

May the words of my mouth and the thoughts of our hearts be acceptable in your sight, O Lord, our rock and our redeemer.

Just as a body, though one, has many parts, but all its many parts form one body, so it is with Christ. God has placed the parts in the body, every one of them, just as he wanted them to be. If they were all one part, where would the body be? As it is, there are many parts, but one body.

There should be no division in the body, but that its parts should have equal concern for each other. If one part suffers, every part suffers with it; if one part is honored, every part rejoices with it.

The passage we heard earlier from First Corinthians chapter 12 is a beautiful passage for many reasons, one of which is, for me, it resonates so strongly with the new neuroscience findings on Joined up Thinking, or the science of collective intelligence, an area of research that I have been working on.

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The passage, taken literally, celebrates how the different parts of the body, the different organs, each have their individual strengths, different ways of operating, different jobs to do. Each organ is important. None are more or less important, than the other.

For example: “Now if the foot should say, “Because I am not a hand, I do not belong to the body,” it would not for that reason stop being part of the body. And if the ear should say, “Because I am not an eye, I do not belong to the body,” it would not for that reason stop being part of the body. If the whole body were an eye, where would the sense of hearing be? If the whole body were an ear, where would the sense of smell be?”

The crucial thing is that when they are combined they create the body, an entity that can accomplish so much more in summation than as any individual part on its own.

Similarly, if we zoom out from our bodies to groups of people working together, we see how we each of us can bring our different strengths to a team. Similarly to as it is in our bodies, in a group of people working together, it's the diversity, the differences between the individual members, that is key to the group's success. Paul chooses this illustration to bring home to the newly-formed gathering of Christians in Corinth how they must learn to be together. It's not only that competition and greed don't help them in their worship and in their mission, it's that they actually ARE members of one body, and to behave otherwise threatens who they are as members of the body of Christ. Jesus calls everyone to be part of his extended family, the body of Christ and within that each person will find a place, no matter how unlikely that might look.

My research isn't in church dynamics, but looks at how brains work in groups, and I want to share with you a little recent research on how diversity benefits groups. That diversity can be cultural, genetic, age, or expertise, all of which are important to the teams' success. And there are scientific studies that help us to see this to be the case.

For example, it's known that in the science sector in America a 1% rise in foreign employment increases college-educated native wage growth between 5.6 and 9.3 percentage points. Or there's the recent study that looked at 2.1 million patents and 20 million publications spanning five

decades of research to demonstrate that teams of people combining atypical subject combinations. So, for example, a team made up of a physiologist, working with a linguist, a computer scientist, an engineer, a theologian and a medieval historian for example, is likely to be much more successful and innovative than a team made of homogenous clones. Diversity in expertise is crucial for success, meaning having a group of people with different experiences, training and strengths in different areas led to greater and more impactful innovation.

For gender diversity, there are many studies looking at this, and actually the number one, most robust predicting factor for group success is to make sure there are lots of females in the group! We'll come back to this in a bit. More generally if we look at the wonderful example of primatologist Jane Goodall, now she was one of the first pioneering female researchers in the field, she started asking interesting questions about female chimps, not simply assuming they took a passive role in the chimp community, instead she saw how females could take an active, aggressive, role in group dominance dynamics, resorting to cannibalism in some cases. This observation that had simply escaped her male peers, who were perhaps blinded by their bias that power struggles were exclusively of the male domain! They had completely overlooked an important part of chimp group behaviour. Jane brought many new ways of thinking about how to study group behaviour to this previously mainly male research field.

For the importance of genetic diversity in a team, well we know that we each have a 3.2 billion base pair genetic code encoding around 25 000 genes that instruct how our brains and bodies put together and operate. These genes were given to us by our mum and dad, through their sperm and egg fusing to form the embryo that made us as a baby, creating the 86 billion or so nerve cells in our brain, all connecting up in the womb to form an intricate circuitboard of around 86 trillion connections that will act as the foundation for that baby's future thought, emotions and how it will interact with the world. When we consider the high numbers and complexity of the coding system, we can see there is huge scope for diversity. We are each highly individual, there are no two people on this planet with exactly the same brain or thinking patterns!

But within this, there is some scope for categorisation. Now, autism is thought to have a heritability of around 90%, meaning it has a very high genetic predisposing element to it. Now bear with me now as we look at bees buzzing in a hive, we know that 14% of a bee population will remain calm if a calamity strikes, so if the queen dies or invaders attack, this small subset of bees will act pragmatically, and not get caught up in drama. When we analyse these bees we see genetic changes homologous, so similar to, human autism. Similarly to bees in crisis, in humans, these individuals might excel in certain areas including attention to detail, intense commitment and unique capacity for logic, analysis, and focus, but they might not pick up on emotional information. Again, similarly to in the bee hive, this can be useful, and there are many software companies, including Microsoft, SAP, HP and Relic that run dedicated "autism hiring programs" to as part of their recruitment programme, in an effort to tap areas to strengthen their teams.

ADHD similarly has a high heritability, thought to be around 80%. 1000s of genes are thought to be involved, one is the DRD3 gene receptor involved in novelty seeking behaviour and dubbed the 'explorer gene'. In pre-historic times it's likely individuals with this gene change were more highly motivated to go out exploring out new hunting grounds, finding new water supplies and sites for a place to settle. Staying in the same parochial place left them feeling restless. Nowadays, these traits - being easily bored with routine and the status quo - mean that those with the ADHD trait tended to thrive in times of crisis and relish the insecurity and uncertainty of exploring a new idea.

People with ADHD are often the ones moving society forwards. It's linked to entrepreneurialism. So again we see how having different types of people might be important for group success.

In terms of age diversity, we know there are specific brain changes that occur at particular times during the typical lifespan. The child brain is fizzing with potential, creativity and enthusiasm, a sponge soaking up new information from the world around. Adolescence is a crucial period in neurodevelopment – running from 10-25 years old - it's associated with a highly plastic and flexible mind, heightened creativity, greater lateral problem solving, but with perhaps less impulse control. In older ages there may not be as much plasticity and creativity but there is a greater store of knowledge, or finessed wisdom, and there is a different brain weighting system in operation, relying more on knowledge acquired and already held in brain rather than inputting all external signals constantly, which makes strategic sense since the senses might be starting to fail with old age. It's this changing neural profile with age, with different brain strengths and weaknesses associated with different age groups, that helps explain why multigenerational groups of people, be they families, communities or congregations have so much to offer! They can complement one another and balance out any weaknesses.

So a wide range of expertise, and diverse experiences on hand can help innovation and problem solving. This is particularly important given the high number of existential challenges humanity currently faces. But echo chambers caused by dominance dynamics where, for example people follow the most senior viewpoint, need to be avoided. Much like in the body discussed in Corinthians, where each organ needs to be listened to, in a group, it's important to curate an ethos that values the art of listening to each individual member. That's why, in study after study after study, it's been shown that the most robust predictor for group success, is not how clever the individual members might be but how good the listening is. And that's why it's the ratio of females that makes all the difference. The higher the better. Studies suggest that success is related to females' greater ability with turn-taking and emotional perceptiveness. We can teach males in these skills, of course, but the science behind group thinking suggests that we might also need to structure our society in a way that better harnesses this brain resource in females.

The good news is that on a local level we can work at the sort of joined-up thinking that makes for good groups. Interestingly for us, gathered here in this place soaked in the prayers of generations, meditation has been found to help. Whereas we might assume meditation is a solitary, inward activity it actually increases connectivity. When we measure electrical activity in the brain we can see how meditation, in various forms across different religious practices, increases something called gamma waves, the fastest speed electrical oscillations in the brain. Gamma waves, help us integrate information from disparate regions, promoting joined up thinking in our own brains. We can also synchronise electrical oscillations between people, helping their brainwaves become in step with each other, and when we see that, we also see better learning, consensus building, and improved cooperation. Direct eye contact helps boost this process, as does synchronised activity, like exercise but also music and singing, helps increase brain synchronicity (exercise, also plays a role). That's why choirs can be formidable forces for good!

So taking more time to listen to one another, to look each other in the eye directly, to exercise or sing together, to meditate and enjoy being part of a diverse team, all of these familiar, ancient practices should be valued and prioritized if we want to learn to live well together. Joined up thinking creates more cognitive power and amplifies our individual brain capacity! This is exactly the ethos of the Cambridge Festival, a space where people from different fields or expertise get

the opportunity to discuss and explore ideas with others, for us all to learn from each other, and contribute to help create a better cognitive whole.

Paul's Corinth, like Cambridge, was a bustling, international, prosperous city based along a river, a honey-pot for tourists who flocked there to watch competitive Games. It had, as Cambridge has, a deeply competitive, self-sufficient and entrepreneurial culture.. How powerful Paul's body analogy is in that context, then and now! We are challenged not to allow ourselves to be dazzled or outshone by any one individual, or to ignore others, but rather to appreciate the whole. As Jesus honoured those whom others overlooked and restored them to the community, Paul inspires those who hear him to celebrate differences and look for what each person can offer, rather than how they might compete, compare, or put down. Unhelpful competition or comparison is born of fear. But there is a more fruitful driving force as Paul goes on to say in the next chapter: love. Love is the most excellent gift of all, love is not boastful, or self-seeking, puffed up, it keeps no record of wrongs. We see this love in the self-giving life and death of Jesus Christ. For us to be his body, to play our part as members of this body, he gives us his Spirit, to bind us together, to join us up, not only to each other, but to him, with a connection that cannot be broken, as his resurrection reveals.

So, where does this leave us? Our new neuroscience findings, help us to understand what makes us, us. Increased knowledge of the brain can help enhance our understanding of our behaviours, be they our strengths or flaws. We can see how important it is that we take time to listen, love, respect and work together. But while some of the mechanistic information from neuroscience underpinning these processes might be new, what we are discovering is the old ethos that Paul shared. The challenge is to find a way to show this in our groups, with our colleagues, with our families, with our neighbours. As we seek to put science into practice Paul's wisdom resonates reassuringly and makes sense intuitively at a deep level. Here in this church today we pray for the strength of God's spirit of love to help us, individually and collectively, to overcome our self-sufficient instincts and habits, to tap into instead our God-given capacity for joined-up thinking, so that we can live out the truth that 'no part of the body can say it does not belong', 'no part of the body can say it does not need others'.

"But God has put the body together ... so that there should be no division in the body, but that its parts should have equal concern for each other. If one part suffers, every part suffers with it; if one part is honoured, every part rejoices with it.

Amen.