

Freedom

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Alright mate? You on the tour? Welcome to the department. I'm Alfie.

Ever been inside a brain before? No? That's unusual, not many people start their visit here.

Fully booked, eh? Don't apologise, mate, we're used to it. People wanna see the bits they've heard of. It's all, "Ooh, can we go to the *prefrontal* areas?", as if that's the only department that matters.

I tell you, mate, without us those guys in prefrontal would be twiddling their dendrites and *rotting*.

They don't half play up to it, though. You'll see 'em later. All that, "Oh yes, it's a great responsibility", and banging on about their dopamine levels, as if the rest of us never get a sniff of dopamine. They don't half try it on, that lot. They're just passing messages, same as the rest of us.

Load of posers, if you ask me. Don't tell 'em I said that.

Anyway, welcome to the thalamus. Here in the LGN – sorry, mate. Lateral geniculate nucleus. Bit of a mouthful.

Geniculate, yeah. Dunno, that's just how it is.

Anyway, let me introduce you to some of my colleagues. Alan, Albert, Fred, Alistair, say hi. And this is Sue.

Yeah, we're neurons, she's an interneuron.

That means we pass messages – yeah, to the lads upstairs mainly – and she keeps us from getting overexcited, don't you love? Soothes us down, tells us when to cool it. Rules us with a rod of iron, does Sue.

Upstairs? Blimey, mate, you didn't get the briefing, did you? Visual cortex, that's our output department. Where we send the goods.

Yeah, they come in here, we process 'em and send 'em on. Each of us is in charge of a group of retinals, see?

Retinals? Retinal cells, mate. The frontliners, the ones that turn light into messages.

Blimey, I wouldn't say that in front of them. They reckon they're the ones who do the proper work, the rest of us are just bloody bureaucrats.

Anyway, they report to us through those synapses there.

Yeah, on our dendrites. You got it, mate. We process the messages ...

How? How long have you got, mate?

Yeah, course I could tell you, it's not like it's classified, just gets a bit technical for most people.

Right. So we process it, shovel it into our axons – yeah, these long things here – send it on, and deal with any feedback from up above.

All the time, mate. Never stops, I tell you.

I'm on special dispensation here, the other lads are covering my retinals. We take it in turns, the guidebook bit.

Food? We eat on the job, mate. Yeah, like I told you, it's 24/7 here. Slackens off a bit when the visuals stop, but even then we've still got stuff to do.

Holidays? You what? We're *neurons*, mate.

Well, we're all doing similar stuff, sure, but each of us gets different inputs. It depends on your retinals, see. Me, I like vertical stripes best, but I'll take spots, splodges, whatever really.

Colour? Nah, you want the parvo lot for that, next door.

Parvocellular. Cos they're titchy bastards, unlike us magnos. Magno means big, see, parvo means small.

Nah, we're all pretty friendly here. Been doing it for years, see. Makes for, whatcha call it, camaraderie. Now, if you're talking about upstairs, or downstairs for that matter, that's different. See, we're stuck in the middle, so we get it in the soma from both ends.

Well, I mentioned the feedback from upstairs. Feedback! They never stop whingeing. Filter this, amplify that, too much noise, too quiet ... Don't half give us the runaround. Sue's worked off her feet, mate, keeping us from going nuts.

Downstairs, nah, not the retinals, they're good lads mostly. It's the other lot. Blimey, they're worse than the prefrontals. Something comes in from the brainstem or amygdala, and it's right lads, drop everything, jump to it, like it's the bloody army.

Most of the time it's a false alarm. Sue reckons nine out of ten times it wouldn't do 'em a bit of harm to wait a bit and ask nicely.

Yeah, but you can't say so, they just scream even louder.

It's not too bad, mate. I get a bit creaky at times, all of us does, but we manage, don't we lads?

Touch of amyloid, I reckon. Slows me down a bit.

Yeah, course it's a problem. If it builds up enough it'll kill you. Nasty stuff, amyloid. But I reckon I'm good for a few years yet.

Everyone's gotta die some time, mate. I'm lucky compared with some. In some of the departments upstairs there's loads of neurons going off sick with amyloid poisoning apparently.

So Sue says. She hears stuff, Sue does. Very well-connected.

Yeah. You don't come back from that kind of sickness.

Not so bad here, no.

It's a good department, the thalamus. We get wind of pretty much everything, and the work's pretty constant. Keeps us busy.

I reckon that's part of it. You sit idle, before you know it your synapses are dying off. See, without synapses, you can't talk to no one. And I ask you, what's the point of a neuron that doesn't communicate?

Yeah, you don't want to overdo it either. All things in moderation, mate.

Bored? Nah. We grumble, course we do, but none of us'd give it up, would we? It's good work.

Don't I ever feel like doing something else? Did you hear that, mates?

You sound like Sue on a bad day. When she gets a bit stressed. Blimey, it's 'What's it all for?' and 'What's the point?' till the rest of us are shutting off transmission right left and centre.

I know, love. You can't help it. You do a great job, we all reckon you're the best in the *department*, never mind the nucleus.

Sorry, mate, what was that?

Course I could stop if I wanted to! That's not the point.

The point is, why would I want to? It'd let down all my mates, for one thing. Someone'd have to cover the extra inputs. Look at Fred there, he's sweating ions like anything cos it's all kicking off in our quadrant and his retinals are going ballistic. I couldn't just say cheers and bugger off, now could I?

And I'd miss the company. Blimey, without their backchat I wouldn't know where I was! Nah, mate, you can keep your freedom.

Yeah, course I'll die in harness. What's wrong with that?

Like I said, everyone's gotta go some time. Even if you do everything right, keep an eye on your proteins, make sure your DNA's tidy, keep the glia sweet, and all the rest of it, chances are you'll get a blood vessel burst in the neighbourhood, or catch a sodding virus. What I'm saying is, some stuff you just can't do anything about. Anyhow, I'd rather go that way than from amyloid.

Slow and lingering, mate. And bloody painful. No thanks.

Bursts? They didn't used to be, but from what I hear they're getting commoner. There was one just the other day, over the other side of the thalamus. See, their local vessel got blocked up. That's what triggers it, usually, unless there's trouble among the epithelials.

You know. They man the blood vessels. Keep supplies flowing properly.

Fat deposit, they said. Horrible bloody great lumps. They get carried in with the food supply, and sometimes they're too big, so they stick, and then stuff can't get past.

I dunno why they let it through, mate, it don't make sense to me neither, but it's not my department.

Anyway, all the neurons downstream started yelling, cos of course they're not getting enough supplies, are they? Meanwhile, the blood pressure's building up, and the epithelials are feeling the strain, so they're yelling for the glia too ...

Glia? Ain't you met any glia yet? You came straight here? Sorry, mate, didn't realise. Glia's the cleaners, technicians, emergency services, that lot. Keep the place running, they do.

No, mate, we don't have no hierarchies here. Up in prefrontal, they think they're the masters of the bloody universe, they've got hierarchies and then some. Silly bastards. Without the glia they wouldn't last a *day*.

You're not wrong. They're happy to lord over the rest of us until something goes pear-shaped. Then it's panic, and yell for the glia to sort it. You know how it is.

And do the poor overworked buggers get any thanks? Down here, we say thank you when someone's done us a favour.

Yeah, there's a good feel to the place. I wouldn't swap, not if you offered me a year's supply of glucose. Anyway, where was I?

Oh yeah, the burst. Sue told us, she heard it from a friend who was on the edge of the death zone. It's a nightmare. Everyone's screaming, or shutting down from lack of

fuel. The glia did their bloody best, but fat, you know, it's nasty stuff. Pretty much impossible to shift when there's a massive lump like that, there just ain't time.

Before the blood pressure gets too much and the epithelials can't cope, mate. Then you get a burst. Blood everywhere, neurons choking, everyone screaming for help, then it all goes quiet.

Yeah. They reckoned it was several thousand last time.

That's nothing. You get a really big burst, it can take out millions.

Nah, we haven't had anything like that yet. But it's only a matter of time. Everyone's getting on, you know. The epithelials aren't as limber as they used to be, let's face it, none of us is.

Stoic? I dunno about stoic. Don't have much choice, do we?

Yeah yeah. That's all very well, mate, but it's not very realistic, if you don't mind me saying. I'm not going to bloody emigrate, am I? Where would I find a job as good as this? I'd be lost without the work, mate, and that's the truth.

It's not a bad life. Yeah, we live on the edge. But doesn't everyone, when you think about it?

And like I said, at least a burst's quick. Not like amyloid. Bloody agony, that is. If my amyloid levels get too high, I'm telling you, I'm heading for the exit.

Apoptosis, mate. It's a procedure we neurons have, for if it all gets too much.

Suicide, yeah, if you wanna call it that.

Don't see why you're shocked. You're the one's been banging on about freedom. What could be freer than choosing when to die, eh?

Look, mate, if you've had a good life, what's the problem? I've worked hard, I've lived on good terms with my neighbours, I've done what I was put on earth to do. Far as I'm concerned, what diff's if we was all wiped out tomorrow?

Except I'd miss the chat. And the taste of real fresh oxygen.

Nothing like it, mate. Nothing like it.

Yeah? Well, you'd better head off then. Don't wanna be late, not with that lot.

Been a pleasure. Not everyone makes it down here.

Yeah, let's hope so. Years and years. You too.

Cheers, mate. Enjoy the rest of your tour.