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THE NIFFEN FRAGMENT

S.M.Cashmore

## The Niffen Fragment

Anchor raised an eyebrow. He did this for two reasons. Firstly, he liked to think that millions of women tuned in to *All Day Update* would swoon or at the very least feel their hearts pound with excitement when he lifted his sardonic gaze to the camera.

“The academic community is today mourning the loss of one of its most distinguished and best-loved members,” he said. His slightly husky voice was, he thought, very likely to cause another untold millions of women to lick their lips nervously. He imagined them rubbing suddenly sweaty palms down the length of their bodies as *they* imagined *him* stepping through their swarming nano-transistorised screens into their living space or bedspace or at any rate into their monochromatic boring lives.

The other reason Anchor lifted his eyebrow was that, unusually, he was genuinely surprised by the newsbyte.

“Professor Andrew Delaney was found dead late last night on the premises of the Armstrong Institute for Extraterrestrial Studies. Police this morning issued a brief statement to the effect that his death was almost certainly not natural, but declined to say how he died. For those of you with a green tab, a brief biography of Professor Delaney can be uploaded by pressing ADbiog/2330067. More after the break.”

#

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#

Link adjusted his collar. The short bastard would be cueing him shortly – in fact, in precisely fourteen seconds. He checked that the reflectors didn't show up the small mole on his left cheek. He checked that AIES was visible in the background, albeit only as a hazy grey oblong looming out of the greasy air. He checked that he could see the bytes ready to scroll on the green lifscreen. He checked his collar again. Eleven seconds.

Amazing how much thinking you could do in three seconds. He caught the eye of the red-haired girl behind the bytescreen and gave her a tentative thumbs up. She ignored him. She probably had the hots for the short bastard, though whether she would continue to do so if she found out just how short he was, was another matter.

Seven seconds.

Cassie Henderson stood a metre to his left, out of immediate shot. She looked white and nervous. He gave her a thumbs up too, and tried a reassuring smile, but she looked right past him at the livescreen and the countdown. Why did they have to do these dumb live shoots? *Four*. Especially as he had a bad feeling about this one. *Three*. Because the public loves 'em, the Manager always said. *Two*. Presumably on the basis of some palmtop survey, he thought, though if it was he'd never heard of it. *One*.

"... live at the scene," said the short bastard.

Link forced a smile onto his face. He saw himself appear on the livescreen. Not bad. He looked a bit washed out, white – monochromatic as the short bastard would probably describe it – but still, there was no colour in the cities any more. The bytes started shifting.

"The Institute closed to visitors at five o'clock yesterday. There were no security alarms. In fact, according to Hans Lieber, head of security, there were no visitors." Link allowed a smile to briefly illuminate his face, but then damped it down. This was a serious piece about a dreadful and appalling event. It wouldn't do to *strike the wrong mood*, as the Manager would say.

"Professor Delaney remained in the Institute to carry on his research into the Niffen Fragment, much as he had always done for most of his working life. At about seven fifteen a group of tourists saw blinding flashes of blue light coming from windows of the Niffen Suite. They captured the incident on vidcam."

Link saw brief movement in the murk behind the camera as whoever was in charge made a cut motion with one hand and pointed with the other. The images on the livescreen dissolved into a jerky and clearly amateur recording. Sizzling light speared out from second floor Institute windows, turning the atmosphere into an eery, drifting bank of blue fog.

*Voiceover*, the bytescreen reminded Link.

"But an Institute spokesman - " actually the maniac Jack Lafferty, thought Link as his mind momentarily distanced itself from what he was saying " – has informed *All Day Update* that this was not an unusual occurrence. According to the spokesman, Professor Delaney and his associates frequently carried out different spectra attacks on the Fragment."

Whatever that means, thought Link, as he saw himself rematerialise on the livescreen.

"At eight o'clock, the environmental maintenance operator, Cassie Henderson, let herself into the Institute. She started up the main stairs when.... well." Link allowed another brief smile across his face. "Let's ask Cassie to tell us in her own words."

We hope, thought Link. He turned left. The camera rotated slightly.

"Good evening, Cassie."

Cassie Henderson swallowed. Her eyes shifted. "Uh," she said. She looked past Link's shoulder. "Uh, good evening," she said, reading the words off the bytescreen.

Oh great, thought Link. He had *told* the short bastard that he had a bad feeling about this interview.

“You work as the EMO at the Institute, is that right?”

Cassie Henderson looked at him as if he had made some pronouncement in a long-dead and unfathomable language. Shit, thought Link. He’d rather have interviewed that cold fish Hans Lieber than this bag of nerves. Lieber would only say what it suited him to say, but at least he’d get on and say it without messing up.

“For three years, is that right?” Link nodded encouragingly, and she mechanically nodded in response.

“And you went to work as usual last night, Cassie?”

Cassie Henderson licked her lips. Her eyes sought the bytescreen. “Yes,” she said faintly. “I.....”

Link watched as her eyes shifted again, to the camera. He could almost see her brain seize up, and decided to employ a trick that had worked before. He turned slightly away from the growing silence and mouthed, “just imagine them all naked,” and gave her an off-screen grin. It was the wrong tactic. Cassie Henderson stared at him in astonishment, and then blushed. She blushed so hard that Link was almost certain there was a back-wash from the reflectors, painting the heavy atmosphere an opalescent pink. Her forehead, cheeks and neck turned a red so bright that Link felt sure that any nearby traffic would grind to a halt in confusion. Any chances of Cassie Henderson delivering answers to the live update interview dropped to zero.

“More after this!”

Link glanced at the livescreen just in time to see Cassie’s scarlet face dissolve into an advertisement for *All Day Nature*, featuring a swarm of sharks in a feeding frenzy. Say what you like about the short bastard, thought Link, but he’s a professional.

#

Niff/name/1903122

Brought to you by !!GREEN TAB!!

First posted 290965

Last update 200879

That the Niffen Fragment is so called surely demonstrates that the scientific community possesses a sense of humour. This is why.

The tripartite Waysation (supply) #12CC\* was launched in 2060 and was well established by 2065. Larry Niffen was a crewman who worked two years on, one year off and it was his misfortune that 190465 fell during one of his off-planet spells. We can only conjecture what went through his mind when he glanced out of what spacers call the crap view (no need for modesty in space, of course: who is going to be out there to look in through a window?) but we can make a good guess at what he saw. A large, occluding mass was rushing towards the Waystation at better than 3,000 km/hr. It is likely that Larry Niffen caught a glimpse of its knobbed torus shape a mere second or split second before it smashed into the Station, or more specifically, smashed into the crap cans where Larry was conducting what turned out to be his last business. We do not have to conjecture what Larry Niffen’s last words were, as they were captured by internal security. They were “What the?”

At that point, the torus shape tore a hole in one side of the station, smeared Larry Niffen into unrecognisable human jelly, almost sheared through one bulkhead but was

luckily diverted into a slightly different trajectory, and finally exited the other side of the Station – rather like a bullet entering one side of a human being, and exiting from the other side after being deflected by bone. The Waystation survived. It had been designed along the lines of an old fashioned submarine.\*\* This meant that as soon as its integrity was breached, it shut itself off into various air-tight sections, each self-sufficient. If you happened to be in the section that had been breached, it was tough luck. As it happens, only Larry Niffen failed to survive humanity’s first contact with the curious space-travelling artefact.

The new trajectory of the torus sent it into a declining orbit. It was destined to fall into the earth’s atmosphere within two months, and the race was on to see who could get to it first. In the event, it turned out to be a European\*\*\* ship which had been on the verge of taking off - ironically, to liaise with Waystation #12CC. It was hastily re-programmed, much of its scientific payload was jettisoned to make room for the torus, its flight parameters were severely altered, and it took off on 020565. That it was successful in linking up with and bringing back the artefact is history. What is less well known is that the artefact is not, in fact, a fragment. It appears to be complete in itself, although its purpose remains a mystery. But parts of Larry Niffen were found within its engraved surface, and to commemorate his first sighting of an alien object, the teams of scientists\*\*\*\* who later spent many years trying to decipher its mysteries decided to call it – surely with tongues in collective cheeks - The Niffen Fragment.

\* see TW12CC/909861 brought to you by !!GREEN TAB!!

\*\* see ST/HIST/501482/sub/schematic brought to you by !!GREEN TAB!!

\*\*\* see ST/HIST/432887/Europe brought to you by !!GREEN TAB!!

\*\*\*\* cf ADbiog/2330067 brought to you by !!GREEN TAB!!

#

Cassie Henderson sat in a hard metal chair, her blush now settled down so that she resembled someone who lived a robustly healthy outdoor life. Which she didn’t. She cleaned at the Institute on Mondays, Wednesdays and Fridays, along with David Brett and Mavis she-couldn’t-remember-her-last-name, although they got into the building via different routes. On Tuesdays and Thursdays she cleaned at the Unicampus canteen complex, but she preferred her time at the Institute. She knew nearly all the exhibits off by heart, even though she didn’t know what many of them actually were, or what their significance was. She knew she wasn’t clever. That was why she was an environmental maintenance operative, and not somebody that really worked at the Institute like that nice Professor Delaney.

Tears trickled down her cheeks, which had faded to a faint pink colour reminiscent of somebody who had taken a bit too much to drink. She couldn’t believe that Professor Delaney was dead but she had, after all, pretty much seen him with her own eyes. She sniffled and rubbed at her nose. She had told the police all about it, and they had nodded, and asked a few questions, and let her go. She thought they might have offered to take her back home, but no. The big detective had told her that they were already short-staffed, because of the riot in the west city, and now this. He had stroked his black beard and fixed her with astonishingly pale eyes.

“You sure you never went in?” he had said.

She had thought back carefully. She had got to the door, and seen..... what she had seen. And then she had very carefully, very daintily, made her way back down the steps where she had left her palmtop in her coat, and called the police.

She shook her head.

“So you didn’t see, uh, you don’t know how he died?”

She felt a touch of impatience. She had answered all these questions before. But no doubt he had his reasons for asking, right there on the Station steps while she buttoned her coat and fidgeted from one foot to the other, anxious to be off. So she thought back carefully again. No. She didn’t know.

She shook her head again.

“Here.”

Cassie blinked. One minute she had been standing on the Station steps under the penetrating gaze of the bearded detective, and the next minute she was sitting outside in a hard metal chair with the Institute looming not far away. The young man with a tiny mole on his face was offering her a mug of something which steamed gently. She took it and sipped. It was coffee.

“I’m s-sorry,” she said. “I’ve never b-been on lifescreen before.”

The young man flapped a weary hand.

“Don’t worry about it,” he said. “Look, the camera’s rolling, but it’s not live. It’s just recording. How about I ask you a few questions?”

Cassie really wanted to go back home. She wished she hadn’t come out here, lured by the thought of bright lights and her face appearing on lifescreens across the world. But she had already let the young man down once, and she felt guilty.

“Okay,” she said.

“Good. Thanks,” said Link. “So, you went into the Institute at.....”

“Eight o’clock,” supplied Cassie. She took another sip of coffee. “Eight o’clock is my s-starting time. I work until eleven thirty or m-midnight. M-mondays, Wednesdays and Fridays.”

“Okay,” said Link. “And after you let yourself in, what happened?”

Cassie’s hand, holding the mug of coffee, suddenly started to shake. She licked her lips. “The steps. The b-blood,” she whispered. Her eyes turned inward. It was the blood she had noticed right away, trickling slowly down the marble steps. It was the blood which had sent her up the steps, following the trail to the great archway of the Niffen Suite.

“Did you go in?”

Cassie started. That was what the detective had asked.

“No.”

“But you could see him, right? The Professor?”

Cassie nodded slowly.

“You could see him, but you didn’t go in?”

Cassie stared at the young man without really seeing him and, still in slow motion, shook her head.

“You could tell he was dead?”

“Oh yes,” whispered Cassie. “I could tell.”

“How?” asked Link insistently. “How could you tell? Do you know how he died?”

Cassie stared at him in bewilderment. Which question did he want her to answer? How was she supposed to answer? She remembered treading carefully to avoid the blood on the way back down to the ground floor. That was after she had seen Professor Delaney lying in a way that was *not quite right* half in and half out of the shadow cast by the Niffen Fragment. On the way down the steps she had been partly wondering what could have happened and why was there so much blood, and she was partly wondering why she had not screamed or fainted, but was calmly going for her palmtop.

She still wondered about that.

#

The Manager sat in her shapeshifting chair, in front of a white console covered in tiny black buttons. A lifescreen three metres square took up much of the wall in front of her. It was a top of the range version 13 and if the Manager pressed the right combination of black buttons, it would instantly subdivide into two, four, eight or any number of smaller screens, provided that number was a power of two. On an impulse the Manager had once decided to subdivide the lifescreen into one thousand and twenty four sub screens. The nano-techs had scurried to do her bidding, and in less time than it takes to blink she found herself staring at a flickering montage of tiny screens each a little under a centimetre square. It had been less than useful, but the Manager felt obscurely pleased that the lifescreen could actually do what the advertisements claimed.

The Delaney story was still running. The top left quarter of her screen showed a continuous loop of the EMO tape. The top right hand quarter showed the AIES, lights shining from almost every window. The bottom left corner showed an image of a tall, dark-haired man standing beside a peculiar torus-shaped object more than twice his own height.

The Manager directed her attention to the fourth quarter of her screen.

“Where are you?”

“At home, sir.”

The Manager detected movement behind Anchor, a fleeting glimpse of flesh scarcely covered. Something white swirled. A red-haired woman tying up a dressing gown sat down next to Anchor. She didn't look at the Manager but picked up a remote and looked somewhere offscreen.

Anchor glanced at her, then looked back out of the quarter-screen. “She's one of ours, sir.”

One of yours, you mean, thought the Manager sourly. She vaguely recognised the woman as a lighting op, or maybe a bytes tracker. “The Delaney thing,” she said and didn't fail to notice that Anchor shifted a little, as if suddenly uncomfortable.

“Yes, sir.”

“You knew him,” said the Manager in a colourless voice.

“I wouldn't go so far as to say that, sir.”

“You interviewed him way back when. Several times.”

“That doesn't make us bosom pals.”

“You had lunch with him on twenty five separate occasions over the last ten years.”

“Chance. Sometimes we were both at the Diner.”

“You have met him at the Institute fourteen times.”

“Looked in when I went there. I like the Institute.”

The Manager looked at him steadily and then consulted a palmtop. “You have visited him twelve times, and he has been to your flat eight times.” She looked back at Anchor. The red-haired woman glanced at the screen, raised an eyebrow in unconscious imitation of Anchor’s famous seductive signal, then returned her attention to whatever else she was watching.

Anchor didn’t try to deny the charges.

“The Fragment is a hobby of mine,” he admitted.

“What do you think happened to Delaney?” said the Manager.

Anchor shrugged. “Somebody killed him, seems like.”

“You don’t seem unduly upset,” remarked the Manager.

“I told you, we weren’t bosom pals.”

“Jeb, I want to know what happened.”

Anchor regarded her stonily. The redhead looked up. Jeb! Women the world over would pay to know Anchor’s given name.

“I don’t do reporting. Sir.”

The Manager smiled thinly.

“You do now. I want all tabdates on the Fragment, I want pictures of the inside of that damned museum, and I want to know what the police know.”

She hit disconnect and leaned back in her sculpted chair, which hastened to adapt itself to her shape. A small ledlight blinked, warning her that certain of her muscles were overtensed. She ignored it. She thought: goddam it, Jeb might be short but he was getting too big for his boots, and he needed taking down a peg or two.

#

Niff/interview/ADU01/1904166

Brought to you by !!GREEN TAB!!

First posted 150166

Last update 160166

Anchor remembered how cold it had been that day. He distinctly remembered knocking snow off his shoes on the last step up to the giant entrance, and thinking that it did not appear much warmer inside the marbled Institute.

“And that’s why it’s called the Niffen Fragment,” said Andrew Delaney, not then a Professor.

“So it’s not a fragment,” said Jeb Vance, not then an Anchor.

“No.”

“But it had bits of Larry Niffen on it?”

“Yes.”

Jeb allowed his gaze to wander upwards, to the towering height of the Fragment. Forewarned, the camera followed.

“Eeuw,” he voiceovered. “I take it that.....”

“Nothing there now,” Andrew Delaney reassured him. “Every last scrap of Niffen and space detritus has been collected and extensively analysed – or rather, is being analysed.”

Anchor remembered the cut they had made:

“And have you found out anything?”

“Niffen was in good health.”

The Manager had decided to take that out. Anchor wondered if it had been the same Manager then as it was now, the same bastard who had put him back on investigative. One of these days he'd get Loafer to break down the Manager sim. Loafer was the best hacker in the business. Nobody even knew who he was. If anyone could figure out who was behind the onscreen stiff, black Manageroid, it was Loafer.

“And have you found out anything?” asked Jeb.

Andrew Delaney spoke precisely. “The Fragment is a torus, that is, it is the shape of a doughnut with a hole in the middle. Its diameter is fourteen feet three and a bit inches, or just over four hundred and thirty six centimetres. The diameter of the tube which makes up the torus is a little under three feet, or just over eighty-eight centimetres. There are sixteen hemispherical nodules equispaced around the inside of the torus, of varying sizes. We don't know what they're for. We can't figure out exactly what any of it is made of.”

“Why's that?”

“We can't get a scraping. It's too damned tough. We've built a special analyser to get up close and personal with the Fragment, but without an actual specimen, we're limited in what we can find out.”

Anchor remembered experiencing a slight shock.

“You can't scratch it? Or anything?”

“No.” Andrew Delaney considered. “Mind you, we're not sure we'd want to if we could.”

“Why's that?”

“Because of the engravings.”

“Wait a minute, wait a minute.” In the future, Anchor winced. Why hadn't the damned Manager cut *that* out, the confused babbling of a cub reporter? This hadn't been one of his best interviews, or at least it hadn't started out that way. “Let's get this straight,” said Jeb all those years ago. “You can't scratch this thing at all? I mean, how can that be? What can it possibly be made of? I thought we knew all this stuff.”

Anchor winced again. He had been extremely fortunate that Andrew Delaney wasn't the sort of man to be thrown by multiple questions. The camera had panned back from the Fragment, via Jeb, to Andrew Delaney.

“He the guy's dead, yar?” inquired the redhead, he'd already forgotten her name, curled up on the shift sofa beside him. He'd forgotten she was even there. He'd forgotten Andrew Delaney was dead.

Andrew Delaney, unaware that he was going to die in horrific circumstances some twelve years later, shrugged. “Seems to be comprised of several layers; different mixes of tungsten, beryllium, hafnium; some lead and diamond. We can't duplicate the alloy processes that made..... whatever has been made.”

Controller behind camera made a winding motion. Getting too technical for *All Day Update*.

“And inside?” Jeb asked, attempting to get the interview under control, to get it rolling in a recognisable direction.

“We can’t see inside.” Andrew Delaney frowned. “It’s not just the composition of the thing. There are ways we can see past most of this stuff. We think. But we keep coming up with nothing. I mean capital en nothing.”

“I’m not quite sure I follow,” said Jeb, being quite sure he didn’t.

Andrew Delaney spread his hands. “It’s like – how can I put it? – it’s like the inside of the torus isn’t even there. There’s no gas. No solid. No liquid. No vacuum. No nothing. That’s it.... there’s not even nothing.”

Anchor remembered feeling a stir of excitement even though the interview had been completely derailed again. No nothing. That was a concept which twisted his brain and made him want to find out more. He remembered licking his lips and staring up at the Fragment in unrehearsed awe. An unheard-of twenty seconds of silence rode the ADU airwaves.

“More after this!” cut in the Anchor of the day. Jeb, snapped back to reality, wondered if he had lost his job. But the giant black Manager sim, spumed double life-size into hushed academic air, fizzed and jumped almost as if it was dancing for joy.

“One of the best moments in ADU history,” it grated. “One of our most telling moments. You projected, Jeb, you *projected*. Customers felt it, ratings will climb. It was a *historical* moment, Jeb, people will watch it again and again, you mark my words.”

Jeb had felt a stir of pride and almost convinced himself that he had planned the whole thing.

Anchor regarded the images of his younger self, raised a sardonic eyebrow, and let his hand slide under a white bathrobe to the waiting warmth beneath.

#

Hans Lieber sat ramrod-straight in an old-fashioned wooden chair. The giant policeman sitting opposite him sighed and scratched at his beard.

“And you were where?”

“Is my own business,” said Lieber stiffly. “Not at the Institute, is all you need to know.”

The policeman, who was wearing a gold-coloured badge telling the world he was P#4716 Jefford Zebrowski, turned off recording.

“Hans. You were down the reds again, weren’t you?”

“So? I don’t have no wife.”

The two of them had known each other for twenty years.

“We all know where you were.”

“I don’t want it on no record,” retorted Lieber.

“Give me a name.” Jefford Zebrowski lifted both hands in the air to indicate they were nowhere near the recquipment.

“Why for? You think I did this?”

“Of course I don’t. The boss don’t. None of the guys think you done it. But you know how the legal guys are.”

Lieber’s shoulders slumped very slightly. He did indeed know how the legal guys were, ever since he got the say-you-go on the basis of trumped-up evidence from that pocksqueak who called himself Entity. The fact that Jeff later shot Entity on suspicion of resisting arrest with an armed weapon (which later turned out to be a sandwich with a

couple of bites taken out of it) didn't get him his job back. It had been touch and go for Jeff too, for a while. But it was undeniable that the sandwich had been nibbled into a shape which resembled an old-fashioned handgun and (as Jeff later privately remarked) if nobody ever thought of DNA-testing nibbled sandwiches, who was he to suggest it?

Lieber glared.

"Your mother was a Russian whore," he said.

"My mother was born offworld on Grandee Three," said Zebrowski. "I don't know any Russian whores. Do you?" he added pointedly.

"Your father was a drunken bum."

"My father was a vacuum tennis pro," said Zebrowski. "Though he did like his drink," he admitted.

They had held this conversation a thousand times.

"And you are....." began Lieber.

"Careful, I wouldn't want you to get too personal."

Lieber sighed. He made a vague gesture to indicate that Zebrowski didn't have to keep his hands up in the air.

"Gloria. Forty two Barnside, buzzer 2-2."

"Buzzer 2-2," repeated Zebrowski. "Jesus, Hans, what sort of life do you have? Come round some time." He always ended up making an invitation.

"Yuh, yuh." Lieber never came.

"Look, we got the vid from five through eight. You got mice on the fourth floor, by the way."

"Yuh. Carrie told me."

"But no people. We got our experts checking it out, see if someone switched..... I know, I know, you're a professional guy, no-one's gonna work a switch on you, right?"

"I set them vids up," said Lieber indignantly.

"The ones in the Niffen Suite?"

"I set them all up," said Lieber.

"There was no-one there. Five to eight, not a soul, only Professor Delaney working away by the Fragment. We checked, Hans."

They both fell silent. They had both seen the violet flash that had blinded three vids; one moment Professor Andrew Delaney bending over some equipment, talking into his mob, and the next moment after a fork of brightness that hurt the eye, only blankness.

After a few moments, Lieber said: "Reckon that was when he died?"

Zebrowski nodded. "Don't you?"

Lieber nodded.

"But there was nobody there, Hans. Who could've done it?"

They looked at each other. Zebrowski scratched his beard. It was Lieber who articulated the unspoken thought that hung between them.

"If there weren't nobody there, then it weren't nobody."

"No. Yes."

"There was only... the Fragment," said Lieber slowly.

"The Fragment," echoed Zebrowski.

"You didn't turn the recq back on," said Lieber.

"Fuck the recq."

"What about the mob call?" asked Lieber.

“We’re checking that out, you bet,” said Zebrowski.

#

Niff/engraving/history test/2045497

Brought to you by !!GREEN TAB!!

First posted 300972

Last update 031177

What you have to do: read through the following article, which was written for a unizene as background on the Niffen Fragment.

You have half an hour to read and take notes on the article. After half an hour, you will be sent five time-stamped questions.

You have ONE HOUR to write answers to TWO questions, at which point you MUST return send the paper. You may send it before one hour has passed if you so wish, but any papers received with date-stamp showing more than an hour’s delay will automatically be rejected.

There is no right of appeal.

!!ARTICLE FOLLOWS!!

DATE-STAMP ##-##-## #:##:##

Professor Andrew Delaney was quoted last night as saying that Niffen is the new Fermat. He said: “let’s leave aside the twin facts that we don’t know where it came from or why nobody saw it coming. Let’s put aside the question of what it is made of, the mystery of its sixteen nodules, and the puzzling fact that it appears to have no innards at all. On top of all that, there is the enigma of the engravings. Of course, we don’t know how the Fragment *was* engraved, given that it resists all our efforts to make even a small scratch in it, but that’s not what I am referring to. The entirety of the Fragment, excepting only the nodules, is covered with what look like characters. Dots, dashes, twirly bits, straight bits.... you name it.

“If you were to slice open and spread out the Fragment, you would have an area of almost 95,000 square inches, or just over 600,000 square centimetres. This area is covered with almost 650,000 characters, some as much as an inch in size, many much smaller. It is reasonable to assume that these characters represent something, some language or code, except for one curious fact. *All of the characters, or symbols, are different.* No single character appears more than once anywhere on the Fragment. Despite this peculiarity, we are convinced that the symbols represent some sort of message, but it was a very long time before we made any progress in understanding what they might mean. Frankly, even now some ten years after we started studying the Fragment, we know next to nothing.

“Our first problem was that there was no obvious order to the symbols. It seems natural to us to start at the left and read to the right. But that is convention – there was no guarantee that the Fragment symbols - or fss as we called them – would do the same. To make matters more complicated, the symbols aren’t in straight lines anyway. They seem to be randomly spattered onto the surface of the torus. And because they cover the area of the torus, it is not clear where, if anywhere, is the “start”.

“You would be amazed at the number of specialists who have worked on the fss enigma. Cryptoanalysts; socio-economists; linguists; archaeologists; statisticians;

graphic artists; to name but a few. But it was a mathematician who made the first breakthrough. John Butcher, now Professor at Arnbase Study Centre, realised that it is possible to tell the relative sizes of the symbols because their boundaries with neighbouring symbols are faintly perceptible. Nobody knows if this is deliberate, or whether it is a by-product of the engraving process, but the fact of the matter is that it is possible to tell that one symbol is, say, eighty percent of the size of another. John worked on this insight for two years and finally discovered that the distribution of different relative sizes embeds the equation of a Mobius strip. I'm sorry, I'm not a mathematician – at least I'm not in John's class – so I can only describe this in general terms. John graphically equalised the symbol sizes, which was not entirely new, others had done the same, but then, crucially, he *untwisted* the results. In effect he pretended that the visual representation of all the symbols we could see on the lifescreen were actually engraved on a Mobius strip, and he applied an equation which slit the strip not once, but twice, and then cut open the results and laid them out onscreen. And suddenly, the symbols were all lined up and a handful of them touched each other at their edges to create new, complete symbols. Weirdly, there were now 750,000 symbols, some 100,000 more than appeared visible on the torus itself. It's not clear where these extra symbols come from.

“None of us were quite sure what John had done – not even John – but it was obviously the first step needed if we were to gain any understanding of the Fragment engravings.”

QUESTION 1: Professor Delaney remarked that “Niffen is the new Fermat.” What exactly did he mean by this? Explore in general terms the similarities and differences between the two mathematical enigmas.

QUESTION 2: Comment on the effects that the Niffen Fragment has had on engineering and space technology, given the discoveries that have been made while attempting to duplicate Niffen material.

QUESTION 3: Compare and contrast the fss enigma with the problems presented by EITHER the Dead Sea Scrolls OR the White Noise Message.

QUESTION 4: Discuss, with reference to mathematics, art and literature, the topology of a Mobius strip.

QUESTION 5: In a separate interview, Professor Delaney referred to the Niffen Fragment as “one of the greatest unifying events in the history of the world.” Explain what he meant by this statement, with specific reference to the academic fields mentioned in this article.

REMINDER: ANSWER ONLY TWO QUESTIONS AND RETURN SEND WITHIN ONE HOUR.

#

Link, whose real name was Raul Anderson, shot upright in bed as the strangled tones of his mob interrupted a dream in which everybody in the world had turned into a sim, except him. He couldn't remember, in those fleeting nano-seconds after opening his eyes, whether it had been a good dream or a bad dream, but he did remember that he had been in control.

Where the fuck was he?

A low ceiling; flickering coloured lights from nearby advertising; a sheet on the bed. He always used a duvet. Someone else in the bed. The figure rolled sleepily while he grabbed for his weeping mob, and colours strobed the curve of a breast and turned a prominent nipple sickly green.

“Yeah?”

“It’s me.”

“Yeah, you always say “it’s me” like I don’t know who it is. This is nearly the twenty second century, you with it?”

The figure rolled away from him. Now he remembered who it was - Carrie, the not unattractive EMO who had blushed bright red when he suggested a stay over, but hadn’t said no.

“Listen,” said the short bastard, “I need to get some pictures. Inside of Institute. Inside of Niffen Suite. Yes?”

“No,” said Link. “The golds have got it taped up tighter than the back entrance of a fucking military space ob. What gives? You know that as well as I do.”

“I’ve been given a mandate,” said Anchor. “And a couple of thou creds.”

Link didn’t respond. He reached out and covered Carrie with the sheet. She was snoring faintly. He remembered how they had run from the flyer to the door, how they had ripped off each other’s clothes and practically dived onto the bed like a pair of acrobats. “I’m s-sorry,” Carrie had said later. “I’m not usually like this. I’m just not m-myself. It’s the b-blood, I just can’t forget the b-blood.”

“You know Lieber?”

Link snorted.

“He’s got expensive tastes. Down the reds.”

Link was surprised. “Yeah? That cold fish? How far down?”

“We got vid,” said Anchor. “Street, door, bed, action.”

Link scratched his chin thoughtfully. Creds were always welcome. “Half,” he said.

“Okay,” said Anchor, so quickly Link knew he’d missed a trick.

“I’ll get on to it,” he said, but the connection was broken. He put the mob back down and turned sideways in the bed. Slowly, in a manner calculated to wake her, he slid the sheet down, exposing Carrie’s sleeping, naked body inch by tantalising inch. Sure, he’d get on to it, but not immediately.

Elsewhere, Anchor put down his mob and logged on to a secure encrypted server.

To: Loafer  
From: Anchor  
Date: 050983  
Time: 23.34gmt  
Subject: Job

Police files/Delaney murder/urgent

To: Anchor  
From: Loafer  
Date: 050983  
Time: 23.40gmt

Subject: Job

Cr 3,000

To: Loafer  
From: Anchor  
Date: 050983  
Time: 23.43gmt  
Subject: Job

k.

#

Niff/enigma/engravings/fss/2075589

Brought to you by !!GREEN TAB!!

First posted 020176

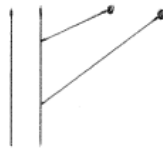
Last update 020176

Extract from The Enigma Review Quarterly, by Dr Andrew Delaney\*.

Application of the Butcher equations\*\* did three things:

- it equalised and lined up the engravings;
- it created new symbols; and
- it made one symbol which repeated itself exactly 1500 times.

In effect, we now had an array of symbols, virtually all of which were different, but dotted about seemingly at random was one symbol which looks like this:



At first, we were quite excited to find this repeating symbol, which we called the Tk rune after an imaginary symbol from an ancient book\*\*\*. It was only after several months of frustrating reflection and analysis that we realised we were still not a great deal further forward in understanding the Enigma:

- we had – and still have - no idea what the symbol represents. We presume it is a divider and that its locations embed further information, but have no idea what that information might be;
- we still don't know which fss is the starting point on the torus, and which way to read the symbols. Charting the physical positions of the Tk runes using north-south, east-west or any other direction as a base results in no recognisable pattern;
- we tried mapping the positions of the Tk runes in various ways, some of them very imaginative and not very intuitive. For example, Vonnegut\*\*\*\* imagined that he was inside the torus looking out, which had implications because some runes were *behind* his point of view. But no patterns emerged;

- we tried joining the runes up singly, in bunches, or all 1500 of them to each other. The results were various spider-web effects which almost obscured the torus shape altogether, but gave us no new information;
- we tried to find an equation which mapped their occurrences, in much the same way as John Butcher analysed the locations of the original size discrepancies (indeed, Butcher himself led this piece of research). But neither Butcher nor anyone else could find a unifying equation;
- we tried counting the spaces between the runes, in every conceivable direction, to see if the resulting number series meant anything. We published the number series in magazines and popular science zines all over the world, but nobody could find any connections:
- we tried deleting the runes altogether from the array, to see if new characters might appear. They didn't, not even when we applied the Butcher algorithm in reverse, turning the slightly smaller array back into a conceptual Mobius strip.

In short, nothing worked. We had created, it seemed, a slightly more visually acceptable version of the Niffen Enigma – but that was all. For most of '72 and the whole of '73 and '74, we scabbled around trying to make sense of the fss, with no success whatsoever.

\* cf ADbiog/2330067 brought to you by !!GREEN TAB!!

\*\* cf JBbiog/2330286 brought to you by !!GREEN TAB!!

\*\*\* see ST/fantasy/Tolkien/30067 brought to you by !!GREEN TAB!!

\*\*\*\* cf KVbiog/2330943 brought to you by !!GREEN TAB!!

#

The Manager inserted the data cube into her comptop, thinking that, say what you like about Jeb, he was a professional. “Police info within twelve hours,” he had told her. “AIES pics uncertain, but within the week. Data cube with tab info on its way.”

She shuffled the data until something caught her eye. Wire Announcement 140675. She remembered that. Jesus, how could she forget? She had been under the current Manager at the time.

“Breaking news, you heard it first here on WorldWideWire, brought to you today by Grandee Supply Centres grab it tab it don't be fly ship it by (fanfare) Grandee Supply, a young man with no qualifications, say no qualifications, today cracked the world's most difficult mathematical problem....”

The old Manager had disconnected himself from her. Sweated skin made soft plopping noises as they eased apart. He hoisted himself up on one elbow and cocked his head.

“..... we know it, you know it, say the Niffen Enigma and here's Janie brought to you today by (fanfare) Grandee Supply!”

“Crap,” said the old Manager.

“This is Janie Bester with WordWideWire in just about the coldest place I've ever been. Where are we exactly, Ray?”

“The Highlands, ma'am. But it's not cold today.”

“And that was Ray Bradley, a young man who has astonished the world of mathematics by solving one of the world's most baffling problems, if not *the* most baffling problem. Isn't that right, Ray?”

“I didn’t so much solve it, ma’am, as see the answer.”

“Exactly so. And how old are you, Ray? Tell the listeners.”

“Just on twenty-one, ma’am, I’m having my party this weekend I’d be right glad if you would come.”

“Ha! Ha! Ha! That’s young men for you!”

The old Manager was wrestling on some clothes, muttering “crap, crap, crap.” She remembered watching him hop about on one foot, trying to pull up some trousers which were ridiculously too small and out of fashion, while Janie Bester (she wondered what ever happened to her?) happily wittered on over the airwaves. She remembered thinking about the Niffen Enigma. Who of her generation had not? There had, after all been a million credit reward available for its solution.

“It was actually a bit of an accident, ma’am.”

She wondered if the young Ray Bradley ever got his money, or any part of it. She had an idea. Why not track down all the people who had made meaningful contributions to the Niffen Enigma? Track them down – Larry Niffen through to Andrew Delaney - and splice their stories together, using the Fragment as twine? She punched buttons on her console, setting up a production webinar. She smiled as she remembered the old Manager running from the room, buttoning buttons and zipping zips. She had got up and dressed in more leisurely fashion, listening to both the Announcement and his bull roar.

“Now, you cretin!”

“... Ray?”

“I don’t have a clue, ma’am. My dad was running some sort of program.”

“On the Enigma?”

“Crap! It’s too late for that! WWW got the scoop, we need the follow-up! Where’s Lafferty?”

“Yes, ma’am. My dad, he always said that there has to be an answer to any question, otherwise there couldn’t be a question.” Ray’s voice inflected upwards, turning this pronouncement into a question in its own right.

“Ah, yes, I’m sure he’s right. Listen Ray, I want you to tell the listeners what happened this morning. But first this!”

(Fanfare. “Grab it tab it don’t be fly ship it by (fanfare) Grandee Supply!”)

“Lafferty. You getting this?”

“So, what happened exactly, Ray?”

“Crap on that. Just get on the tab. I want to know the consequences, you hear?”

“... over, and I kind of grabbed at the keyboard as I went down, and I must of pressed some keys.”

“Yes, Ray?”

“And the display stopped, ma’am. Right there, and as I banged my head on something I suddenly realised that I knew those numbers from somewhere.”

The Manager had paused in the act of slipping into her skirt. The old Manager fell silent. The unified world and orbits held their breath, listening.

“Back after this!”

“Crap,” said the old Manager succinctly. “Have they really got something?” This last shouted through to the bedspace.

“WWW don’t put it on air unless....

“.... it’s written in stone. Yeah, yeah.”

“Or in this case,” she muttered to herself, “in a lead-diamond-something-or-other alloy.”

The number sequence which young Ray had accidentally frozen on his father’s lifescreeen was:

3	9	6	1	75	13	10
4	14	50	9	4	238	42
4	59	159	288	23	6	467
6	8	230	265	419	460	9
5	11	81	781	358	716	34
8	30	73	529	6	979	939

The old Manager got hold of this and tabbed it before the opposition, seeing as how WWW couldn’t very well broadcast an array of numbers over the air. By then everyone knew the answer, but at least they could also see it for themselves.

“Ray?”

“I kind of saw the first number as I fell, and I must’ve been falling sideways, like this....”

“Ha! Ha! Ha!”

“... so anyway, when I clunked my head I suddenly saw that diagonal. D’you see it, ma’am?”

“Hmm. Hmm.”

“Three one four one five nine.....”

“Hmm.”

“Put in a point and it’s Pi, ma’am. Three point one four one five nine. Learned it at school. I don’t know where the numbers come from exactly, you’ll have to ask dad that. But there’s Pi, right there.”

#

Jefford Zebrowski climbed the steps to the Institute, ignored the salute of a young silver, and made his echoing way up still more steps towards the Niffen Suite. Lafferty and Lieber were waiting outside the sealed doors.

“See you cleaned up,” said Zebrowski. He wondered whether what’shername Cassie something had been the one to hose and scrub away the blood. Somehow he doubted it.

“What’s all this about?” said Lafferty irritably. Lafferty was always irritable. He was sub-controller of the AIES and sometimes Zebrowski wondered if irritability was written into the job description. He gestured at the monitors set up outside the Suite. “Nice set-up,” he said.

“We don’t want no-one going in there till we know it’s safe,” said Lieber. Lieber didn’t sound irritable. He sounded nervous.

Zebrowski peered at the nearest lifescreeen. It cammed the Fragment on the other side of the doors, in grainy vid colour. The Fragment looked much as it always did, thought Zebrowski. Big, and round and knobbly. He looked at the next screen, which showed the same thing from further away. No sign of Delaney’s body lying stretched out at the foot of the Fragment now, of course. What was left of it was up at the morgue.

Zebrowski sighed. “Run the vid,” he said. Without speaking, Lieber clicked a remote, and the three men watched events unfurl on the topmost lifscreen. Professor Andrew Delaney studying the Fragment; standing on specially-designed steps to reach up to something on the upswelling inside curve of the torus. Moving back to a desk; marking something in a book; reverting to a computer. The three future watchers had seen it all before, but were fascinated to see it again – the last few seconds of the life of a fellow human being. Delaney leaning back, even the security camera able to pick out the look of distraction on his face.

“He thinking on something,” said Lieber.

Delaney suddenly leaning forward again, pounding furiously on the keyboard.

“There,” said Lieber. “Was that something?”

A blue light might have flickered around the circumference of the Fragment.

“We analysed the vid to hell and back,” said Zebrowski, and shrugged. “Might’ve been something. Might’ve been light from the window. Might’ve been a reflection from Delaney’s computer. Might’ve been a vid glip.”

Delaney’s expression transformed into astonishment. He stared at the computer screen, clicking a mouse. The features of his face were limned in flickering screenlight. He picked up his mob. Lieber grunted involuntarily, remembering a call he had taken on his own mob a few hours previously.

“Lieber? Hans Lieber?”

“Yuh.”

“Tab wants pictures of the Niffen Suite.”

“Who don’t? Who this is?”

“Gloria, betcha wish it was. Buzzer 2-2.”

Lieber clutched so hard at his mob that he later found a crack across its plastic face.

“You there?”

“What do you want?”

“Tab wants pictures of the Niffen Suite.”

“Or?” whispered Lieber.

“Or AIES gets a vid shot down the reds.”

Zebrowski fished in a pocket and brought out a plastic shrouded mob. Onscreen, Delaney mouthed something. He turned away, facing the Fragment, clearly still talking. Then the violet flash.

Zebrowski said something.

“What?” said Lieber, blinking himself into the present.

“No sound,” said Zebrowski.

“No, we don’t got sound on security,” apologised Lieber.

“We got a couple lip-readers in,” said Zebrowski. “He just said, “hey, I’ve cracked it! It’s.” And then he turned round.”

“But what was the number?” asked Lafferty impatiently.

Zebrowski hefted the plastic bag. “Wiped,” he said.

“Like the comptop?” said Lafferty.

“Yeah.”

The three men regarded the motionless lifscreen images of the Fragment.

“How come this vid wasn’t wiped?” asked Zebrowski suddenly.

“Off-site back up,” said Lieber. “But the cameras were flash fried, so...” He shrugged. “There weren’t nothing to back up. After.”

“You got any clue what that flash was?” asked Zebrowski.

Lafferty scowled. “It was radiation. Like, light is radiation. It wiped half the drives in the Institute. You think we wouldn’t tell you if we knew?”

“Did he call you?” asked Zebrowski.

Lafferty shook his head.

Zebrowski shifted his gaze to Lieber, who looked indignant.

“Me? Why would he call me?”

“Yeah,” admitted Zebrowski.

“Something’s not right,” said Lafferty suddenly. He was staring intently at the Fragment.

“What?”

Lafferty stared for a few moments. He shook his head slowly. “I don’t know. Something. Maybe it’ll come to me.”

“Run a few prints,” said Lieber.

“I don’t want pictures doing the rounds,” warned Zebrowski.

Lieber spread his hands. “So a few more pictures of the Fragment out there. Why should you care?”

“Do you want to find out what happened, or not?” snapped Lafferty.

“Okay, okay,” sighed Zebrowski. Lafferty bent over the console buttons, and behind his back Lieber struggled to stifle a huge sigh of relief.

#

Anchor was reviewing an old interview when Loafer came through. Half the key was attached to the files, as usual. Anchor sent c3k by return, fired off a legitimate claim to ADU, and waited for the second half.

Delaney had looked older in this interview. Some of his hair had turned white in the way that Anchor knew from personal experience some women found distinguished and sexy. At the time of this interview Delaney was a Professor and Jeb was mere weeks from becoming Anchor.

“So was he right?” asked Jeb.

Delaney had nodded. “Oh yes, the fifteen hundred Tk runes were spread out exactly according to the numbers describing pi, except.... well, I’ll come back to that. I’ll show you how it works. Here are the first twenty four digits of pi.

3.14159265358979323846264

“The Enigma represents these as an ascending list of numbers, but as soon as the numbers reach 1024, the series goes back to the start again. Like this:

3 14 159 265 358 979 3 23 84.....

“In theory the next number after 979 is 3238, but as that is bigger than 1024, the Enigma starts over at 3, 23 and so on. Get it?”

Jeb nodded doubtfully.

“So now that we can identify the representation of pi, we know the orientation of the symbols. They wind round the tube of the torus in a roughly eight-to-ten direction, if you get my meaning.” Delaney rotated his hand as if he was winding a piece of tape around a circular object, and Jeb nodded. “And now we know what is probably the starting point of the series – the position of the first rune.”

Jeb nodded again.

“But the problem is this, although we didn’t notice it straightaway. Fourteen hundred and ninety seven of the rune positions coincided with the digits of pi, but three did not.” Professor Delaney looked hard at Jeb as if this was some kind of test.

“The Fragments miscalculated the value of pi?” hazarded Jeb.

Delaney snorted, though whether at Jeb’s ill-reasoned response or at his use of the colloquial name for the originators of the Fragment, was hard to say. “Hardly. One, how likely is it that the originators of this sort of technology would get the value of pi wrong, or would wrongly inscribe it? Two, if it was a genuine error, then the digits in between the errors – we called them  $e_1Tk$ ,  $e_2Tk$  and  $e_3Tk$ , by the way – would also be wrong. Get me? You can’t calculate the value of pi and get practically all of it right apart from three digits. That doesn’t make mathematical sense. And thirdly, the three errors were at the six twenty fifth rune, the one thousand twenty fourth, and the one thousand four hundred and forty fourth rune. Six twenty five, one thousand and thirty two, and one thousand four hundred and forty four are all perfect squares. How likely is that to happen by chance?”

“Let me get this straight,” said Jeb.

Anchor’s lifescreen split in two as the second half of the key arrived from Loafer.

“The number of symbols in between each of these runes is three, one, four etcetera etcetera. Starting over at 1024 or above? All the digits of pi?”

Delaney nodded.

Anchor let the interview play in the background while he accessed the police files.

“But three of them – three in a total of fifteen hundred – are in the wrong place?”

Delaney nodded again. Anchor started to click on pages.

“The numbers should be 25, 89 and 47,” said Delaney. “They are actually 19, 81 and 46.”

“Close,” said Jeb. “What does it mean?”

“I wish I knew,” said Delaney. He sighed. “Truth to tell, I’m getting tired of these damned puzzles.”

Anchor knew much of Loafer’s material anyway. The light, the blood, the EMO testimony. He was interested to note that no other person had been in the building at the time Delaney was presumed to have died. Or was killed. Or whatever. Anchor clicked pages, curious to find out exactly how Delaney died, that the gods were so sure that it had not been by natural causes. He had seen these types of files before. Somewhere in there would be an autopsy report.

“But I think we need to find out,” said Delaney in the background.

All the colour drained from Anchor’s face.

“I think there’s a message in there, buried deep so we have to be clever to find it,” said Delaney from out of the past.

Anchor was hard put not to throw up all over his console, despite his years of reading grim tales to the nation.

Delaney's voice boomed and thinned in his ears. "I think..... deciphering the message might just be the.... most important thing that we've ever had to do."

Even the way Bargas had treated his wife in that remote spot in the Himalayas was nothing compared to this.

"You poor bugger," whispered Anchor.

#### CAUSE OF DEATH

#### SUMMARY

(A) Unknown but see (B) below

(B) Condition of body:

B(i) General – good. No underlying illness. See Appendices 3,4 and 5 (standard forms).

B(ii) Indicative – brain cavity empty. Surgical remove features. See Appendices 6, 9.

(C) Conclusion: death caused by removal of brain and part of central servicing nervous system. Probably not instantaneous (Appendix 7). Method of removal: unknown (Appendices, 8, 10). Responsibility for removal: unknown. Purpose of removal: unknown.

#

Cassie Henderson dreamed that the ceiling above her bed became suffused with blood. It ran down the sides of the walls, started to drip from the light fixings. "Oh my," she thought to herself in the dream. "That's dangerous. I wonder if it's covered by insurance?" Then she woke up and reached out in the darkness before dawn, but the bed was empty beside her, and the space where Raul had been lying was already cold.

Link was at his own flat, rubbing tired eyes, staring at his lifscreen. He had opened the Tab account not really expecting to find anything quite so soon, but rather to his surprise Lieber had already come up with the goods. Or at least, it looked as though he had. He tried to blink away tiredness, and stared some more at the pictures of the Fragment. They were date- and time-stamped, but Link knew that such things were easily forged, especially by an ex-gold turned security expert. Still, it wasn't his job to do the technical stuff.

Shrugging, he zapped the Tab code to the short bastard.

The Manager had already received the police files including the autopsy report from Anchor, and had barely made it to the bathroom in time.

The young silver on duty at AIES saw something strange. Upstairs, on the corridor which housed the Niffen Suite, a faint light was flickering. He unholstered his taser and cautiously started up the marble steps. He looked around the corner. His eyes widened and his heart pounded in an uncomfortable fashion: he fumbled for his p-mob. All of the lifscreen monitors were jumping crazily with blue-violet light, but that was nothing compared to the glare emanating from the semi-circular window above the locked doors of the Suite.

#

Zebrowski sat in the study flat which up until recently had belonged to Professor Andrew Delaney. He rubbed the palm of his hands over his face and scratched his beard. For at least the twentieth time, he watched Delaney's face register a shocked, excited expression, saw him pick up the mob and punch a few buttons, saw him say a few words before turning his back on the security vid. At first it had seemed macabre, watching the recording on Delaney's own machine in his own study, but Zebrowski had long since lost his sense of the macabre, along with any sense of curiosity or sense of horror at what had been done to Delaney. Now, he was just tired.

Lab had told him that they thought – only thought, mind you, they couldn't be sure – that the first number Delaney had punched on his mob had been a zero. After that, he had tilted the mob in such a way that the camera couldn't catch what exactly he was pressing. But if Lab was right about the zero, it meant that he had been calling an off-world number. That was why Zebrowski hadn't been too excited at the protestations of Lafferty and Lieber.

But why an off-world number?

Who?

He had paged through Delaney's number list at home, had set one of the silvers to work, calling them up one by one. He didn't expect it to amount to anything. Even if they found out who Delaney had called, what exactly would it prove?

Zebrowski sat back. The black shape-shifting chair scurried to accommodate his massive weight and shape. He scratched at his beard again, and yawned. There were books, some of them antique, lining three walls of the study. There was dust on the books. Delaney's lifescreen was almost top of the range, and the computer itself was a Tabbed Quantum III, with Foursquare speakers. There was dust on the speakers. Zebrowski had taken a look through the rest of the flat, and discovered more dust, unwashed clothes, a kitchen moderately clean. No woman's touch.

No woman's touch.

Zebrowski's eyes drifted to the lifegraph standing stiffly at one corner of the workstation. It showed a younger Andrew Delaney standing in sunlight, one arm around a smiling, blonde woman. Earth floated in the background. It looked as if the picture had been snapped in the corridor of an obs platform: the faintest reflection of whoever had taken the picture was visible in the plastic window behind the happy couple. Zebrowski had examined the lifegraph before, and remembered that it contained a small puzzle. He picked it up and turned it over to read the inscription on the back: *Making Hay while the sun shines? Love, Pat 200877.*

Why the capital H?

On the lifescreen, Delaney picked up the mob, punched a number, started speaking.

Zebrowski suddenly sat upright. He stared at the lifescreen. He stared at the inscription. He watched the lifescreen again, then closed down the vid and opened up Delaney's contact list. He found a name, logged on and Tabbed it. He scanned the results, and for the first time that he could remember in a long time, he grinned.

At last he was getting somewhere.

Professor Andrew Delaney clambered up onto his chair to take a precise measurement of fss 2587. He could have double-checked on the computer, of course, but he always felt happier if he could get his hands on the Fragment itself instead of manipulating a sim. He always felt he was closer to the answer if he could feel the cool material of the Fragment beneath his questing fingers.

In this instance, what he had calculated with the sim exactly matched his manual measurement. fss 2587 represented an almost complete circle, but instead of all one hundred and eighty degrees of the circle being engraved, only one hundred and seventy three degrees were inscribed. *Exactly* one hundred and seventy three degrees.

Delaney jumped back down and meticulously recorded this data both in his handwritten journal and on the AIES computer. The computer also contained a complete log of all Enigma experiments he had undertaken with the help of the Fragment sim. Now, he keyed in 173 and set the latest program running.

He had a funny feeling about this one.

Characters on the lifescreen danced and scrolled, rotated and overlaid. Symbols flashed, merged, shivered and split with bewildering speed. Delaney had seen it all before, during previous experiments, but this time he sensed some sort of cohesion. Data on the screen flickered past too quickly for him to comprehend, but this time he did not get the sense that the pictorials were breaking down randomly. This time, something was happening.

He felt a tingle on the back of his neck.

The screen stopped dancing. For a moment he could not believe what his eyes could plainly see. The latest algorithm had turned, twisted and conjoined the symbols into what looked very like a star map, though he was damned if he recognised any constellations. It *was* a star map. He became more and more certain of it the more he studied the strange configurations.

He felt a sharp pain at the top of his head, almost as if he had opened his eyes to sudden excruciating brilliant light. He blinked it away: the screen looked normal enough, its brightness no more than default. Normal enough apart from its astonishing message, of course. He was just overexcited. Bubbling excitement! He'd solved it! Star maps; the purpose of the Enigma revealed! A manic grin stretched his lips. Now who could he possibly ask about star maps? He zapped the parameters and the result and picked up his mob to tell her.

"I'm not here right now. Message me after the beep."

"Hay! I've cracked it! It's..."

That was when he felt the pain again, and turned.

"... a star map, I reckon it....."

And that was when he was blinded by a violet flash, and when he experienced more pain that he could ever have imagined possible. He screamed, and shrieked, and bubbled into silence, but of course there were only the mice on the fourth floor to hear him, and the security system did not support the recording of sound.

#

Anchor called up the Manager in sudden frenzy.

"I was about to call you," grated the Manageroid. "Something's happening."

“See those pics?” said Anchor. He was breathing heavily. “You see those pics of the fucking Fragment?”

“I see them, Jeb.”

“There’s seventeen nodules, seventeen not sixteen.” Anchor’s voice rose. “Seventeen fucking nodules!”

The Manageroid didn’t move for a long moment, while it absorbed this information and its implications. Then its eyes widened.

“Jesus,” it said.

Anchor panted. On one half of the screen he watched the Manager. On the other he had posted one of the latest pictures of the Fragment. He wondered which of the nodules was the new one. As far as he could see, they were still equispaced around the inner circumference.

“You better get over there,” grated the Manager. “Lafferty called. Something’s happening.”

#

Doctor Patricia Cornell was working in the observatory when the call came through. She had been working in the observatory for seventeen straight hours, over-riding complaints from junior colleagues and ignoring complaints from her peers. As far as anyone could tell, she was scanning part of the sky which contained the Skallic Clouds, an accumulation of space detritus only discovered after the obs station had been set up some eight years ago.

“Call for you, Hay.”

“I said no calls.”

“It’s the golds.”

Skallic Clouds/Obs Z21/1907542

Brought to you by !!GREEN TAB!!

First posted 220676

Last update 120478

The Skallic Clouds are visible between Galaxies CA45\* and DY765\*\*. Strictly “Skallic Clouds” is a misnomer, as the phenomenon is a single collection of dust and debris, occupying an estimated 2.6 billion billion cubic miles. It was discovered during routine observation by the Director of Observation Station Z21 (“OZ”), Robert Skall\*\*\*.

\* see ST/GCA45/70619 brought to you by !!GREEN TAB!!

\*\* see ST/GDY765/69832 brought to you by !!GREEN TAB!!

\*\*\* cf RSbiog/1907668

Which wasn’t true. Patricia Cornell knew that, and Robert Skall knew that, but there was no way to prove the inaccuracy to anybody else. Doctor Patricia Cornell had to continue her work on the observation station with the bitter knowledge that the Skallic Clouds should have been called the Hay Cloud, or the Cornell Field, or something along those lines.

“Doctor Cornell?”

“Yes?”

“My name is P four seven one six Jefford Zebrowski.”

“Yes?”

“I believe you knew Professor Andrew Delaney? I take it you are aware of... what happened to him?”

Doctor Cornell felt a wave of sadness.

“Yes.”

“And am I right in saying, doctor, that you are also known as Hay?”

Niff/fss/starmap/3076492

Brought to you by !!GREEN TAB!!

First posted 050983

Last update 050983

The Niffen Enigma was finally solved by Doctor Patricia Cornell, a researcher in applied astronomy and astrophysics on Observation Station Z21. She says: “Like everyone else, I experimented with the eTk numbers:

	Actual	Indicated
E <sub>1</sub> Tk	19	25
E <sub>2</sub> Tk	81	89
E <sub>3</sub> Tk	46	47

“I related them back to the original engravings, both the incorrect and the indicated correct symbols. But these appeared to mean nothing. Then I got the idea of adding the numbers together, not arithmetically but sequentially. So now I was looking at symbols 19, 1981 and 198,146 based on the eTk numbers; or I was looking at symbols 25, 2589 and 258,949 if I was looking at the indicated correct numbers. At first neither of these series made any sense, but then I remembered to exclude the Tk runes from the original array, and at last I found this:

Symbol 25:



Symbol 2589:



Symbol 258,949:



“I thought perhaps I was on to something. Like this:

25 take the torus;

2589 shift symbols to the right; and

26849 rotate (not 180 degrees, but 173 degrees), and fold or overlay.

“But when I programmed that, nothing much happened, and I thought it was another dead end.

“I discussed these findings and lack of conclusion with my old friend Professor Andrew Delaney, who was working on the Niffen Fragment back at the Armstrong Institute, before the dreadful events which resulted in his death only hours later. He reminded me that the eTk occurred at the 625<sup>th</sup> and 1024<sup>th</sup> and 1444<sup>th</sup> locations on the torus, and wondered if the fact that these were all squares of numbers was somehow a factor. And that gave me the answer. 1024 is the square of 32, and 1444 is the square of 38. I programmed the computer to shift the symbols to the right, overlay the results on the original array, and then shift to the right again, thirty two times. And then I instructed it to rotate the new array 173 degrees, overlay the results; rotate 173 degrees again, and do this thirty eight times.

“I shall never forget the way in which the beautiful star map emerged from apparent chaos – a strange star map, to be sure, as it shows the universe from a point of view somewhere in the Skallic Clouds.”

“Did he call you, Doctor Cornell? Professor Delaney?”

“What makes you think that?”

“It is possible he was making an extra-terrestrial call at the time of his death.”

“Really? I was given to understand that no viable data remained at the Institute.”

“Where did you hear that, doctor?”

“Oh, I can’t remember now. I have so many contacts at the Institute and elsewhere on Earth.”

“I see. We need all the help we can get here, doctor.”

“I’m sorry I can’t help, p-Zebrowski. I spoke with Andrew some time before.... before what happened. To discuss a theory of mine which I believe you will be aware of very shortly. I don’t remember when exactly, but it was well before.... before the time you mentioned.”

Zebrowski scratched at his beard. He was certain that this doctor woman was lying, but he was damned if he knew why. He toyed with the idea of telling her exactly how Delaney had died, but decided against it. He had a feeling it wouldn’t help, and she already knew more than she was supposed to. He made a mental note to speak with Lafferty. Ask him whether he had taken snaps on an off-world ob in years gone by.

“If there’s nothing else, p-Zebrowski....?”

“No, Doctor Cornell. But I would be grateful if you would log my contact number, just in case something occurs to you.”

“Of course.”

They disconnected.

Almost immediately Zebrowski’s p-mob shrilled and Lieber’s voice told him: “There something going down here, Jeff, at the Institute. Don’t tell no-one I told you.”

#

A large crowd had gathered around the Institute, collectively gaping at the violet light, striated with blue, that pulsed out of one of the second floor windows. Daylight strengthened, revealing details of the crowd. People shuffled their feet, sipped hot coffee from foam containers, pointed, chattered, shivered. Link wondered where they all got

their coffee from, and finally spotted an *All Night Caffeine* vehicle parked behind a p-car, as close to the tapes marking off the crime scene as it could get.

“The light show started at about five o’clock this morning,” he read off the bytes. “Nobody seems to know what it is, but it is clearly something to do with the Niffen Fragment, and may be connected to the unexplained death of Professor Andrew Delaney two days ago. The Institute sub-controller, Doctor Peter Lafferty, has just started a media conference.”

Cut.

Link hoped that the short bastard would come up with the goods he had promised.

“We don’t know,” said Lafferty irritably. “Of course the light’s coming from the Fragment. What? No, the doors are locked, we’re monitoring remotely. No, not from the torus itself, but from the nodules.... I couldn’t possibly comment on that, some kind of blue-violet light, we’re analysing it right – Well how should I know? It doesn’t seem threatening, but what do any of us really know about the Fragment?”

Anchor had looked distraught, but had paused long enough to say, “I’ll try to patch you in.” By which he meant, give ADU access to what the Institute lifescreens were seeing. Then he had run up the steps and disappeared inside AIES.

What do any of us really know about the Fragment? thought Link. Right. That was a good question, only Lafferty was supposed to be answering them, not asking them.

Lafferty continued to fence. “Yes, I saw that. It hasn’t been verified yet, of course, but if it’s correct then.... No, I don’t know Dr Cornell personally, though I have met her on a few occasions. Yes, so I understand but as Professor Delaney, well I hardly think it’s necessary to go into that right now, wouldn’t you agree? A star-map, apparently, but I haven’t seen it. Not verified. If it is, then it’s logical to assume .... I’m afraid I shall have to cut this short.”

Lafferty had momentarily held a mob to his ear, checked the time.

“I’ll try to give you an update before lunch,” he said, his tone of voice sounding as if it was really the last thing he wanted to do. Not for the first time, Link wondered why Lafferty had been chosen to be spokesman for the Institute.

Cue. The Lafferty vid was replaced by Link’s features, eerily backlit by a wash of alien light.

“In a separate but related development, Doctor Patricia Cornell, an experimental astrophysicist based on Oz, has tabbed a report claiming to have solved the Niffen Enigma. According to her, application of what she dubs the Cornell Algorithm transforms....”

Link’s face on the lifescreeen suddenly disappeared, to be replaced by fuzzy grey static. Great, he thought. Just great. Why did they have to do these dumb live shoots? Then the grey fuzz dissolved into a brief glimpse of the AIES main entrance, from the inside looking out; followed by a deserted reception counter; then a corridor crammed with people, lifescreens, equipment beneath a giant flaring semicircular window.

“Patch!” called out somebody behind the bytes monitor. They had access to the Institute’s security system. Say what you like about the short bastard, thought Link admiringly, but he’s a professional.

Finally, the Fragment itself appeared, looming through a translucent, charged atmosphere. Bright filaments groped from each of the nodules, fizzing and jumping.

“How many openings?” said a voice.

“Looks like three in each.”

“See where they cross.....?”

“Are they nerves? They look like nerves.”

Link suddenly realised that Lieber must have upgraded the AIES system with sound. He was hearing the words of the people in there, the people standing right outside the giant doors to the Niffen Suite.

“Pressure up eight percent,” called someone.

“We better move away from the doors,” murmured someone else.

“See, an outside links to a middle; a middle links to an inside; an inside links to an outside. See where they cross?”

Link gaped at the images, along with almost everyone on the planet and orbits. Fiercely bright blue-violet tendrils crept from openings in each of the nodules – three from each - wound past each other, and linked with other nodules on the far side. Some, already in place, seemed to solidify, to grow thicker and burn still more brightly.

“Nine percent!”

“They’re communicating,” said a voice Link recognised as being that of the short bastard.

“You can’t know that.”

“I know that Delaney.....”

“You can’t know that either.”

“Ten percent. Accelerating.”

“Move back! Move away!”

A terrific creak squalled from the speakers.

“Seventeen nodules. Count them yourself!”

As Link watched, more and more flaring tendrils snaked across the inner space of the torus to link with nodules on the other side. Where they passed each other, in the exact centre of the torus, something black started to grow.

“Carter!” A woman’s piercing voice. “What is that thing?”

Tendrils merged and strengthened, twisted once and reconnected.

“It’s making Mobius strips,” came the short bastard’s voice. Link remembered that he had some sort of interest in the Fragment. “That black – Jesus! Get away from that door!”

More violent noise, a squealing roar.

“They’re gonna go!”

Link saw the last few tendrils snake into place. The black inner core swelled and throbbed like some sort of obscene growing sac, and started to rotate. What sounded like a hurricane buffeted out of the speakers, dwarfed by a thunderous clamour as the giant doors of the Niffen Suite were sucked inwards. They were momentarily visible, flying horizontally amidst a chaos of chairs, curtains, glass, exhibits, all hurtling towards the unmoving shape of the Fragment, before lifescreens and the windows of the Suite flashed with unbearable brightness. Watchers in the crowd afterwards swore that the light permeated through the very walls of the Institute, and lit up the sky for miles above.

What you have to do: read the following account in real time. You have twelve hours and thirteen minutes in which to do this and then answer the six questions at the end of the account. If it takes you ten minutes to read the account, then you have only twelve hours and three minutes remaining in which to answer the questions. If you do not read the account, or forget or are unable to answer the questions, or if it takes you longer than twelve hours and thirteen minutes, then it will be too late.

ACCOUNT FOLLOWS

DATE-STAMP: NOW

At seven fifty-six on 060983, the Niffen Fragment effectively ceased to exist. The fabric of the building in which it was housed (the Armstrong Institute for Extraterrestrial Studies) was undamaged, and yet the fourteen foot, six hundred-ton alien artefact vanished in front of an ADU audience of several billion human beings.

At seven fifty-seven, the telescopes of Oz picked up something moving towards the solar system, ostensibly from the direction of the Skallic Clouds, although this is by no means clear and rests mainly on the presumed link between the Enigma solution and the Fragment itself.

TRANSCRIPTS FOLLOW:

Doctor Patricia Cornell: Something. Jesus it's moving fast.

Unknown male: Where?

Doctor Patricia Cornell: Fourteen three. Plus six four zero eight.

Unknown male (after a short pause): Yo.

Doctor Patricia Cornell: It's heading towards us. ETA...

Unknown male: I'm on it. Twelve hours, eleven minutes.

Doctor Patricia Cornell: Jesus.

Unknown male: My res not up to it. Can you get the shape?

Doctor Patricia Cornell: Not clear. Circular.

Unknown male: Torus?

Doctor Patricia Cornell (after a pause): Could be.

Unknown male: I've patched in the military.

Doctor Patricia Cornell: I think it might be two of them. Like a gyroscope.

Wells: Doctor, this is Colonel Wells, orbital DfQ. Can you detect intent?

Doctor Patricia Cornell: No, sir.

Wells: Why was this not picked up before? Should have.... (voice fades, picks up again) .... days ago.

Anchor: It is unclear whether orbital defences should be deployed. They were designed to repel attack from Earthside, and are probably technically inferior to the approaching object.

Doctor Hans Lafferty: Extreme pressure surge. No radiation.

Zebrowski: I'm going home to see Mae. Come with me.

Lieber: Fuck that. I'm going down the reds.

Doctor Patricia Cornell: Approx one mile.

Wells: What?

The Manager: We've got ninety three percent penetration.

Doctor Patricia Cornell: Each torus. Approx diameter one mile.

Wells: Jesus.

Zebrowski: In the morning?

Lieber: It might be my last one.

Zebrowski: They'll all be watching ADU anyway, you bet.

Link: Can I come in?

TRANSCRIPT ENDS

Carrie Henderson opened her door. Cloud cover from the west trapped the rising sun in sweeps and curves of fiery red. Two days ago she would have thought how beautiful it looked. Now, she was reminded of blood.

QUESTION 1: Supply ships are equipped with excellent surveillance and detection systems. Consider any logical reason why on 190465 Waysation #12CC did not detect the incoming alien artefact subsequently known as the Niffen Fragment. Compare and contrast that event with the apparent late detection of the object currently approaching the solar system.

QUESTION 2: The Niffen Enigma was solved shortly before the events culminating in the disappearance of the Fragment, which in turn occurred less than one minute before the Skallic object was detected by Obs Z21. Compute the probability that these three events are not linked.

QUESTION 3: Evidence indicates that the Fragment acquired or grew a further nodule in the hours before its disappearance. A) assess the likelihood that this acquisition is linked to the way in which Professor Andrew Delaney died; and B) on the assumption that it is, what inference can then be made as to the intent of the incoming Skallic object?

QUESTION 4: Review recordings of the last three minutes immediately preceding the disappearance of the Niffen Fragment. Calculate whether the pressure surge within the Institute was directly proportionate to the growth of the black object or non-object within the centre of the torus.

QUESTION 5: Given the control demonstrated by the Fragment over the manner of its disappearance, consider the likelihood that its original collision with Waystation #12CC and subsequent entry into a deteriorating orbit, happened by chance. What conclusions can you draw from your analysis?

QUESTION 6: Recordings appear to show that the tendrils emanating from the seventeen Fragment nodules twisted themselves into a complex set of Mobius strips. Evaluate the implications for n-space topology, with specific reference to A) the use of Mobius equations as an integral part of the Enigma; and B) the apparent non-existence of three dimensional space within the tube of the Niffen torus itself.

**REMEMBER: ANSWER ALL SIX QUESTIONS BEFORE MAKING ANY DECISIONS OR EMBARKING ON ANY COURSE OF ACTION.**

There is no right of appeal.