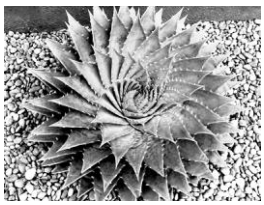
PLANT-PERSON ATTRACTORS

Isla Burgess



The physicist Erwin Schrodinger in 1944 wrote a paper headed "What is Life?" in which he discussed life's two secrets. The first secret, that of genetic inheritance, has been well researched successfully by Biochemists and Geneticists but it is the second, that of "the spontaneous emergence of self-organised order"[1] that requires an investigation from a more integrated world view.

This "spontaneous emergence of self-organised order" as it relates to a human being is a moment by moment response to intrinsic and extrinsic factors. The effectiveness with which a person achieves that emergence is an indication of their state of health. So with apologies to Schrodinger the first part of this human-centric paper investigates "What is health?" Part Two investigates a novel theory about how to nudge the "spontaneous emergence of self-organised order" in the direction of 'health'.

PART ONE
The Macro-level

Intrinsic factors and their impact on health studied in physiology and biochemistry provide causal associations and are indicators of various dis-ease states. These include changes in blood chemistry (due to nutritional variations), blood tests for various disease markers, understanding cytokines and urine analysis to name a few. Each healing 'system' or modality has its idiosyncratic view, some less fragmentary than others. For example conventional medicine being more fragmentary than say Ayurveda or Traditional Chinese Medicine. BUT "Reductionism cannot solve the secrets of emergence"[1] therefore we need to look beyond the macro-level to the micro-level of Chaos and Complexity theories for further insights.

The Micro-level
Chaos Theory
The story begins with the work of Edward Lorenz, a climatologist, who in 1963 demonstrated that the solutions of equations involving atmospheric variables are unstable and unpredictable, irrespective of input and advances in the computational ability of computers. The new field of mathematics that leads on from Lorenz's work was called "deterministic chaos", because the process described by the equations could behave in unpredictable yet uniquely patterned pathways, showing a subtle order within what appears to be disorder. When graphed, these equations demonstrate a dynamical system (a state that evolves over time), whose activity can be represented by what is called an "attractor", a bounded area within space. An "attractor" could therefore be defined as a bounded state that incorporates the potential for and display of patterned variability (deterministic chaos) over time.
The application of these concepts to health is relatively new in the literature yet all the factors are present. For example there is chaos and patterned variability (within boundaries) in the human body.

Chaotic systems in the body
Deterministic chaos (within boundaries) appears to play an essential role in "good health",[3]in the heart beat,[4] and in the brain. [5] These are characterized by complicated irregular moments out of which a pattern arises. When the dynamic form becomes more stable as seen in the development of pathologies, (those that develop over time), the attractor is more like a "limit cycle", a system that cycles periodically over the same set of states", indicating no chaos. [3]
The human body has bounded states within which it functions optimally. Each system within the body has its own intrinsic pattern and is also connected with all the other systems through feedback. This is seen in the

menstrual cycle and its hormones, chemical signalling in the immune system and microbiological interactions in the digestive tract. In the whole organism, health is a state that could be seen as an "attractor", bounded by the parameters that allow life to exist but within which there is both order and chaos. [4]

Complex systems in the body

"The key differences between chaotic systems and complex ones lie in the number of interacting parts and the effect that this has on the properties and behaviour of the system as a whole". [3] Chaos can be seen in complex systems involving fewer parts or subunits of that system. It produces "very intricate dynamics" [3] that are deterministic and sensitive to minute changes in input. Complexity theory develops this further to explain the complex effect that emerges from the interactions of the many parts found in dynamic nonlinear systems, for example, in the human body.

People with the same dis-ease states exhibit similar symptoms. The interaction between the systems of the body normally generates complexity. This is reduced during disease from a more complex system (health) to a more ordered one (disease).

This may appear to question Schrodinger's second of "life's secrets" but in fact it supports it. While intrinsic chaos is reduced in disease patterns and therefore changes the complex relationships within the body, it is the overall 'health attractor' that is the "the spontaneous emergence of self-organised order". [1]

It is a person's ability to respond to any change in input with flexibility, adaptability and resilience, that contributes moment by moment to the ongoing emerging state of health.

PART TWO

A novel theory about how to nudge the "spontaneous emergence of self-organised order" in the direction of 'health'.

There are references in the herbal folklore that a person has a plant 'ally'; a plant that acts for that person in a way that is more than the sum of all of its known actions. The idea of using a whole plant to restore or maintain the 'health attractor' supports this traditional idea.

Could the introduction of an appropriate complex and chaotic system into the human body such as a whole plant restore and maintain, the "health attractor"?

That plants and humans have the same origins and share many similar cellular functions is as certain as anything can be in science and although little research has been carried out to date there is evidence that plants exhibit deterministic chaos and they are complex systems. [7,8,9,10]

The question that now needs to be asked is that since not every plant could facilitate the restoration of the 'health attractor' for every person, how can we determine what plant for what person?

One way to build this person/plant relationship is through phenomenological and qualitative assessment from a Goethean science perspective.

To match the qualities of the person and the plant means that one would have to know both well. The author has carried out some preliminary work on using a guide as a way to assess these qualities and has facilitated workshops among both health professionals and interested public. The Guide includes questions on 'Qualities *in situ,* physical characteristics, cycles, growth and Seeing-in-Beholding'. It is still being refined and a before and after Health Questionnaire is being used as a gauge to changes in health status after using the plant at three and six months.

It is early stages in the research but one anecdotal report with one person demonstrated that even a very small dose of the chosen plant had a significant positive impact on the person's wellness.

Perceiving Qualities through exact sensorial perception

The chart below is a guide to summarizing the qualities of both the plant and the person. An initial list of qualities of plants was prepared from prior knowledge through spending time working with and observing medicinal plants. These qualities are the focus for questions for interviewing people. Some observational qualities could be added to those identified through questioning.

General Qualities for Plants and People. A practitioners guide.

Plant	**Person**
Qualities *in situ*	**Qualities *in situ***
Thrives in	**Thrives in**
Open, forest, edge of forest	Open, forest, edge of forest
Mountains, lowland, cultivation	Mountains, lowland, cultivation
Coastal, inland, inland waters	Coastal, inland, inland waters
Shade, full sun, mixed	Shade, full sun, mixed
Dry, wet, moist, tolerant	Dry, wet, moist, tolerant
Rich soil, medium, shallow, sandy, rocky, all	Rich, medium, light, all (food requirements)
In communities, in "nuclear" family, singly, all	In communities, in "nuclear" family, singly, all
Found in many places	Lived in many places
Physical features	**Physical features**
Appearance	**Appearance**
Plant - Glossy, dull, midway, blushed, pale	**Hair and skin -** Glossy, dull, midway, blushed, pale
Dark, light, medium	Dark, light, medium
Dry, moist, warm, cool	Dry, moist, warm, cool
Thick, fine	Thick, fine
Flower – bright, sparkling, dull	**Eyes**– bright, sparkling, dull
Obvious, hidden, watchful	Obvious, hidden, watchful
Pistil – White, red, coloured, dry, moist	**Tongue** – White, red, coloured, dry, moist
Touch Harsh, soft, velvety, rough, smooth, hairy, prickly, thorns	**Skin**- Harsh, soft, velvety, rough, smooth, hairy, prickly, thorns
Smell None, light, fragrant, unpleasant	**Smell** None, light, fragrant, unpleasant
Stature – Tall, medium, short, close to the ground	**Stature** – Tall, medium, short, close to the ground
Upright, stooped, bent, flexible, cascade	Upright, stooped, bent, flexible, cascade
Nutrient Preference	**Nutrient preference**
Amount Regular feeding, irregular	**Amount** Regular, irregular
Rainfall	**Fluid Preference**
High/Medium/Low	Always thirsty, >8glasses per day, 6-8 glasses per day, <6 glasses per day
Cycle	**Cycles**
Annual, biennial, perennial, evergreen	Same all year, different energy seasonally
Growth	**Metabolism**
Fast, average, slow	Fast, average, slow
"Seeing in beholding"	**"Seeing in beholding"**
Noticeable, hidden, partially hidden, secretive	Noticeable, hidden, partially hidden, secretive
Watchful, attracting, repelling	Watchful, attracting, repelling
Strong, fragile, average	Strong, fragile, average
Competitive, non-competitive,	Competitive, non-competitive,
Earthed deep, superficial , average	Earthed deep, superficial , average

Method used in assessing qualities.
I first interviewed each person asking questions relating to each of the qualities seen in plants. I then used "exact sensorial imagining" to come up with a possible plant and then listed its qualities alongside that of the appropriate person. I then added the number of similar and dissimilar qualities shared or not between both plants and people for each section. They are totalled to give an overall number of similar and dissimilar qualities and written as a percentage of similarity.
.
Totals for each assessment
Participant 1
Similar qualities = 25
Different qualities = 8
= 75.45% similarity
Participant 2
Similar qualities = 27
Different qualities = 4
= 84% similarity
Participant 3
Similar qualities = 26
Different qualities = 7
= 78.48% similarity
Participant 4
Similar qualities = 26
Different qualities = 6
= 81.25% similarity
Participant 5
Similar qualities = 19
Different qualities = 12
= 61% similarity
Participant 6
Similar qualities = 32
Different qualities = 6
= 84.2% similarity

Conclusion

This theory about using a plant as a 'health attractor' could be tested by using an objective and subjective health assessment before ingesting the plant daily for a year. This assessment could be done again at six months and at the end of the year. As a herbal medicine practitioner I feel the addition a more qualitative assessment of a person, to the more formal clinical case note intake form would be a beneficial one. It provides a more holistic approach to the claim of being a 'holistic practitioner'.

Decorative pattern from Pithoi (storage jars) ca. 700 BCE, found in Ialysos, (possibly an abstraction for water swirling around rocks)

References

1. Macklem Peter T. (2008) *Emergent Phenomena and the Secrets of Life. J Appl Physiol 104:1844-1846*
2. Stewart I.(2000) The Lorenz Attractor. *Nature* Aug 31st :949.
3. Rickles D., Hawe P., Shiell A.(2007) A simple guide to chaos and complexity *J Epidemiol Community Health.* Nov;61(11):933-7
4. Goodwin B. (2007) *Nature's Due*. Floris books.
5. Faure P, Korn H. (2001) Is there chaos in the brain? Concepts of nonlinear dynamics and methods of investigation. *C R Acad Sci III.* Sep;324(9):773-93
6. Harding S. (2006) *Animate Earth*. Green Books.
7. Misteli T. (2008) Cell biology: Nuclear order out of chaos. *Nature*. Nov 20;456(7220):333-334
8. Kosuta S, Hazledine S, Sun J, Miwa H, Morris RJ, Downie JA, Oldroyd GE (2008) Differential and chaotic calcium signatures in the symbiosis signaling pathway of legumes.. *Proc Natl Acad Sci* U S A. Jul 15;105(28):9823-8.
9. D'Haeze W., Holsters M. (2004) Surface polysaccharides enable bacteria to evade plant immunity. *Trends Microbiol*, Dec.12(12):555-561
10. da Cunha L,. McFall A. J., Mackey Innate D. (2006) Immunity in plants: a continuum of layered defenses *Microbs and Infection* April;8(5);1372-1381

Isla Burgess *has been an educator for the past 40 years, firstly as a teacher of Science and Biology and then as Director of the International College of Herbal Medicine (2000-2010) and Director of the Waikato Centre for Herbal Medicine, Waikato, New Zealand (1990-2000). She is also an experienced herbal medicine. She is the interim convener for the International Research Group for the Conservation of Medicinal Plants* ***www.irgcmp.org***