It does appear that there may be a natural 'stability point' in human groupings, say around 100,000 persons, at which a 'tribal syston' may tend to coalesce out.

In Australia, the United States, and many other countries, the syston immediately below that of the country is the State. The powers and degrees of independence of such States vary very considerably from one situation to another. At one extreme the State may be little more than the fraction of a larger true country-syston which happens to lie within some administrative boundary. At the other it may be a potent state-syston with a degree of independence which makes it virtually indistinguishable from a country-syston.

The recent upheavals in the Soviet Union and in Yugoslavia are potent examples of what can happen when the country/State power balance is undergoing an abrupt rather than an evolved transition. It is interesting that, in fact, the whole 'modern' tendency is to move this balance point downwards, towards decentralization. We will see later that this tendency may be greatly strengthened in the years to come, to attain a situation which has no real parallels in the past.

Beneath the level of State, province, prefecture etc, most developed countries have a third level, that of local authority. Again there is a range of names in use – county, city, council, and so on. In Western Australia these third-level bodies are called shires — an interesting survival of a word which has fallen out of use where it originated, in England. And, as with the second, State, level, the shire level of government varies greatly from place to place in its power, autonomy, and function. For example, in many places such things as public education and shop opening hours are essentially determined at shire level. In Western Australia they are not, the State has still hung on to these powers.

Exclusive and Voluntary Systons

The sorts of syston involved in such entities as country, State, and shire are essentially exclusive systons. These are basically bounded by geographical considerations, so that if one has a house in the Shire of Sandstone in the State of Western Australia, this house cannot simultaneously be in the City of Blue Mountains in the State of New South Wales.

However, the majority of systons in which people are involved are non-exclusive. An active member of a modern society may be involved in tens, or even hundreds, of different systons — the whole gamut of different groupings of every sort which have grown up in the structure of that society. Systons can also be divided up according to how a member becomes a member.

Many of the 'older' systons of which an individual is a member may be involuntary — genetically-based ones such as ethnic origin or gender are examples. Others may be by default, such as family, or country of citizenship — these can be changed, but do involve some special action. And the vast arrays of systons in a modern society — and it is the existence of these arrays which makes the society 'modern' — are essentially voluntary. These include all the groupings active in the workplace, vocational groups, and leisure and social groups. Interestingly enough, membership of a religion syston is usually by default.

Of course most systons are intricately involved in a grand and complex scheme of overlappings and enclosures which extends to embrace the whole planet in the ultimate Matrix

— what we might call the Holosyston. As well as the systons, the whole Matrix also involves a tremendous amount of infocap — scattered, shared, divided, within and among the systons.

We have now arrived at the point where we can set up a visual representation of our first, simplified Matrix model, based on these concepts (Fig. 103.2).

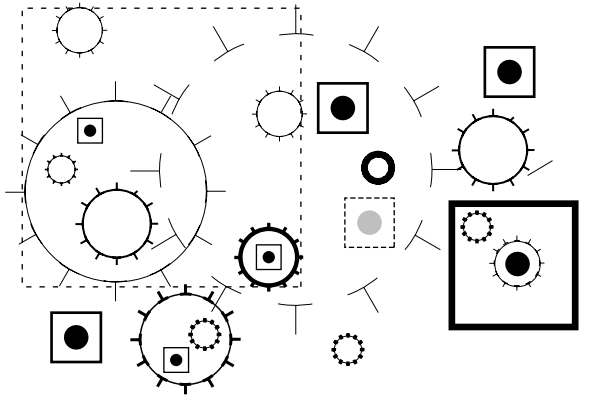

Fig. 103.2. The basic syston/infocap model of a matrix

"Australia, You're Standing In It" — Which One?

Most of what now follows in this book is concerned with analyzing the characteristics and behaviour of human systons, to derive rules by which the operation of human societies can be understood, possibly predicted, and perhaps improved.

The first steps for any given analysis are to recognize the systons involved. This is crucial, absolutely basic to the Matrix Thinking approach. To analyse what is happening in the play, we must first know who the players are.

Proposition 103G. In a matrix analysis of a situation, the first step must be to recognize the systons involved***

There is a difficulty here. It has been said that in order to talk about things, we must first have names for them. And names we do already have for most systons, plus an immense capacity for creating new names to order. But these names do not always identify the systons clearly.

Consider two headlines: "China's Agricultural Output Up", and "China Rejects Peace Talks". The Chinas referred to in these two headlines are completely different systons.

The first syston is evidently a rural production syston, one of great size and complexity, involving millions of people. The second would have to be a very small syston — perhaps even a single person — within the Government of China.

Other headlines such as "China Battered by Typhoons", or "China Wins World Cup", refer to different 'China-named' systons again. The point is, that while most people can easily

understand on reflection that completely different 'China' players are involved in these four headlines, the use of the same name for all must involve some confusion, or worse.

Perhaps the initial reaction to such an assertion, if accepted, would be to say that these examples are only headline capsules, and we could and should expect the entities involved to be more explicitly named in fuller text. And, of course, distinctions are made — "Beijing Rejects Peace Talks" is an alternative to the second example, one which brings out the difference.

I Can't Stand those Americans

Syston levels play a basic part in human interactions. Everyone will have met someone who, say, gets on well with individual Americans they know, but can't stand Americans. This apparent paradox is resolved when it is realized that different systons are active in the two cases.

Examples are everywhere. Many South Africans find Australians to be friendly and helpful, but find Australia to be obstructive, officious, and unpleasant. It is quite unhelpful to confuse the two systons, and important to make the distinction.

A useful technique is to look for 'trigger' words or phrases in what you read or hear. These triggers usually involve 'we', 'they', 'should', or 'must'. Other trigger words are things like 'policy', 'practice', 'believes', and 'unacceptable'. So when you next come across "Australia must change its attitude" or "the Company believes we should", it's useful to work out who, or what, is really active.

Here is a suggestion. When you next pick up a newspaper or a novel, or switch on to a radio or television programme, look a little closer at some of these trigger and syston words, and pick out what grouping they really refer to. The same syston-word may be used for many different groupings, and this leads not only to confusion in ideas, but also to problems in attitudes.

Do this a few times, and it soon becomes easy, and then second nature. Then when you read that 'the government' has done this or that, or should do this or that, you will have a much better idea of the underlying entities actually operating. This is a basic part of Matrix Thinking.

We can now move on to look further at one of the basic attributes of a syston, how it maintains and uses a fundamental component, its skin.

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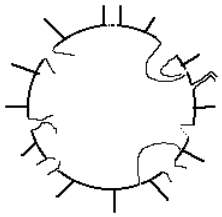
Chapter 104



I'VE GOT YOU UNDER MY SKIN — Syston Boundaries and SIOS

"Morality knows nothing of geographical boundaries or distinctions of race"
— Herbert Spencer

Danged Furriners from Lunnon

In the earlier years of my life I lived in a tiny village in the English countryside. It was an area with its own strong local dialect and traditions. Public transport was very limited — one bus a fortnight came to take people to market day at the nearest market town.

In a sense the village was very isolated, and its inhabitants sometimes had isolated outlooks. I remember one old local, born and brought up in the village, complaining about the bad effects of visitors from the outside world. "They danged furriners comes down yere from Lunnon and ruins everythun", he said.

I recently looked up a map and measured the distance from this village to the despised London and its malevolent visiting 'foreigners'. It was 40 kilometres. Yes, a mere 25 miles away from Tower Bridge in the heart of London.

Now, of course, the perimeter fence of one of London's airports backs up right against the village houses. The new generation of locals, many of whom were 'foreign migrants' themselves from 30 km away a generation ago, complain about being overrun by city folk from the sprawling 'new town' 15 km away, built beyond the London 'Green Belt' to house some of the overflow from the capital. And who can blame them, or say they are acting unreasonably? Their way of life is under attack.

Here, in a microcosm, is a picture which is repeated all over the world, at every sort of scale. The essence of the picture is the boundary of a syston — what we might call the 'syston skin'.

The Skin Game

The skin is said to be the largest organ in the human body. Far from being a simple impermeable covering, it is a marvel of complexity, responsible for such vital functions as

temperature regulation, food storage, and a host of sensory input/output functions. And it can have great decorative value!

The skin is the very obvious human-individual syston boundary. In the model we are building, every syston will have a skin, and the properties of this skin will be fundamental in determining the behaviour of the syston.

First You Dress Like Them

My grandfather once gave me this advice: "If you want to get on with people, first you should dress like them; then you should talk like them". Everybody will be able to recall situations at work, in business, or in clubs where this advice was good advice. I remember reading an article about business overtures to the founder of a huge British electronics retail chain, a man who had been brought up in humble circumstances in the East End of London.

The tycoon was suspicious, rejecting all emissaries, until one arrived who swore ferociously in good End End style. The two got on together immediately. "He talks my kind of language" was the tycoon's comment.

Why is the man with a pony-tail and wearing an open-necked checked shirt not taken seriously at board-room levels? He 'doesn't fit'. He's not wearing the expected de facto 'uniform'.

This is another way of saying that he is not putting out the right visual signals to identify himself as a member of the current group.

The Immune System

Human beings have highly-developed immune systems. Possession of an immune system is a characteristic shared, according to Lyall Watson [1980], with all vertebrates, from the humble hagfish up. In fact, he regards this feature, and its accompanying feature of being able to recognize individuals, as basic to the concept of 'self-awareness' in a creature.

As we go on we will come up against instance after instance of immune systems, operating in systons at every level. Although in humans many of these immune functions are not actually in the skin, in our general model we can place these immune functions just under the syston skins and regard them as part of the protective/selective/sensory functions of the syston boundaries. We can then go on to extrapolate and generalize these skin functions for all systons. But first we should mark our position with a formal Proposition:

Proposition 104A*. Systons possess boundaries or 'skins' which operate protective, sensory, selectively-permeable, and immune functions for their good functioning***

This Proposition is, of course, closely related to Proposition 103E, which stated that 'All systons continually seek to monitor and define their boundaries'. But now we are at the stage of looking at the operations which go on at the syston skins, and how they are carried out.

As usual, we can start with an example based on the human idiosyston, that of transplant rejection mechanisms.

A Feeling of Rejection . . .

Just as a member of a human group is very quick at recognizing an 'outsider', someone who does not 'fit' into the group, so is the human body capable of picking up intruding 'foreigners'. And the body possesses an incredibly complex and extensive series of mechanisms to do this, the extent of which is only now being seriously explored.

Of course we all know about the white cells in the blood which pick up intruding 'germs' and destroy them (usually by eating them). The idea of 'inoculation' against diseases with a weakened or killed strain, to build up 'antibodies' against a future attack by the full disease, goes back to the English doctor Lister, over a century ago. Lister noticed that milkmaids who had had a dose of a mild disease, cowpox, were protected against attack by its far more virulent relative, smallpox.

In modern times we have had the onslaught of AIDS, the Aquired Immune Deficiency Syndrome, now known to be caused by a virus (or viruses) which directly affects the body's immune systems and make them less effective against the waves of potential invaders continually washing up against the walls of our idiosystons.

As well as the invaders from without, the immune system is also set up to deal with the infiltrators from within — previously 'loyal' cells which have gone 'bad' through poisoning or some other reason, and have started to misbehave. Cancer. Slowly the realization is growing that the dreaded afflictions called cancer are not 'caused' simply by attack by organisms or pollutants or radioactive substances. Instead it seems that one, or a combination, of these or other factors is sometimes able to make particular immune systems less effective in their routine work of detecting and neutralizing 'rogue' cells.

Proposition 104B*. Cancers occur when cancer-recognition and neutralization mechanisms in the body become less effective

Even today, with notable advances in treatments available, cancers are the cause of many deaths — the idiosyston breaks down and ceases to exist. An interesting area, which we will dwell more on later, is the 'holistic' approach to health, the idea that the smooth functioning of the idiosyston as a whole is important to individual health. Here we will just highlight an implication of this, which is that the concept of 'rogue cells' as the focus of cancers is too simplified for accuracy; instead, as when a metal structure is overstressed, these places are just the points where the overstress finally becomes visible.

The recent advances in transplanting organs from one person into another have been based on a better understanding of why transplants are rejected, or how the immune systems operate. The rejection-suppression drugs used are able to reduce the body's ability to recognize and reject tissues from another person. Clearly these recognition abilities have a strong genetic basis, as they scarcely operate in transfers between genetically identical twins.

The downside to rejection-suppression drugs is that invading disease organisms, as well, may not be rejected as they should. Hence the need for a transplant patient to be shielded from exposure to such diseases as much as possible in the early stages.

There is another area where normal rejection mechanisms need to be suppressed, and this is not a recent development, but one going back almost a hundred million years into the past.

Giving Baby a Good Start

Human beings are, of course, members of a highly-evolved animal group, the mammals. Mammals are animals which produce milk for their young. Most mammals are placental mammals, where the newly-fertilized and developing egg cell in the female attaches itself to the womb lining and grows a structure called the Placenta. Through the placenta the growing embryo continuously receives a stream of nutrients and services (such as removal of waste products), right through from the time when the placenta is first formed, up until birth, when the placenta ceases operating and is itself expelled (the 'afterbirth').

Animals which produce eggs, such as the birds, and those primitive Australian mammals the Platypus and the Echidna, clearly do not form placentas. Nor do other lower animals which give live birth, like the Bobtail Goanna, one of the many Australian lizards.

When you look at it, the mechanisms evolved to produce placentas are really quite unique in animal physiology. The fertilized egg in a female is genetically a mixture from both its parents, and in the ordinary course of events would be recognized as a foreign invader by its mother's body and rejected. Instead it is not only accepted by the womb wall, but is actually hooked in to function as part of the mother's physiological system, sharing a supply of blood and other body fluids.

Moreover, experience with artificial insemination in cattle and with in-vitro fertilization in humans shows that there is no requirement for even some of the mother's genes to be present in the attaching embryo. It seems that any womb from a member of the same species will do, perhaps even a womb from a related species. And the possibility has been raised that a working placenta may be formed if an embryo is attached to a tissue within a male of the right species.

Not Only Interesting — Useful Also

This excursion into studies of animal physiology has been undertaken for a purpose. As we progress in this book, we will find that there are analogues to the body's immune systems operating and forming essential parts of other systons, systons at every level.

As already mentioned, one of the approaches used in Matrix Thinking is to generalize experience from one syston and see how it is applicable to other systons throughout the matrix. In what follows, we will often be able to recognize immune systems operating in the different areas we look at. In some instances we will be able to recognize the operation of placenta-analogues, especially when we look at how systons reproduce in Chapter 110, on syston budding and merger.

The SIOS Concept

In what follows, we will find example after example of how important it is for a syston's immune system to function 'correctly' if the syston is to remain 'healthy'. Because the immune system is really a sort of selective filter arrangement, letting some things in and

blocking others, it is really a matter of observation as to whether the filtering is correct — is the syston working well? And will it continue to operate as well, in the future, or is it in the process of falling back?

It seems to me that a common feature of many systons is that their immune systems reject more than they might do, if the longer-term good of the systons was considered. We call this reaction by different terms for different systons — racial and sexual discrimination, bigotry, vested interests, chauvinism, selfishness.

We need a term to generalize this feature for any syston. I will use the acronym SIOS, for Syston Immune Overreaction Syndrome. We can mark the situation with a Proposition.

Proposition 104C. Syston immune systems may reject more than is desirable for the future good of the syston, displaying a Syston Immune Overreaction Syndrome

Now here is a Proposition which, for once, is undoubtedly true. But it is a bit of a cop-out. Logically, it is only saying that something which is overdone is overdone, it doesn't tell us when that point is reached. For the moment, it may be best just to accept the possibility that a syston feature which we will call SIOS can exist, and try and bring out more about its nature and effects from looking at real circumstances.

The reader will have noticed that most of the usual attitudes classed within SIOS have a negative tone — discrimination, bigotry, selfishness. But we started off from the view that SIOS was a manifestation of an immune system, a desirable and perhaps vital part of a syston's makeup. So where do we draw the line?

Well, as always with Matrix Thinking, there is no line — there are only a number of weak and fuzzy tracers, each one based on a different underlying assumption. Each assumption may have the basis that some particular action will be to the good of the syston, at a given period. Alter the action, the period, or your definition of 'good', and the tracers will move too.

Something to Work With ...

The danger in trying to work with a situation like this is that if you are uncertain as to how to make a decision, you may bog down in doubts and make no decision, and that can be the worst decision of all. So I will will put forward another Proposition, to provide at least a working basis.

Unlike the previous one, this a real Proposition. I do not know whether it is valid or not. I think it at least merits some trying-on for size, in the situations we will encounter later in the book.

The suggestion is that the basic function of what corresponds to an immune system in human systons is to hold the syston together, to enable it to retain its identity as a functioning entity. But, like eating more than you need, because you need to eat anyway and it is hard to know when enough is really enough, the immune mechanisms can be overdone, leading to SIOS. So the dividing line comes where you are doing more than the minimum necessary to achieve the main purpose.

Proposition 104D**. For best operation, a syston will reject only the least amount of outside influence, the minimum needed to enable it to retain its identity as a functioning syston***

Clearly this Proposition, if accepted as valid, has far-reaching implications over every aspect of human society — migration, foreign loans, federal/state control, business financing, everything. An underlying assumption of it is that foreshadowed in Proposition 102B, that society contains a substance called infocap, and that this substance generates its own dividends which bankroll human activies. The implication is that the more infocap you have, the better.

This does give a natural lead-in to halting, for the moment, consideration of systons, and looking a little deeper into the other major component of the Matrix — into infocap.

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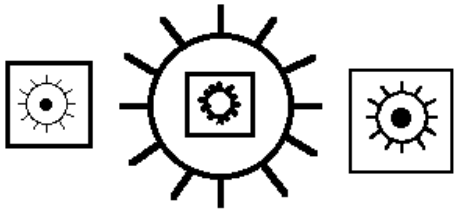
Chapter 105



A COMPLICATED RECIPE— Diversity and Infocap Content

"If we cannot now end our differences, at least we can make the world safe for diversity"

— John F Kennedy (1963)

On the Star Ferry

Crossing Hong Kong Harbour on the Star Ferry one day, I happened to reflect upon why the European-origin passengers looked so obviously different from the bulk of the Chinese-origin commuters.

It wasn't their skin or hair colour, it wasn't their dress, it wasn't even the difference in eyes — these were all fairly superficial. And there was no difference in behaviour.

Suddenly it struck me that what was different was the *degree of uniformity* in the two groups. The Chinese were far more homogeneous than the Europeans. They all had basically black, straight hair, physically they were mostly of slighter build, not especially tall. They had sallow skins. There wasn't a beard to be seen among them.

The Europeans, on the other hand, looked like mixed specimens from a zoo turned out into a field of sheep. Short fat ones, tall thin ones, ones with long blond hair, ones with tight red curls, black-bearded ones, they were all there — even some slight, not especially tall beardless ones with sallow skins. An exuberant show of genetic diversity.

In a way, it was like the situation in a carefully-formulated, complex alloy. Most of it would be made up of a single, uniform element — the matrix. Scattered through it would be atoms and aggregations of other 'impurity' elements, disturbing the chemical uniformity and the crystal lattice structure of the matrix.

It is worth pointing out that it is these 'impurity' atoms which give an alloy its special properties — perhaps superior strength or hardness, or better resistance to chemical attack. Often the composite material will have far superior, that is *more extreme*, properties than those

of any of its components.

We will go on to examine the Proposition that a similar situation applies with human systons.

Proposition 105A**. Genetic diversity is an advantage for a human syston

The Civilizations of History

We know that at various times in the past, great civilizations have arisen on Earth in widely different parts of the planet.

Specialist historians have studied some of these civilizations in great detail. Their rise and their fall have been traced, and often detailed reasons can be adduced for these rises and falls — the success of a particular military campaign, the acquisition of valuable territory, the development or adaption of new techniques or technologies, and so on.

Some of these analyses are well documented and reasoned, and few would argue with them. However, the application of Matrix Thinking to this area will provide a different slant. Rather than asking for detailed reasons why a particular civilization or nation did well or badly, we can ask whether there are characteristics common to all successful civilizations.

I suggest that one of the most vital components for 'success' of a nation or a civilization is to have diversity among its component people. The current leader in world affairs, the United States of America, is well-known as the product of a vast racial melting-pot, a blending of genes, cultures, customs, and thoughts which has now been on the boil for several centuries. We could say that into this melting-pot has been poured, not only the individual systons represented by the people involved, but also a vast quantity of infocap in the skills and characteristics they carried with them. And out of this mix, like a new star coalescing out of interstellar gas, has come America.

Proposition 105B**. The success of nations and civilizations is promoted by the possession of a wide, but blended, diversity among its people

A century ago, the dominant world power was Britain, which had built up an empire stretching over all the continents. The history of Britain is a history of wars and invasions. Ancient Britons, Celts, Romans, Angles, Saxons, Vikings, Normans — a sweep of peoples, of genetic pools, pushed back and forth, inevitably intermingling, with few parallels in known history. And when the Empire was being built, it made use of a most powerful technique in creating a stable entity. This was integration, integration of systons at every level, from people to whole pre-existing states and nations.

There was no attempt to create a slave caste, an underpeople, in these British colonies. Instead the native leaders were knighted and encouraged to send their children to Britain for education, armies of missionaries went in to set up schooling and introduce modern medical practices, engineers went in to set up improved transport, communication, and sanitation systems.

Of course there were still terrible discrepancies in wealth and social conditions, and at

times great injustices, crippling disasters, and huge bloodsheds. But these happened against the tenor and ethos of the Empire, not because of it. The way was open, in principle at least, for any citizen of the Empire to do well in their chosen field, to travel freely and work elsewhere in the Empire, to buy land and occupy public positions without any reference to their origins.

Many of them did just this. And so there was inevitable large-scale genetic intermingling as the English planter 'went native' with a local wife, Indians moved to East Africa and Fiji to set up shops and businesses, and, somewhat more recently, Jamaicans and Pakistanis sailed to Britain to run the buses and hospitals.

The same thing can be noted in earlier civilizations. Like the British, the Romans were the product of racial mingling, a people built on the dispossession of the earlier Etruscans by other tribes. And again as with the British, a vital component of their later empire-building policy was that conquered people could strive to become full citizens of the empire.

Before the Romans, the Greeks too were the product of large-scale tribal mixing [eg. Kitto, 1951]. And in spite of their current comparative uniformity, the Chinese too were the subject of immense mixing in long-past centuries.

This brings us to another interesting question, which is that of the *life-cycle* of a civilization. We can distinguish a number of stages:

Stage 1. Genetic aggregation (Syston mergers)
Stage 2. Genetic blending (Syston consolidation)
Stage 3. Internal enrichment (Infocap creation and accumulation)
Stage 4. Expansion of boundaries (Syston absorption)
Stage 5. Repeat(s) of stages 2-4
Stage 6. Degeneration and failure (Infocap decay and devaluation)

The general point to be brought out is that a civilization is just another sort of syston, and so should obey general syston characteristics. In particular, it should have a half-life, an average time by which half of all the entities in its class will have completed their life-cycle. The position is complicated by the fact that it is sometimes difficult to distinguish between the cycle of a full civilization and that of an expansion phase — whether Stage 5 appears or not, and if so, how many times.

Even so, from past history it would appear that a first-approximation value for the half-life of a civilization would be around 250 years. Obviously some may last much longer, others less.

Proposition 105C**. A civilization is a type of syston and so will obey syston behaviour rules

Proposition 105D*. The half-life of a civilization syston has been around 250 years

There is a further complication. I am suggesting that the Genetic Aggregation stage, Stage 1, is a basic part of the whole development cycle. In more distant history, this aggregation was

generally accomplished through war and fighting, rape and pillage. In more recent centuries there has been a gradual and as yet incomplete switch to more peaceful means, mostly through migration. The current example is that of the United States.

The rate of development of the United States syston has been much more rapid than that of comparable systons in the past. Of course, this could be purely a matter of chance — the half-life quoted is only an average among wide variants — but I suspect not. I think there may be a difference of kind, rather than degree.

This difference may lie in Stage 1. Instead of an ordinary Genetic Aggregation, the US example may be more closely described as an Infocap Aggregation, one in which many more types of infocap in addition to genetic resources go into the melting pot. Because of the relatively peaceful way in which this aggregation was accomplished, the opportunities to preserve infocap during the transfer, and to permit rapid infocap breeding in the new mix, were considerably enhanced.

Proposition 105E*. Peaceful migration has started to replace military conquest as the basis of the aggregation phase of the civilization-syston cycle

Proposition 105F*. Migratory aggregation preserves infocap and subsequently promotes infocap breeding, resulting in more rapid syston development

Of course these propositions raise as many new questions as they answer. Why has South America, also the product of intense racial mixing, not advanced to the same degree as the US? Perhaps because it had a much greater degree of military conquest, or because of imperfect integration with the existing large populations. Why has Japan advanced so much on the world scene, although its society is notably homogeneous?

For the moment we will leave these matters and look at some other aspects of homogeneity in society.

The Combination Man

First we may try seeking an explanation for some of the above, a reason why diversity promotes the well-being of a syston. Linear thinking tends to view the individual systels of a national syston, the people involved, as conforming with or diverging away from given character/behaviour norms. Charlie is rich, Sally is right-wing, Peter is clever, Bruce is a fast runner, Jolene is beautiful.

Some of these attributes, being rich or poor, able to run fast or slowly, are fairly linear in nature. Others are not. What makes Jolene beautiful? She may have flaming locks of auburn hair and eyes of emerald green, and still be ugly.

Probably what makes beauty is a fortuitous *combination* of all sorts of characteristics. In addition, the impression of beauty seems to be reinforced when some of these characteristics are a little exotic, like red hair or green eyes, when they are away from the norm. We could say that beauty is a matrix quality, not a linear one.

Proposition 105G**. Many syston qualities are matrix qualities, dependent on combination and interrelation of more linear attributes for their value

Proposition 105H*. Matrix qualities are enhanced by inclusion of a proportion of off-norm attributes

One can see these principles working in people of mixed race, where the mixing tends to throw up people of exceptional attractiveness. It is the touch of the exotic, the inclusion of out-syston genes, which adds to their beauty.

The Face That Launched a Thousand Ships

An interesting feature of matrix qualities is that they may not obey the same rules as linear qualities. Take the Principle of Natural Selection, in evolutionary theory. If a species is in a situation where height is an advantage, the principle tells us that natural selection will tend to favour individuals who happen to be taller, and so increase their chance of passing on their tallness quality to succeeding generations. So the average height of an individual of the species increases as time passes.

No-one seriously disputes that such a mechanism operates. It is logically sound, gives an accurate explanation of observed measurements, and can be predicted and applied in practice, as is done routinely in animal breeding.

But what about something like beauty? If Natural Selection applied to this quality, then we would expect people to have become more and more beautiful over the ages — there is no denying that possession of beauty is a huge survival and breeding plus. Yet if we go back to the statues of the ancient Greeks, the portraits of older civilizations, we can find beauty to match anything seen today. It seems that Natural Selection does not apply to matrix qualities — at least not at the conventional point of measurement.

Proposition 105I. Matrix qualities may not be subject to the same laws as linear qualities***

A Nation of Shopkeepers

Continuing change is a feature of life. Changes within a syston mean new challenges, new demands for abilities to cope with altered circumstances. How are the ones able to meet these new challenges selected?

It seems to me that the attributes needed to handle and drive change are often matrix qualities. Intelligence, creativity, persistence are all non-linear qualities — so-called Intelligence Quotient figures measure something very much more restricted than 'true' intelligence. In fact, 'being good at their job' is an obvious portmanteau characteristic which may imply the combination of a host of characteristics. In an overseas dam-building project, it may require not only formal qualifications and experience in engineering, but also a linguistic bent, an inbuilt appreciation of psychology in handling staff, and much, much more. All these

combined requirements may be summed up up saying that someone 'has a feel for' a situation.

The point I am making here is that for someone to excel at their job, they will often need a mix of exceptional (off-norm) characteristics. Only then can they appreciate that the hold-up in getting the rock shifted may be solved by distributing sacred flowers around the barracks. Of course any required combination of off-norm characteristics is much more likely to be found in a genetically diverse or infocap-rich syston.

Proposition 105J**. Internal diversity in a syston enhances its abilities to handle and promote change

We can see the operation of this principle in looking at the British. In spite of Napoleon's derogatory remark about them being a 'nation of shopkeepers', in fact a feature of the British is that they are extremely varied and non-homogeneous. Somewhere among them it is usually possible to find people who can excel at anything you care to name, whether it is scientific competence, athletic ability, blind courage, or crass stupidity.

A serious study of eccentrics by an American psychiatrist, David Weeks [McGourty, 1991], concluded that Britain's eccentrics were "extraordinarily creative" and of much higher quality than anywhere else in the world. "They are a much under-utilized resource", he said.

Another interesting point to come out of Weeks' study was that the eccentrics enjoyed exceptionally good health, visiting a doctor only once every eight or nine years, in contrast to the general average of twice a year. They were also unfailingly happy: "They are very curious about everything, and usually have an obsessive preoccupation with five or six different things at once. It all adds up to a recipe for happiness".

Weeks commented that "happiness could also explain their good health, because it enhances immune response systems so they were less prone to infection".

Of course the word 'eccentric' means 'away from the centre' or 'off-norm'. The conclusion from all this is apparent:

Proposition 105K. Infocap diversity promotes the well-being of a syston***

Ninety-Nine Percent Perspiration

Right at one end of the vast spectrum of human abilities and characteristics lies a tiny area labelled 'genius'. We have already seen reasoning which suggests that a person identified with this tag is one who happens to have a fortuitous combination of characteristics which may be individually uncommon, and in combination, extremely rare.

What these characteristics are will vary markedly from individual to individual. Thomas Edison said that "Genius is one percent inspiration, and ninety-nine percent perspiration" — a reference to the undoubted fact that ideas are not self-developing, but require persistent effort to produce a tangible advance. Bright ideas are only a part of genius. Intelligence is not necessary: often a genius will be an instinctive genius, functioning without knowing how they do it. Outside their own field of genius, they may be quite dull.

There is nothing particularly novel in saying this. The word 'genius' implies someone who

is at a personality extreme, so by definition we could not have most of a population being geniuses. But it is worth stressing the point that geniuses probably arrive at their status because they happen to have a lot of some varieties of ability. The interesting question arises, as to whether they are prone to also possess significant ability gaps.

Dissolving the Device-Handler Code

During the early 1970s, computers were undergoing great development, and were beginning to take their place in all sorts of areas of human activity. At that time perhaps their most pressing limitation was their restricted amount of 'memory' — the area in the computer where programs and the data they were currently manipulating actually existed. The memory was in the form of 'cores', tiny loops of wire, each hand-wound by some source of cheap labour.

In those days 16K of memory cost a lot, and to buy another 4K represented a major purchase. Nowadays, of course, core memory has been replaced by very much cheaper silicon chip memory, and home computers come off the shelf with a hundred times the memory of those days. But then it was a real struggle to fit all you had to, within the limited memory available. I remember, on one project, contributing towards a lottery ticket to buy 'our' computer some memory it sorely needed (the ticket lost!).

Most of the memory was taken up in two things; the operating system, which allowed the user to interact with the hardware to bring in particular programs, and was more or less the same all the time; and the programs, which were switched in individually as needed. To save memory space, the operating systems were 'generated' for each particular installation, rather like customizing a new car. All would have the same 'chassis', 'drive shaft', and so on, but the apparatus for options (say 'air-conditioning') was only included if needed.

In generating the operating system, the procedure was to to take a 'standard' version of the system and customize ('tailor') it by adding modules which were needed for that installation, and subtracting modules which were not. For example, if your machine did not have a paper-tape drive, and the 'standard' operating system had a module of computer code to handle a paper tape, then memory could be saved in the final tailored operating system by deleting the unneeded paper-tape handler code module.

The interesting thing is how this was actually done. The instruction code inside the standard operating system was set up like the bookshelves inside a huge library, and the *position* of particular parcels of code was important — the system expected the chemistry books to be on the shelves immediately after the physics books, as it were. So when the system was tailored to remove the paper-tape handler, no attempt was made to close up the space with the later code. Instead the space was allocated to a totally unrelated use.

In fact the space freed was used for 'small buffers', in effect sets of pigeon-holes for small bits of data the system was passing around during its operation. It was like having sets of in-trays and out-trays for different users, so Professor Brown picked up his letters from a certain gap in the history book shelves, and put his memos for typing in another gap in the psychology books. Unlike people, computers are good at handling a 'distributed' facility like these small buffers, and so good use was made of the limited memory space.

The question which arises from this diversion is this. If you have people who are using part of their brain in some specially effective way, a way which makes them outstanding to the genius level, does it make them liable to corresponding functional lacks?

Proposition 105L*. In a particular human, outstanding ability in one area may be balanced by corresponding deficiencies in others

I have not examined the implications of this proposition in detail, and would be interested in evidence supporting or contradicting it. Of course there is anecdotal support — the 'absent-minded professor' who can remember the most complex formula but not where his car is parked, and so on. This is an interesting area which could be investigated further.

We can turn now to another aspect of genius — not how it affects the individual, but how it affects their syston, and, ultimately, the wider matrix.

Fruit of Genius

There is a point about the effects of genius which is not controversial, but even so is not often recognized. We will later deal in some detail with evidence for the view that infocap is not easily restricted so it remains confined within syston boundaries. Nowhere is this more true than with the effects of genius.

The effects of the output from a particular genius spread almost without restraint right through the entire human-society matrix. If the genius is in the form of performance on the violin, the speed of spread may be that of electromagnetic communication, appearing in Australia only a fraction of a second after its origination in, say, Europe. If the genius is such as to lead to a fundamental scientific discovery, its rate of spread will be slower, because of the complex filters and barriers which systons set up, knowingly and unknowingly, to restrict these flows.

Nevertheless, even when such barriers exist, the effects of any genius-level advance usually flow through from one syston to another rather easily. Research scientists are eager to publish their results and get these spread round the world as rapidly as possible. On the technological side, if say a new, very innovative type of solar cell is invented in Japan, its sale and use will occur elsewhere in the world quite soon after trials have been completed in its home area. The nature of the economic system will see to that — there is no point in developing something innovative at great cost and then trying to artificially restrict its use to a particular geographic area.

Here is point one. Genius leads to the creation of infocap. This infocap is not then restrained within its local systons, but can rapidly spread throughout the world. We can present this as a formal proposition:

Proposition 105M*. Genius-created infocap is not retained solely within its syston of origin, but may propagate freely throughout the world holosyston

There is a further consequence, involving an interesting subtlety. With an increasing world

human population, we may expect an increasing *number* of geniuses to appear, on whatever definition of genius, and assuming the *proportion* to remain steady. One genius affects the whole world — if we get more geniuses, the effects on the world will be at least in proportion.

Here then is a preliminary explanation of why growth in many areas of human endeavour tends to be very marked — geometric or exponential growth, rather than linear. Thus scientific advances improve health levels, which lead to population increases, which lead to more more people being involved in scientific research, and so.

Where does this preliminary explanation break down? It does so in areas where the infocap is imported and does not lead to more research. Where the population is increasing because of imported health measures, and just leads to more people, not more people creating infocap for export.

So the big increases in world population take place in areas of Africa, South America, Asia which are already infocap-poor. These increases do *not* lead to the appearance of more geniuses, more infocap. We could say that the infocap levels are not great enough to allow much infocap breeding to occur.

Take China. China was the source of many major inventions — paper, explosives, and moveable type among them. But these happened some tens of centuries ago, when, as we have seen, the genetic mixing there was much fresher.

What major invention has ever come out of non-Mediterranean Africa? Out of South America? Out of modern Asia? While examples can be found, they are few in number, and usually relate to natives of those areas who have studied and worked in 'the West', that is in areas of high infocap. So the supposition that increasing populations lead to increasing numbers of geniuses may be only a half-truth. What is more likely is that increasing infocap levels lead to more geniuses, especially where these levels are above some critical 'breeding' level.

Proposition 105N**. Above certain critical levels, infocap 'breeds', with the recursive creation of geniuses and infocap

So far we have not gone into the structure of infocap very much. We will look further at it and its implications in more detail later. But first we need to bring out a whole new element of the Matrix.

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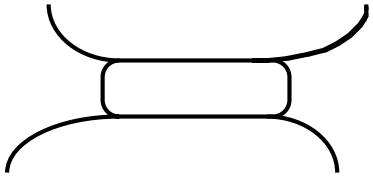
Chapter 106



LOVE MAKES THE WORLD GO ROUND — The Synenergy Story

"Love rules the court, the camp, the grove,
And men below, and saints above"
— Sir Walter Scott, *Lay of the Last Minstrel*

The Third Leg

To be able to stand freely and in a stable way on its own, a piece of furniture needs at least three legs. So far, in our examination of the makeup of the Matrix which forms our model of human society, we have distinguished two basic elements, infocap and systons. Now we move on to the third and last element.

I have tried to build up an image of infocap as the substance, the material part, of operations and actions involving human society. Similarly, the concept of systons has been put forward as representing the entities which are the initiators, proponents, or receivers of these actions. To complete the model, a third element is needed, one which represents both what may be described as 'energy transfers' occurring in the actions, and also a sort of 'potential energy' functioning as a glue holding the systons together.

Clearly this element, for which I will be using the name 'synenergy', is a much less tangible concept than the ones used for the first two elements. Even so, I hope to demonstrate that its existence is 'real', real in the sense that it forms a logical and essential part of a model which can accurately describe what we regard as the 'real world'.

For this third element of Synenergy I will be using the following symbol:

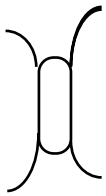


Fig. 106.1 The Synenergy symbol

This symbol, with its curling 'antennas' and lower symmetry, perhaps has more of an organic look than the symbols used for infocap and systons. And it is in the nature of synenergy, as I envisage it, to be more organic, more of the nature of a 'life force' in the Matrix — perhaps less easy to quantify than the other two elements, but nevertheless still amenable to the same process of generalization and rule-formation as the others.

For the moment we will not try to define Synenergy too closely. But a number of examples may help. Examples include communications, both telecommunications and all sorts of human speech and writing and symbolism, payments and all sorts of money transfers and some elements of asset transfers, together with a whole group of psychological entities such as pair-bonding, team spirit, and other feelings-manifestations which can be generalized as 'love'.

In a way, synenergy can be regarded as the *flow* of infocap between systons.

There is another way of looking at the nature of synenergy, one based on an analysis technique called 'Dimensional Analysis'. This is an interesting aspect, but not one basic to the ideas in this book. A brief examination of it is added to the book, as an appendix.

Readers may refer to the appendix on Dimensional Analysis if they wish. But at this point, we need dwell only on two important implications of this analysis.

Convertibility

One of the underlying assumptions in the dimensional analysis of synenergy is that all forms of it are of the same basic nature. It is as if we are talking about apples and pears, pineapples and kiwifruit; all can be regarded as forms of fruit, all are parts of plants.

But when we come to talk about apples and gravity, or speed and anxiety, we are talking about things of a basically different nature.

Dimensional analysis would say that the *dimensions* of apples and gravity are quite different. In the sense used in this technique, 'dimensions' does not have the ordinary sense at all, but refers to the possession of a set of basic attributes. In the usual analysis, these attributes are length, time, and mass.

On the other hand, the dimensions of apples and pears will be the same, as far as this technique is concerned. And an important implication of this is that it is always possible, either in theory or in practice, to *convert* an item with a given dimensional structure into another item with the same structure.

In the example we have just used, it would suggest that it is theoretically possible to convert pears into apples. And in actual fact, the Chinese have already done this, many centuries ago. The resulting fruit, these days called a nashi fruit, may look just like an apple, even though a close genetic analysis would reveal it is actually a pear.

As far as synenergy is concerned, the implication is that any form of synenergy is, in principle, convertible into another form.

Proposition 106A. All forms of synenergy are theoretically capable of interconversion***

There is actually a word for this process, when it relates to certain types of synenergy in human society. We call it 'sublimation'.