

Opening the System - A note to orient (Substack)

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This is the first proper post here, so I should probably explain what this place is meant to be before I start throwing models, diagrams, chronic illness maps, engineering notes, weird cosmology essays and various "this made sense at 2am" documents into the void. I'm Joe. I'm finishing an MEng in Materials Engineering, and I'm starting to build a public home for the work I've been making mostly in private.

Some of it began as university work.

A lot of it began as health-survival work.

But under it all really started, because I kept looking at messy systems and thinking: surely there is a cleaner way to explain what is happening here without pretending it is simpler than it is.

That is probably the most honest version of the whole thing.

I am interested in systems that look confusing because people are using the wrong map. Engineering systems.

Medical systems.

AI workflows.

Documentation systems.

Neurodivergent brains.

Chronic illness.

Organisations.

Families.

Models.

People under pressure.

Different surfaces, same annoying little pattern: things usually break long before the break becomes visible.

A weak assumption travels too far.

A messy process becomes normal.

A model output gets trusted because it looks clean.

An experimental model being portrayed in "perfect conditions" (whatever that means).

A person looks functional, so everyone assumes they are stable.

A document exists, but nobody can use it.

Knowledge exists, but only those with it are allowed to understand it.

A system keeps moving, but only because someone somewhere is quietly absorbing the cost.

That is the kind of thing I keep noticing.

My practical background is materials engineering. I've worked in defence aerospace materials assessment, process optimisation, DOE/ANOVA, technical documentation, applied modelling, and engineering design. So a lot of how I think comes from materials: load, stress, failure modes, defects, interfaces, testing, structure, evidence.

But the work has grown wider than that.

The direction I'm building now is called Systemica Engineering.

The simple version is:

make complex systems clearer before people spend serious time, money, or energy on the wrong next step.

That can mean practical things, like:

turning messy technical notes into clear documents,

building knowledge bases,

checking early design risks,

mapping failure modes,

testing whether model outputs are reliable,

writing concept notes,

or helping make a project explainable before it gets lost inside its own complexity.

It can also mean more theoretical things: systems under pressure, stability, drift, collapse, recovery, cognition, medical complexity, communication, emergence, cosmology and constraint-first modelling.

And some of it is personal.

I'm disabled. Over the last 3 years I have gone from no conditions to now having ME/CFS, Fibromyalgia, EDS, Dysautonomia and Audhd.

That is not a side quest. It shaped the work.

When your usable energy becomes limited, you become very aware of waste. Not in a motivational-poster way. In a "if I spend my energy wrong today, I might not be able to cook, think, stand up properly, or reply to a message later" way. You also have a lot more non useful signals internally telling you that they are the one that's most important and needs to be addressed immediately (it usually isn't).

So you start asking different questions.

What actually matters?

What can wait?

What looks urgent but is just loud?

What is the real failure mode?

What is worth doing next?

What am I calling laziness that is actually load?

What am I calling weakness that is actually a system running out of margin?

That way of thinking became more than a coping strategy. It became a method.

And the funny thing is, the same logic applies outside my body.

Engineering teams waste money when weak assumptions travel too far.

Researchers waste time when models look better than they are.

Healthcare systems miss people when they only read the surface.

AI workflows drift when nobody checks what is being trusted.

Organisations lose knowledge when documentation is treated like admin instead of infrastructure.

People lose the discoveries made at the peak when covered in language made to let only a few understand.

So this Substack is where I'm going to start laying the work out properly.

Not perfectly. Not finally. Properly enough.

Some posts will be practical.

Some will be theoretical.

Some will be personal.

Some will probably be me trying to explain a serious idea then convolutedly explain how a cracked ceramic plate, a nervous system, a furnace wall, and a galaxy map all can be justified, "no but look, it's the same type of shape, yfm 🙏."

That is kind of the point. Its a work in progress, i've always been told by my teachers since i was young to show my working. So here it is. If something doesn't make sense here then it shows me i'm losing marks so feedback is always wanted, good or bad or just coms.

The aim is not to flatten everything into one mega-theory. That would be incredibly annoying to depick.

The aim is to build better entry points into complex things.

Sometimes that will look like engineering.

Sometimes it will look like medical systems writing.

Sometimes it will look like neurodivergence explained through cost rather than character.

Sometimes it will look like public science.

Sometimes it will look like a personal essay wearing a systems-engineering jacket it definitely bought second-hand.

This is early.

Some pieces will be practical and applicable. Some will be theoretical. Some will have personal attachment without trying to make it personal to me.

The aim is not to present a finished system.

The aim is to build in the open, with enough clarity that useful people can find the work and decide whether it overlaps with their world. And interested people can just read and enjoy.