarrassment, he added, 'Got the guitars? Great, let's have a look, shall we? You kept an eye on the humidity, I hope.'

'Don't worry. Dad hammered that into me when he gave me my first one. I always keep a damp sponge in the case and one clipped into the sound hole.'

He nodded approval and carried the two cases over to the workshop. ‘John’s gone up to Paris for the instrument fair. Starts tomorrow, so he won’t be back till Friday. Pity that, but work’s, work, eh?’

I nodded, and he carefully lifted the first guitar from its case, spun it around and held it up to the light. Next, he carefully scanned the back for any signs of fissures caused by drying. He then ran his rough hands lovingly over the smooth surfaces and nodded.

He spun it back and repeated the operation with the sound table. Then, nodding to himself, he said, 'Perfect so far. How's the neck? Noticed any warping?'

‘No. Mind you, I don't play as often as dad did?'

'Not surprising. Your dad must have played five hours a day for nigh on thirty-five years.’

He held the guitar by the body and squinted along the neck, turning it slightly from side to side. 'Perfect. Maybe a bit of adjustment to the action but no more. Let’s have a look inside. You haven’t noticed any buzzes, have you?’

I shook my head.

He took out a dentist's mirror and, sitting the instrument of a felt-covered table under a spotlight, peered at the internal structure.' Ah!' he nodded, 'one of the braces needs regluing. I'll do that straight away.'

He leaned over and grabbed a well-used brush from the heated gluepot. Then, with a deft movement, he slipped it inside and, holding the guitar upright, allowed a few drops of hot glue to flow under the wooden brace. He then grabbed a big wooden clamp and tightened it to pull the brace gently back into place.

'That'll be dry tomorrow morning, then it'll last another fifty years.' He paused and nodded at me, 'Let's have a look at the other one.'

The second was a classical guitar, which he had built thirty years earlier. He smiled as he twirled it around in his hand with practised dexterity.

'Ah! I’m not likely to have forgotten this one. A real beauty.' He caressed the back and sides and

nodded happily, seeing how well it had weathered the years. 'I'm pleased to see how well you've looked after these, William. Your dad would have been proud.'

I didn't know how to reply to this compliment and felt the colour rise in my cheeks.

'Do you know where the wood for this one came from?' he asked.

I shook my head.

He smiled, 'Well, this is a unique instrument. I only made two like it. Too expensive. This was the prototype for the one I made for,' here, he smiled, then mentioned the name of the world's best classical guitarist of our time.

'Really!' I exclaimed. 'Dad never told me that.'

'Well, this is the instrument I spent the most time on in my entire career. It had to be perfect, you see.' He twirled it around and tapped the back, 'The back and sides are made with an extremely rare Brazilian Rosewood. I went over to the Amazon, especially to find it. Ah, those were the days...' He sighed a happy sigh. 'I eventually found an old farmer who knew where an old tree had fallen. It took us three hours in his battered old truck to get it. My poor back still reminds me of that trip sometimes when it's damp,' he laughed and stretched backwards.

'The place wasn't all that far from the hydroelectric dam. The tree had come down because of a landslip, no doubt due to the flooding. It was a magnificent specimen, nearly four hundred years old and thirty metres high. I still have the two remaining planks in the storehouse. But those, I'm keeping for an extra-special job.

I looked at him respectfully, 'But how on earth did you manage to get a thirty-meter tree back here?'

He chuckled, 'Ah, that was a bit of an adventure. The hardest part was getting the authorisation without paying too much in backhanders. The rest was just setting things up.' Here he hesitated. 'Mind you, I stayed with that tree until I saw it safely on the ship and the ship leaving the harbour. Trees like that are rare, and even something thirty metres long can get lost in the post in those parts. You'd be surprised.'

'Especially nowadays,' I said.

'Nowadays, the bandits up in those parts would murder you for that tree. They'd murder you for almost anything...'

'Not good for tourism.'

He nodded, 'No,' he said, turning the guitar over, 'The soundboard is made from hundred-

year-old Canadian dark cedar. A forest guide found it for me in the Kootenay national park. Had to get special authorisation for that one too.

I used Madagascar Rosewood for the bridge, Cuban mahogany for the neck, and Nigerian ebony for the fingerboard. I finished it with American maple and Indian rosewood for the bindings. A genuinely international instrument.'

‘You must have visited half the forests on the planet,' I said, 'and I had no idea I was the owner of such a unique instrument.'

‘A lucky man,’ he said.

Then I frowned and added, ‘I wonder if it wouldn’t be better in the hands of a professional classical guitarist, though. I almost feel guilty.’

The man sighed and shook his head. 'I could put the offer up on my website if you like. The trouble though, is that very few would be able to find the money for a guitar like that nowadays.' As I frowned at this remark, he shook his head, 'In fact, you've no idea how much this beauty is worth, have you?'

‘No. A few thousand?’ I said.

The man burst out laughing, 'The wood alone would cost more than that, William. This one’s sister, which I sold to Julian, cost him a hundred and ten thousand euros.’

I started, ‘How much!’

‘Nothing like the millions for a Stradivarius, but not bad all the same.’

‘I had absolutely no idea. I shudder to think about how I’ve carried the thing around in the car, all over the place.’

‘That’s what musical instruments are for,’ He smiled, ‘playing, not for looking at.’

‘Christ!’

'Well, even after all the travelling, it's in mint condition. Congratulations, William, now you'll look after it even better.'

‘You bet.’

'So, if you want to sell it one day, let me know.'

That evening, I took Rémi to a local restaurant renowned for exquisite cuisine. Being out of season, the place was quiet, and we could chat comfortably over our meal.

‘You know,’ I said, ‘I think you’re the first person to have brought home to me the importance of man's influence on the environment.’

‘Oh?’

'Yes. You've spent your life travelling to forests worldwide to find the perfect woods for your guitars. And the stories you've told me over the years managed to put everything I've read into perspective.'

‘I’m pleased about that,’ he smiled. ‘Mind you, even now that conservation laws limit the felling of endangered species, forests still need to be looked after. When I see what is happening in the Amazon, it makes me despair. The colourful rustic bandits of my early years have been ousted and replaced by fortune hunters with absolutely no scruples. Anyhow they'll end up shooting themselves in the foot. I mean when they've finished sawing through the frail branch on which they are sitting.'

‘If the forest doesn’t get them first,’ I grimaced as I remembered André’s recent warnings at the park.

'She is taking her time about it, though. I don’t know why she puts up with deforestation for grazing and palm-oil production. Worse still is the mercury pollution from all those illegal gold mines in the Peru sector.’ He sighed. ‘Did you know those poor devils have to stir the ore in barrels of mercury with their naked arms?’

I shook my head sadly.

'All the waste goes directly into the river or into ponds. The fish get saturated with it, and the locals eat the fish, which poisons them and their children. They'll all end up dead. But the bandits, Mafia, or whoever they are, don't give a damn.

They're making between four and five billion euros a year out of the illegal gold.'

'Almost as much as from drugs then.'

'Yeh. What's more, they boil off the excess mercury in vats, and the vapour pollutes the atmosphere in the shanty towns.'

I shook my head in astonishment, 'So the people there, breath that in too. And that poisons them even more.'

'You got it. Try and drive in there and tell the guys to stop it.'

I sighed, 'I wonder if the government really wants to stop it.'

'Between you and me, I doubt it. The place is a thousand kilometres from Lima, and "what the eye doesn't see, the heart doesn't grieve". Especially if financial compensation is forthcoming...'

'God! What a mess!'

When I took my leave from André the following day, I was saddened that I could not share with him that the native he had met had been right about many points.

It took me about an hour to reach the abandoned stone quarry where I was to visit the treatment centre.

The route left the main road and wound through scrubby open country, then a sandy floored forest of Mediterranean Pine. Then quite unexpectedly, I came to a steep rocky outcrop through which the rough track wound.

After several hundred metres, this track turned into a wide, flat, and bare space.

This was the site of the original quarry. During the previous decades, it had eaten backwards into the solid rock wall.

The far wall rose vertically from the flat rock surface about three hundred metres in front of me. It was scored with hundreds of deep vertical saw cuts left when the quarry closed down ten years ago. They were standing ready to be split off but would remain, a memory of this ancient trade, for thousands of years.

As I parked and jumped down from the pickup, I noticed a second road over to my right, along which lorries were running in both directions.

The incoming ones were net covered and overflowing with multi-coloured masses of waste plastic. The outgoing ones were empty.

To my right was a dusty prefabricated set of offices, with "Office" stencilled boldly across the flaking paint.

I walked over, knocked on the door and pulled it open.

Inside I found a large-bosomed blonde seated behind an ancient plastic-topped metal desk. She was frowning angrily at a computer screen which clearly was not giving satisfaction.

'Yes.' She looked up angrily. But noticing that I was young and male, flashed on a smile, 'Ah! You must be Dr Stone. Please come in.' She stood and bent unnecessarily far across the desk to extend her hand in welcome.

I did my best not to look down into the cleft between her ample breasts but found the effort too much for me.

Noticing this, she smiled invitingly, satisfied that even a scientist could not resist her charms.

‘I’ll call Jacky, shall I?’

'Please,' I replied, suspecting that she would have preferred me to answer something like, "can't that wait?”.

Anyway, she picked up a walkie-talkie and pushed the button, ‘Visitor for you.’

‘Send him over,’ came the crackled reply.

'I'll show you, shall I?' she stepped to the door while I momentarily wondered what she really wanted to show me.

‘You can drive over. It’s just behind those trees.’

At this, she shot me a goodbye smile and went back to her combat with the computer.

I drove the three hundred metres to park the car, then walked through the stand of stunted trees, which somehow had found room for their roots in the rocky ground.

This led me to another vast, flat-bottomed quarry with the same vertically slashed rock walls. However, here there was a tremendous amount of activity.

Lorries were everywhere. They were unloading pile upon pile of plastic waste against the quarry sidewall, which soared a hundred metres to a ridge edged by stunted pine trees.

As I approached the corner, the door of a tiny makeshift office opened, and the male equivalent to the secretary appeared.

He was a short, broad-shouldered man with a shock of curly black hair into which a pair of Ray-Bans were fixed. His dusty black shirt was open at the neck showing a heavy gold-plated necklace.

He looked like someone selling objects of doubtful origin on a market stall.

‘Hi there, doc,’ he called, ‘Pleased you could come down.’ He crushed my hand in his.

‘Had some friends of yours yesterday,' he smiled. 'Yep, we work Sundays too. At least at the moment, because of the rush.'

‘Friends of mine?’ I frowned.

‘Yeh. That Finn, What’s-her-name. A pretty redhead too. MacGregor.’

‘Helene?’ I started.

‘Yeh. Helen MacGregor and that Finn and some Nancy-boys too. In suits and ties too. Made me laugh, that. We don’t often see suits down here.’

‘That’s a coincidence,’ I said

‘Na. I sent out some invitations last week, that’s all. So, what with the rush and all, they came on the way down south.’

‘Where are they off to?’ I asked.

'As I said, down to see the beach at Sète. Shall we go and have a look at the compressor?’

I would have liked to ask more about what Hélène was up to, but the man led me off at a fast pace. He chatted on about the origin of the quarry and how he had purchased it for next to nothing. ‘Turned out to be a real gold mine,’ he laughed, ‘Except I'm putting stuff in instead of taking it out.’ He chuckled to himself at this joke. ‘I’m like one

of those medieval alchemists. I'm transforming plastic into gold. Ha ha ha.'

I laughed with him, 'Very amusing.'

'The idea was dead simple, see,' he became serious. 'I knew some guys who would knock up the prototype cheap. Then I got a big grant, and off we went. A real gold mine this environmental stuff,' he smiled. 'Mind you, you know that already,' he tapped the side of his nose and winked. 'You must have made a small fortune yourself out of it. I mean, what with those articles and that "Stone Scenario" stuff.' He chuckled. 'The environment is great for selling almost anything if you can only find a way in.' He turned and graced me with a vast obscene wink and grin. 'I spotted that a mile off, so I jumped at the idea as soon as I had it.'

The man clearly considered me to be one of the few intelligent people who had spotted easy money and was ready to take the necessary measures to get a slice of the cake.

I was about to protest, but he dashed on, 'I've made a fortune out of this place already. I bought myself a new Merc and a nice place on the coast near Narbonne. Bought the wife a Merc too. A real gold mine, this.'

By this time, we had reached a line of ten container-sized machines. These were being filled with waste plastic by overhead conveyor belts.

'Dead simple,' he smiled, 'You fill the thing with plastic, compress it and repeat the process until you can't get any more in. Then you turn on the heaters, and once the stuff has softened, you compress it again.

I've got thirty tons of pressure behind these little beauties. We did it all cheap, using old lorry motors and gearboxes. Works like a charm.'

I looked on with amazement, 'And those are old shipping containers?'

'Yep. Discarded ones. Got them dirt cheap too. Had to do some reinforcement, but I had a pal do that for me.

'On the cheap?' I suggested.

'Dead right!' He laughed and slapped me on the shoulder.

The machine at the far end of the row was just opening, so he led me over. A crane swung over it and lifted out a fuming block about a metre long and three metres across. ' I can get almost a lorry load into each of those blocks,' he said, 'then we stack them up against the quarry walls, and that's that. Money for nothing. What do you think?'

‘Amazing, I said, ‘and great for the planet too.’

‘Yeh,’ he sneered, ‘Great for my bank account too.’

Here he nodded and tapped the side of his nose knowingly, as if between members of a secret society who understood each other perfectly.'

He led the way across the quarry to another opening through which an incessant line of pallet transporters was coming and going.

‘This is the first storage site. I’ve got five more, plus the smaller one where you came in.'

We entered a vast region with the same vertical walls. But this time, the walls were lined with blocks of compressed plastic. At least fifty metres high in this case. I stopped short and stared.

‘Hell!’

‘Yeh. Impressive eh!’

‘How much have you got in here? There must be thousands of those blocks.’

‘Fifty thousand to be exact, so far. This part will take between five and seven-hundred thousand. And I can store five times that.’

I was genuinely astonished by the simple project. 'And that stuff is perfectly stable once it's all melted together. Good idea.'

'Thanks. The best ideas are often the simplest. And my retirement pension is being paid for. Legally for once,' he laughed and winked again. 'Do you know?' he nodded, 'I even get to take some holidays now. That was impossible when I was working the markets. And now I live instead of surviving.' At this, he nodded and touched the side of his nose again. 'Don't have the cops sniffing around me anymore either. That's one huge weight off my mind too. No kidding. Working the markets is not for those without a bit of a flare, if you see what I mean.'

I saw exactly what he meant and nodded comprehension.

'You'll be able to give me a bit of a write-up in your journal then?' he asked.

I nodded, 'Yes, I'm certain the project will interest our readers.'

'Great. I had a pro photographer pal of mine come in last week. I did him a good turn,' he nodded and winked, 'So he came and set me up a nice advertising pamphlet and some really nice photos. Here.'

He handed me a memory stick, 'you can use what you need. My name and address are in the main data file. Believe it or not, I managed to get a patent for the idea, so I've licensed it out to ten

other companies across Europe,' He chuckled. 'A real Gold Mine. I told you.'

I made the required noises and then asked. 'And the Finn, what did she think?'

'God only knows. She spent all the time frowning and talking in English to your girlfriend. I think they were impressed, though. Mind you, they're an odd lot, those environmental activists. You never know what they're thinking.' He frowned, 'Anyway, I don't care one way or another as long as I can go on raking in the old dollars.'

'And what have they gone to the beach for?'

'He glanced at me. 'Haven't you heard?'

'No.'

'Oh! Well, tons and tons of plastic waste are washing up on the beaches between Montpelier and Perpignan. The beaches are piled up with the stuff, apparently. That's why there are so many lorries here this week. Suits me.'

'But where does it come from?' I was astonished.

'Apparently, it's coming in through the Gibraltar Straits.

'Through the Gibraltar Straits?' I repeated.

'Yeh. They said a huge island of the stuff has accumulated way out in the Atlantic. It's washed

up by the Gulf Stream from the Indian Ocean. They said that most of the stuff is accumulating in Hudson Bay.'

'Hudson Bay?'

'That's what they said.'

I could understand why something might be driven up there because a branch of the Gulf Stream went that way. Flowing at about five kilometres an hour, the current would carry anything up there in about a year. But no major branches flow into the Mediterranean. The straits are far too narrow.

I glanced up at the man's tanned and hair-coated chest, 'But how did the stuff get there in the first place?'

The man pulled a face, 'I guess the planet got fed up with all that crap floating about out there, polluting the oceans and sticking in the throats of fishes and tortoises. It got fed up and decided to gather it up and stick it all in one place.' The heavy features of the man took on a knowing leer, 'What better place to get it out of circulation than in an almost closed place as the Mediterranean or Hudson Bay?'

'It seems too incredible to be true,' I cried.

‘That’s what your girlfriend said,’ he frowned. ‘It makes no difference to me, though. The more there is, the more money I rake in,' he grinned.

‘I bet the planet will thank you for your assistance,’ I said with a touch of sarcasm which was entirely wasted on him.

'Maybe. But it's not her who's got the dollars, is it? I prefer my payment in ready money rather than in thanks.' He laughed, 'I can't buy the wife a new Mercedes with thanks, can I?’

The man's behaviour was grating on my nerves. Then for some reason, the words of the song Professor MacGregor had quoted during his lecture more than a year ago, came back to me:

“Speculators are not concerned
Where profit comes from, or how it’s earned.
Believe me, they’d clean up this mess
If they could make big money, in the process...”

The songwriter had been right, of course. But speculators come in all shapes and sizes and don’t require an Oxford University education to get the job done. However, I reflected sadly that it would be a pity if this one had popped up just too late to be able to change the course of things.

I shook my head sadly and gave up the battle, ‘When did all this begin? I mean the plastic on the beaches.’

'Oh, only about a week ago, I suppose. The guys down there thought it was another of those environmental stunts. So, they cleaned up the beaches and sent the stuff here for treatment. Then the next morning, they found the beaches awash with plastic again, so they posted police all along the seafront. Then, apparently in the middle of the night, they spotted the stuff coming inshore, and that was that.'

‘And what about the Gibraltar Straits part?’

“The army sent a night watch helicopter with thermal imaging the next night. They worked back down the Mediterranean. Apparently, they detected a strong current pulling the stuff out of the piles on their way up the Atlantic.’

‘And the Hudson Bay?’

'That's filling up too. Pretty fast, they say,' he nodded. 'Apparently, you could fit all of Europe into that bay. Pretty big place, eh!?'

I gazed at the man, happy in the knowledge that nothing could stop his flow of good fortune now. He was undoubtedly already mentally building a new residence, perhaps somewhere in the South Pacific.

‘Christ!’ I shook my head.

'Yeh,' he said, misinterpreting my meaning, 'A bit of good luck. Mind you, if you write it up

properly, you'll make some dough out of it too. Not as much as me, though,' he chuckled.

At this moment, his walkie-talkie buzzed.

‘Yeh Cherie?’

‘That girl’s back. The Red-Head. She’s asking after the Doc.'

I started. And shot a look at my host, who grinned back. ‘You’re lucky, Doc. She's a good-looking girl. But mind you, I prefer my women with a bit more meat on them if you see what I mean.' He presented me with a leering wink.

‘Yes. I guessed that,’ I nodded, glancing toward the entrance building.

‘Yeh. A nice bit of meat on the wife. Keeps me warm in winter.’ He laughed heartily and slapped me on the shoulder with his large hand.

‘I better go and see what she wants,’ I said.

'You bet, Doc, never keep a woman waiting. I'll look forward to reading the article then.'

I smiled and held out my hand, ‘count on me. Thanks for the visit.’

I strode quickly to the pickup and ran her quickly across the flat stone surface to where Hélène stood, paying off a taxi. Two big suitcases stood beside her.

She turned as I jumped down, ‘Thank goodness you’re still here. Granddad told me you would be.’

‘Granddad?’ I gaped.

‘Yes Grandad. Professor MacGregor is my grandad.’

I almost fell with surprise, ‘Your grandad!?’

‘Oh, for God's sake, stop gaping and put my cases in the back. Come on. We've got to get going.'

I stared at her, and a horrible cold shiver went through me, and I froze, looking into her eyes.

'Come on, she said. Hurry. Grandad said its time. Elina has taken the flight home. Let's get going.'

I stood paralysed on the granite surface, staring at her.

‘Time?’

She nodded, ‘Get in. I’ll drive. You're no good for the moment.’

I climbed heavily up and let myself fall back into the deep leather cushions of the car.

'Good choice of car William,' she swung the big pickup around and headed for the entrance. 'When your brain has recovered, put the theme park address in the GPS. Quick please.'

‘It’s already in it. I did it before I left Paris.’

Hélène shot me a glance and nodded, 'Good precaution. Let's go then.'

I dialled up the address and hit “go”.’

'Now modify the data and untick the motorway option. Grandad said to avoid them at all costs and head across country on secondary roads. He says we have probably five hours, no more.'

‘Five hours before what?'

‘He didn’t say. He just said get up there fast.’

'She powered up the big machine, and we roared along the deserted secondary roads. Soon the GPS took us off even these and shot us into the small lanes which criss-cross the uninhabited regions of the centre of France.

After a short time, Helene’s cell phone rang. 'Yes, I've got him,' she answered. 'Yes, we're on our way. Hold on,' she turned to me, 'He wants to know when we'll arrive.'

I glanced at the screen, 'At about three o clock this afternoon.'

'Hear that?' she said into the phone and then listened, nodding slowly from time to time. Then a sad look gradually spread across her face, 'Oh! Yes. Yes, I understand.' She listened for a moment longer and sighed deeply, 'Yes, of course, I see. Yes, I'll pass you over. Let me have one last word in a moment, though.'

She looked at me and held out the phone. I took it slowly, watching her face as I did so. Such sadness I had never seen in anyone's face before.

‘William here,’ I said.

‘William, Ian here. You understand what’s afoot?’

‘Yes.’

‘Good. You’re to head for the camp. Do not stop anywhere and do not pick up anyone, whatever the circumstances. I gave Helene a parcel for you. Open it when I’ve finished.

'When you reach the park, don't go in. They’ve prepared a cottage outside the main centre. You're both to go into quarantine for seven days. We don’t want any viruses sneaking in just at this critical moment. Got that?’

‘Yes.’

'Good. The place is already stocked with everything you need for the transition period.'

‘But Professor.’ I said, ‘What's going to happen?’

'We're not certain yet, but communications will be down by the time we are.'

'Surely, things are not as bad as that. Surely there's some hope?' I cried.

There was a slight pause, and then the man went on, 'I don't think so, William. I may be wrong, but I don't think so.'

'Oh, God!'

‘William?’

‘Yes.’

‘I want you to promise that you’ll look after Helene for me. I don’t think I’ll see her again. Can I count on you?’

I gazed at the sad face beside me, ‘Yes. You can count on me. I suppose you were counting on that from the very beginning.’

‘Yes. That's true. Remember. Don't stop and don't pick up anyone, whatever happens. Now, pass me back to Hélène and open the parcel.’

I handed back the phone and watched her as she whispered to her grandfather in a low voice. Big tears were now rolling down her cheeks and dripping into her lap.

I shook my head sadly and picked up the small parcel.

Inside I found a wooden box with a catch. I clicked this open and lifted the lid. Inside lay two handguns and ten packs of cartridges. Pinned to the inner cover was a card on which was handwritten, "Stop for no one, no matter what

happens. Don't hesitate to use the guns if needs be.".

Chapter 10

Few of us are familiar with the term “Geomagnetic storm”. We are also blissfully ignorant of the sleepless nights such events cause the scientists who survey them.

These events occur when the sun’s surface erupts, hurling billions of tons of superheated mater out into space. These gigantic clouds, heated to millions of degrees, surge outwards at extraordinary speeds of millions of kilometres per hour.

When the Earth is unlucky enough to be in front of one of these deadly jets, it reaches our upper atmosphere after one or two days. Happily for us, however, the Earth's magnetic field deflects the particles and screens us from the otherwise devastating blast.

A few of these particles penetrate the atmosphere near the poles giving birth to the magnificent Aurora.

The point that gives scientists and harassed engineers such troubled nights is that these blasts severely affect our electricity supply networks.

They cause the ground-level magnetic field to fluctuate slowly and give experts a great deal of trouble of which the public is totally unaware.

Firstly, the passage of these huge super-heated clouds around the Earth, induces electrical currents in man-made metallic structures such as pipelines and electric cables.

The danger for our everyday lives is that these currents can severely damage the electrical network.

If adequate protection strategies are not immediately taken, national supply networks can become unstable and close down. When this happens, whole countries can be blacked out in seconds.

Luckily, however, solar storms are short-lived, and their arrival in the Earth’s atmosphere can be predicted. Thus, engineers are kept on a twenty-four-hour alert to protect critical elements and avoid catastrophic failures.

A short time after Professor MacGregor's call to Hélène, all over the planet’s surface, slow magnetic field fluctuations were detected.

This amazed the teams at early-warning sites worldwide because the sun had shown no signs of solar eruptions.

No one imagined that the sun had nothing to do with it this time.

Had they appreciated just how little we really understand about what makes things work, they might have reacted differently, but that was not the case.

How could they guess that the Earth's own magnetic field had begun to pulsate slowly, almost as if it were breathing?

The effects of these fluctuations on electrical networks worldwide were immediate and devastating.

The perturbations they caused were detected by monitoring systems which immediately triggered automatic protective measures.

In most cases, this meant isolating the affected section of the network from the rest. However, this time, the perturbations were everywhere, and above all, they did not stop.

The world over, engineers struggled with unstable systems which had not been designed for such a scenario.

Then, one after the other, the systems crashed, and entire counties were blacked out.

Diesel-powered generators automatically came online at critical installations such as hospitals, communication centres, airports, etc., and electricity was quickly restored.

However, such backup generators are only designed to function for a day or two. After this, fuel reservoirs need refilling.

Hospitals usually store enough fuel for five days, which allows an improved safety margin.

It's unnecessary to describe the horrifying consequences of a lasting power failure in a modern high-rise hospital when even the elevators fail.

Across the planet, heating, cooling, lighting, and communications went down.

Underground transport collapsed, leaving millions stranded and panicking deep underground, in absolute darkness, struggling blindly to find a way out.

The lack of control and communication systems closed railways.

Building elevators stalled where they were, but their intercoms no longer worked. Shops and supermarkets ground to a halt and closed.

Once discharged, cell phones and other battery-powered devices became useless.

The failure of traffic signalling transformed cities into colossal, cluttered seas of blocked vehicles. This worsened hourly as people scrambled to get home while there was still daylight.
Then, when the electric motors powering petrol pumps stopped, drivers had to abandon their vehicles where they were. Thus, tens of thousands were forced to try their luck on foot and, for the first time, realised just how far ten or twenty kilometres actually is. Three to six-hour walks were beyond most people's capacity, especially when dressed for the office. So they had to manage as best they could.

Then, when the electrical pumps powering drinking water supplies failed, the full extent of the looming disaster struck home.

Law enforcement officers, hindered by lack of communication and crippled transport, did what they could. But as the number of road accidents soared, the situation became critical.

Inevitably, criminals and looters seized the unprecedented spot of luck. The streets were soon awash with individuals transporting their plunder home.

Police were overwhelmed, and the following day, when electricity still did not return, looting

continued in broad daylight and woe-betide anyone who tried to intervene.

As days passed, refilling the critical fuel reservoirs became a top priority. However, at fuel dumps, the pumps at many sites were out of action because of the electricity failure. A few had backup generators, but many did not. Without electricity, neither the pumps nor the control systems would work.

Even if tankers could be filled, getting them through traffic-blocked cities was virtually impossible. Therefore, armies around the world were brought into action. But even then, transporting vast quantities of fuel to the heart of paralysed cities using giant military helicopters was fraught with difficulties.

People began to panic and those who could do so moved out into the surrounding residential area.

Those who owned firearms checked that ammunition was not lacking, and those who had none either rushed to but one or kept a well-sharpened knife close at hand.

Then after days of this chaos, and without warning, the weather changed dramatically.

Anticyclones in the north abruptly shifted, and icy winds came howling southwards out of the arctic regions.

Northern hemisphere temperatures plummeted to sub-zero levels, and populations shivered without electrical heating or modern comforts.

Even those with domestic fuel heaters fared no better because their boilers' electronics and electric circulating pumps no longer worked.

Then, a few days later, just as suddenly, warm, water-vapour saturated winds began to blow in from the oceans.

When this flow encountered the icy north winds, it began to snow heavily over the entire northern hemisphere.

Within twenty-four hours, most countries were cloaked in blankets of snow a meter-thick or more.

Ground transport was utterly paralysed, and cities ground to freezing, shivering, comfortless halt.

When fuel tanks at hospitals and other vital centres emptied one by one, electrical power was lost altogether.

The snow continued day and night, and soon no fuel was left even for the snowploughs.

From then on, flight from frozen towns and cities became impossible, even on foot.

In any case, where could one flee to?

Then the temperatures plummeted further and settled at values between minus fifteen and minus thirty degrees. The few water pipes which had survived now froze solid, and a terrible silence settled over millions of square kilometres.

The only refuge during this terrifying onslaught of the elements was provided by the unusually high temperature of the coastal waters. This maintained narrow coastal strips marginally above the freezing point. Consequently, those still able to do so crowded down onto these sanctuaries.

In this way, millions gathered along the continental coasts and prayed for the weather to change.

In the southern hemisphere, on the other hand, clouds disappeared from the skies, and the sun beat down.

Temperatures abruptly rose, and the mercury in thermometers climbed to forty centigrade. It then continued higher and higher, soon reaching unprecedented levels of fifty degrees and more.

Without electricity, air conditioning or fans could no longer supply relief from the blistering heat.

Tarmac roads became impracticable expenses of sticky mess, and even rubber car tyres softened and leaked flat.

Many towns and cities depended on electrical pumps for water supply networks and switched to diesel-powered backups. However, when fuel supplies ran out, drinking water supplies stopped too.

Streams and small rivers dried, and the Earth cracked and split.

The southern hemisphere blistered under such conditions for months, without cooling or drinking water.

Then, unexpectedly conditions abruptly changed overnight.

Huge water-saturated clouds blew in from the oceans, and rain poured down relentlessly with monsoon-like force.

The parched ground, unable to absorb the enormous quantities of water, became vast flooded expanses of mud, littered with corpses.

The rain continued for several days, then stopped abruptly, and the temperature soared back into the fifties.

Across this desolation of mud and suffering, disease set in and spread like wildfire.

Paralysed medical services were incapable of reacting, and transport and communications were inoperative for the same reasons as those in the northern hemisphere.

It was amid this incredible planet-wide cataclysm that, far out in mid-Pacific, even stranger things began to happen. Six thousand metres below the surface in the unstable material along the Clipperton fracture line, the unthought-of happened.

The three-thousand-kilometre-long seabed fault abruptly shuddered and shifted. A thousand-metre-deep chasm opened as the Earth’s crust split in two. Immeasurable quantities of water immediately surged into the gash in the Earth's crust, sucking everything in the neighbourhood down with it. This alone was enough to give birth to a vast underwater pressure wave. However, the shock wave created was colossal when coupled with the massive seismic vibration set up by the fracture slip. Once initiated, this shock travelled outward across the seafloor at nearly seven hundred kilometres an hour but was barely perceptible on the ocean's surface.

The "Stone Scenario" became a reality.

But things didn’t stop here.

The sudden violent slip along the Clipperton fracture triggered a second one further north of the Pacific. This set up its own deep-sea shock wave, heading more or less in the same direction.

In turn, the seismic shock waves that shot out travelled through the Earth's crust and triggered a similar slip at a weakened fracture zone in the south Atlantic Ocean. The domino effect continued, and there were identical fracture slips in the Indian Ocean and then the North Atlantic.

When the first of these surges reached the shallow coastal waters, ten-metre-high waves reared up on the surface and continued to grow. The shivering crowds huddled along the narrow strips of unfrozen land first spotted the approaching tsunami when they were still far off in the misty distance. But still travelling at two hundred kilometres an hour, the towering waves crossed those last five kilometres in barely ninety seconds. The vast majority of people didn’t even have time to panic before they were engulfed.

The series of tsunamis reached the frozen, snow-covered lands in the northern hemisphere as a series of thirty-metre-high waves.

They smashed into the snow-silenced coastal towns and cities all along the North American, Japanese, and Chinese coasts. They destroyed everything they encountered, surging in, again and again, as each new wave crashed towards its destination.

They blasted their way up the frozen riverbeds, submerging snow-bound towns and villages tens of kilometres inland. The flooding of the snow-covered fields was unprecedented in its expanse. If this were not enough, the flooding melted the snow, swelling the waters even more, and devastation spread far across the lands.

Finally, after the last huge wave had surged in, the receding waves sucked immeasurable quantities of debris and millions of corpses back into the oceans.

Then, frozen silence fell again, but it was far deeper this time and would remain so.

In the southern hemisphere, the devastation was identical. Australia, Indonesia, and the Philippines were the first hit, followed by New Zealand, Chile and Peru. After their passage, nothing was left standing on the smaller Pacific islands.

Africa, India, and the surrounding countries were the last to experience this terrible onslaught of the seas and fared little better.

However, the temperatures in both hemispheres remained constant, frozen for one and blisteringly hot for the other.

And during all this, the Earth's magnetic field continued to pulsate sedately. However, few remained to notice or care about it. Then, one morning in March, after six months of cataclysmic conditions, the pulsations stopped abruptly, and the Earth's magnetic field became constant once more.

Anticyclones slipped back to their traditional position, and the cold winds from the north ceased.

The sun came out in the skies across Europe, and unexpectedly birds began to sing, filling the eerie silence. Melting snow cascaded down from the trees, torrents dashed down from the high ground, and the soil and grass became visible.

Similar events occurred across the northern hemisphere, revealing the devastation of annihilated civilisations.

It had taken man hundreds of years to build the complex networks of temples to his technological wizardry. That was now all reduced to rubble.

Mother Nature had left Man in charge of the planet's outer crust. However, she had concluded that he was incapable of doing the job correctly.

Manifestly, allowing the uncontrolled proliferation of a species with such a highly developed brain had not been such a good idea after all.

She would not make the same mistake twice.

Reassuringly, nothing that that arrogant biped had done could not be undone.

In any case, she had all the time in the world.

The End

EPILOGUE

When the sun eventually came out and melting snow swelled streams and torrents, life gradually returned to the theme parks. Thanks to their preparations, all residents survived.

Birds burst into a frenzy of nest building, and nature erupted into lime-green leaves, primroses, violets, and impatient fruit blossoms.

Impetuous shoots pushed their heads eagerly through the damp, warm earth, and the isolated communities got back into the swing of daily labour.

Spring and summer were exceptionally mild, and crops would be abundant and of unparalleled quality.

Inevitably, William and Helen had been drawn together by their quarantine in the cottage. The place was cosy and warm, and they somehow felt it a pity not to stay put. And after all, they got on

well, and the cottage had two bedrooms and plenty of shared space.

The discovery that they were now alone, came as a massive shock to the other community members.

However, the founders had anticipated this and knew that maintaining the morale of this initial generation of survivors was vital. André in France, Ian in Scotland and their numerous friends around the globe were determined that individuals should not be allowed to brood on the past. They should not be allowed to dwell on the hopelessness of the situation.

They knew, too, that following generations would not be troubled by the absence of what they had never known.

To ensure this end, André had given William and Helen the task of teachers, musicians, and social activity organisers. They were also to become assistant doctors and nurses.

André progressively passed on the details of the carefully planned processes for manufacturing medicines and their use to this couple.

Helen was in charge of the vast library he had equipped in one of the outbuildings. This held

nearly ten thousand books he had purchased and planned as an essential element of his morale-supporting plan.

But the communities were not totally isolated. The founding members had taken the precaution of constructing and testing a rudimentary communication system between the scattered sights worldwide.

They had developed a simple and reliable radio communications network based on Morse Code and driven by water turbines.

In this way, the small communities felt less alone in the knowledge that out there, others were living the same trials as they.

For years previous to the catastrophe, these people had learnt how to live without outside help, so in practice, their everyday lives changed very little.

The most significant change was that they could no longer look forward to humming crowds of visitors during the warm months. Furthermore, they could not entertain the idea that they could escape and go home if things got too tiresome.

If the truth is told, though, they were happy and perfectly adapted to the role they were now to play in maintaining the future of the human race.

Unbeknown to them, the Earth looked on and followed the survivors' progress with detached interest.

She would keep a careful eye on these little communities and do her best to ensure that the species did not perish. They seemed unlikely to waste the chance they had won for themselves.

It is true that up to a point, humans had proved a beneficial addition to her roster of fauna.

She also knew that they would not present a threat to the equilibrium of nature for at least ten generations.

After that, if corrective pruning were needed, she would deal with it promptly this time.

Planet Rehab: Song Lyrics

The audio file for this song is available on my website: https://www.stephen-william-rowe.com.

Verse 1
The planet needs to go to Rehab,
we say go, go, go.
There's so much at stake
and the progress we make is
too slow, slow, slow.
This planet must be cured
after what she has endured.
It's time for deeds,
not more procedures to follow.

Chorus 1
How much, just how much is our future worth?
How much for a worn-out planet Earth?
Guidelines won't help much anymore
once the sea starts lapping at your front door.
I wonder how I still sleep.
Cause, where we're headed makes my flesh
creep.

Verse 2
Now they want to mine the seafloor
and I say Oh, no, no.
There are fortunes down there
and they all want their share

From below, low, low.
Those guys ain't got a clue
if things go wrong, what they'll do.
They're **praying** that any damage
won't show, show, show.

Chorus 2
The scientist said, 'trust in me,
time's run out; can't you see.
The lobbyist shook his head; 'money, dear,
is what life's for. Just sign down here.'
'Profit,' he smiled, 'makes business grow.
That environmental crap is just for show.'

Verse 3
If you try to count the chemicals
out there, there, there.
The thousands you eat, you rub on your skin
and your hair, hair, hair.
That stuff is everywhere,
and it's synthetic, so beware.
How our bodies cope, I don't know,
so take care, care, care.

Chorus 3
Speculators are not concerned
where profit comes from or how it's earned.
Believe me, they'd clean up this mess
if they could make big money in the process.
As we can't run away.
Let's think it out cause we have to stay.

Verse 4
This planet needs to go to Rehab.
We say go, go, go.
This planet is ours,
and those guys in their towers
ought to know, know, know.
That Perspectives are grim,
but that's no reason to give in.
And what we need today is progress
but NOT so slow, slow, slow.

Author's Note

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