

Gbiota meaning

Colin Austin@12 November 2023 This document is published under the creative commons system which means that it may be duplicated, copied and distributed without further permissions other than acknowledging the source Colin Austin at gbiota.com

Ask me what Gbiota is all about and I would reply the survival of our species. You may think that I would be talking about climate change, the degradation of our soils or even some new plague.

And certainly I will talk about those – but later. First I have to talk about what Gbiota is really about.

Charles Darwin and the survival of the fittest

And to start I will talk about Charles Darwin – one of the worlds great lateral thinkers. Humans love to simplify complex ideas into a simple phrase like survival of the fittest, which is a gross over simplification of what Darwin actually said.

Richard Dawkins and the selfish gene

To explain what he actually said I would have to refer to another great lateral thinker – Richard Dawkins with his theory of the selfish gene. This is complementary to Darwin's thinking - saying that all creatures, including humans, are dominated by the survival of the genes.

Passing on our genes

It is simple – all creatures die and those species that do not pass on their genes have long since gone extinct.

Humans are no exception, our prime purpose is to pass on our genes and despite all the advances in technology the only way we can do that is to find a mate of the opposite sex, copulate, have children and care for those children until they are old enough to look after themselves and repeat the process.

Protecting our genes

Our natural instinct is to protect our genes and in the first instance that will be out direct children.

But similar genes will be in our family, so we have a natural instinct to protect their children, and hence similar genes, of our brothers and sisters and other close relatives.

But we are not an animal that is well equipped of solo survival so we have evolved into a tribal creature and withing that tribe their will be similar genes so again we have a strong desire to protect these similar genes within the children of our tribe and as we have our matured to form complex societies, the children and genes of people in the same country.

Why we go to war

It has been a long standing puzzle to me why we go to war, and to risk the total annihilation of our species in an atomic war, when we are all the same species. OK there may be local variations in trivial issues like skin colour and other trivial adaptation to local conditions, but we are all the same species.

So why do we go to war, and indulge in mass killings of the creatures of the same species? This is a distinctly human characteristic not found in other animals, they may kill for food but the do not risk total annihilation of their species.

Thanks to Charles Darwin and Richard Dawkins we can now understand that this is this innate desire to protect the genes closest to ours.

Finding a mate

Humans are a complex creature with a variety of sexual desires.

But look at all the couples you know, some couples will be very similar, as that helps preserve similar genes while others are very different as it is somehow instinctive that increasing the diversity of the gene pool is more sustainable.

There is a strong desire to have healthy children to pass on our genes and it is natural to look for a mate which will lead to the protection of our genes by having healthy children.

The role of fat in selecting a mate

As we have this in-built desire to protect our genes it is natural that we will look for a mate which will lead to the healthiest children. Now whether this offends modern protocols, fat plays an important part in this selection.

It may offend social norms but we use fat to help us select a suitable mate that will protect our genes.

Different cultures may have different interpretations of what distribution of fat indicates a partner that will lead to children with healthy genes, in some cultures fat is considered a good sign while in others being skinny is considered a good sign.

But despite the social enigma, we simply cannot deny that fat, and its distribution, is a factor in selecting a mate, even if it is subconscious.

Where we store fat

At last I am getting to talk about Gbiota, you may say with relief.

But first let me say that fat is not bad, we have evolved in a world where food supply was unreliable or at least seasonal so we have evolved to store fat to survive. Fat is essential.

We store fat in three different ways.

There is subcutaneous fat meaning fat just under the skin. This fat is decidedly beneficial. I have read nothing negative or harmful about this type of fat, it provides a layer of thermal protection and also physical protection and in all cultures is considered attractive.

However the prime storage area for fat is our bum – that is what it is there for – to store fat when food is in short supply.

Different cultures have adopted different views on storing fat in the bum but whatever is considered appropriate, and may be admitted openly in the various cultures, a nice rounded bum is universally considered a good indicator of a mate that will ultimately lead to healthy children and the protection of our genes.

The third storage area is visceral fat, fat around or in our vital organs.

Medically this fat is generally considered harmful and is the major cause of the modern epidemic of chronic or non-infectious diseases such as diabetes, heart attacks and dementia.

However there is some evidence that a certain level of this fat can actually be beneficial and lead to a longer life.

It is plausible that at some time there will be a scientific paper showing a bell shaped curve for the health benefit of fat with an optimal level of fat – Goldilocks fat, not too skinny and not too fat – just right.

So what makes us fat (or skinny)

At last I am getting close to talking about the Gbiota technology but there is a couple of points I need to make.

Medical science naturally looks at the body as consisting of separate organs requiring specialist expertise – after all if we have tooth ache we go to a dentist not a gynaecologist.

But the body is not like a car production line with separate organs and limbs being assembled at various stages along the production line. We are a totally integrated system.

No where is this more evident than with our gut and head brain. They are integrally connected via the vagus nerve and a whole range of hormones or signally chemicals circulating around in the blood stream.

Also the gut is not just a simple organism for digesting food – it consist of trillions of cell which communicate with each other to provide genuine intelligence.

But the simple fact is that we have really very little idea how the gut works as a brain but we can get some idea by looking at swarm intelligence.

Swarm intelligence

Swarm intelligence is actually common in the natural world and occurs when there are many individuals each with limited intelligence but combined they exhibit a greater level of intelligence that the sum of all the individuals.

We see this in flocks of birds, herd animals, many social insects like ants and bees and we can learn a lot from studying these but there is one swarm intelligence that is particularly valuable as a learning aid and that is slime mould.

This has no central brain like us, just what looks like a sloppy mess, but it does show signs of what we would call real intelligence.

Experiments have been done in which they put slime mould in a maze with food and as expected the slime mould has no knowledge of where the food is so just churns around in a random way until it finds the food.

That is neither interesting or surprising.

But, and this is the interesting point, put that same slime mould which has no real brain and it somehow now knows where the food is and so goes straight for it.

Why is this so interesting? It shows that swarm intelligence has learning capabilities and a memory and be trained. It is like modern artificial intelligence, it has no real intelligence or understanding, which is a distinctly human characteristic, but it can learn and be trained.

Back to the gut brain

Our gut brain works the same way that swarm intelligence works, it has no understanding – as our head brain has, it is just a collection of trillions of cells

which communicate with each other to provide swarm intelligence which does have memory and can be trained.

We know this from studying cases where people have been deprived of food.

During the second world war people in Holland were starved and naturally lost a lot of weight, but when food became available they put on a lot of weight – they became obese.

That period of starvation had simply trained their intelligent control system to store fat whenever food was available.

Every living creature has some form of intelligent control system which regulates its bodies, whether that is temperature, breathing rate, heart rate, or appetite.

Our gut brain in action

Our gut brain regulates our appetite, deciding how much and what sort of food we want to eat. It learns this over time. It can sense if we are short of a particular mineral or vitamin, it learns that if we eat a particular food it may provide that missing mineral or vitamin.

Then in the future, if it senses that we are short of that particular mineral or vitamin it will send out signals saying eat that particular food that has previously provided that mineral or vitamin.

We see this happening in hot and dry Queensland. We can sweat a lot but we do not notice this because it is so dry the sweat just evaporates without trace, but that sweat contains many minerals.

At first we just feel thirst because of the loss of water, but just drinking water does not satisfy us, we hunt around the kitchen thinking I want something but I am not quite sure what, then we see a food that contains the missing minerals we develop an irresistible desire to consume that particular food or drink.

This is our gut brain at work.

Faecal transplants

One of the seminal experiments in changing our gut biome is by the yukky process of faecal transplants. Took the poo of a fat person and poked it up the bum of a skinny person and they will get fat, and vice versa we can make a fat person skinny.

Using DNA sequencing we can readily identify the particular species of microbes that makes us fat or skinny.

But that is purely an observation and does not provide the mechanism.

For that we have to understand that our gut brain is an intelligent control system. We all have a super computer in our gut. Unfortunately we have no idea of the code that drives that super computer.

If we change our gut biome we change how our super computer works, it may decide that we need to store extra fat and send out signals, which in reality we cannot resist long term so we end up fat (or skinny).

This is the basic reason why so many diets that restrict calories fail. By restricting calories we are training our gut brain to store more fat so when we finish the diet, which may have initially been successful in losing weight, we end up fatter than ever.

Bit frustrating but life was never meant to be easy.

Association and mechanism

I would hate to be pedantic but it is so important to differentiate between association and mechanism

We do not get fat because we eat too much, there is certainly an association but simply eating too much is not the mechanism.

The mechanism is more complex.

We get fat because our gut brain has decided we need to store more fat. It send out signals for us to eat more, (which we can't resist long term) so when there is a surplus of food the gut brain decides where that extra fat should be stored.

There is undoubtedly an association between eating too much and getting fat in the wrong place but eating too much is not the mechanism – it is the change in the gut brain.

What a couple

Let me illustrate this with the story of an odd couple – my wife Xiulan and me.

I am a natural pig – I was bought up in the second world war when food was in very short supply. I was trained (by a bang on the side of the head – very different era back then) not to waste food so even to this day I never leave food on the plate but eat everything in front of me.

I enjoy eating and that is my excuse.

I do have a bit of a belly but I am not diabetic – in fact for an eighty four year old I am pretty fit and healthy and go for a walk every day, ride my bike and dig my garden.

But I am an engineer and a bit of a messy person, I just eat the leaves from the plants in my garden, I don't bother to wash them - just check that there are no caterpillars hiding away, hopefully successfully.

The net result is that while I overeat most passes through at high speed with just enough time for my gut to grab the nutrients as they wizz pass.

With the amount I eat I should be diabetic – but I am not.

My wife Xiulan is a medical doctor, a surgeon who is verging on being fanatical about cleanliness. She became diabetic and her foot was turning black and the doctors were saying she needed to have her foot amputated to avoid sepsis.

I managed to persuade her to change her diet and eat a lot of fresh vegetables grown in our garden and I am pleased to say it worked and she still has her foot.

She is naturally slim (unlike me) but she recently had an infection, went on antibiotics and developed a bit of a tum. She had not changed her diet but she had changed her gut biota which was the mechanism for her putting on extra weight.

The antibiotics did not cause her to develop a tum, the mechanism is that the antibiotic changed her gut biota to change which then caused her to store extra fat.

This mechanism is why we should not be feeding farm animals antibiotics. They certainly make the animals fatter which earns more money for the farmer but those antibiotics end up in us and are certainly a factor in the increase in obesity.

Our modern diet

Historically humans are not a fat creature, if you are a hunter gatherer with frequent contact with ferocious animals being fat means you are more likely to be eaten and the laws of natural selection say that it is difficult to breed from inside the stomach of a tiger so that genome becomes extinct.

Our hunter gather (and some modern tribes societies still eating healthy food) naturally have a healthy, diverse gut biome.

But our modern food system is both short on essential trace minerals, which feed not only us but the microbes that make up our gut biome but much more important it is lacking the broad diversity of microbes that make up a healthy gut.

By our failure to understand the importance of a healthy intelligent control system, in the form of our gut, we have screwed up our gut brain.

This has led to the modern epidemic of chronic or non infectious diseases – not just obesity which is just the starting point but diseases that stem from the wrong fat in the wrong place like heart attacks, dementia and the fastest growing disease - diabetes.

It is important to understand that this increase to epidemic status is man made. These diseases are natural and have always existed but their rise to epidemic status is man made.

So what is the solution?

There are two parts to the solution.

The first is technical – how to regenerate a healthy intelligent control system or gut brain.

That is actually the easy bit – all we have to do is feed the gut brain which is what the Gbiota technology is all about. Fortunately it is easy, virtually any one can do it – it is based on recycling organic waste, particularly food waste so is inexpensive and gut brain food actually cost less than going to the supermarket.

It is also environmentally friendly recycling organic waste that would otherwise end up as green house gases.

This technology has been developed over many years, it exists and is available right now.

But and it a big but, it required a behavioural change. Gut brain food is easy to grow but microbes have a very short life, one hour in a microbes life is equivalent to a year of human life.

So there is not much option other than to grow gut brain food at home and eat while really fresh.

Sounds so simple, and it actually is, until we get to the second challenge of how to get a societal behaviour change.

This is even more difficult in an economic system with food companies are spending literally multi billions of dollars in very clever but manipulative marketing to convince us that their food is healthy (when it is decidedly not).

Behavioural change

Creating behavioural change is not easy, made all the more difficult against this barrage of clever promotions.

In reality it is impossible to achieve by a conventional advertising and promotional approach – in the internet age people are almost immune to the promotional approach.

But they will take notice of people they trust and respect.

These are the leaders of future change to a new way we manage the earth's resources.

Fortunately, even in the internet age where we are treated like dumb donkeys to be led the way they want, there are still many thinking people still left who understand that the world is descending into a sustainability crisis by the mass destruction of our natural resources – particularly from climate change and our soil structure (see I told you I would get around to that).

So the next step is to find some way of identifying these leaders for change – the paradigm busters.

These may be a small minority of the population but they are crucial for the survival of our species.

We then have to persuade them to study the real issues – like I have tried to do here and in the numerous articles I have written on food and sustainability.

There are literally hundreds of such articles on my web and also on my YouTube videos @colinaustin1000.

We then have to rely on these people taking the initiative and using their power of influence sometimes by person to person but also using the power of the internet to influence people for benefit of the community.

This is a contrast to the way promotion works in the internet, which tends to be for the benefit of a privileged (wealthy) minority at the expense of the majority of the community.

I am Colin Austin please join me in my crusade.