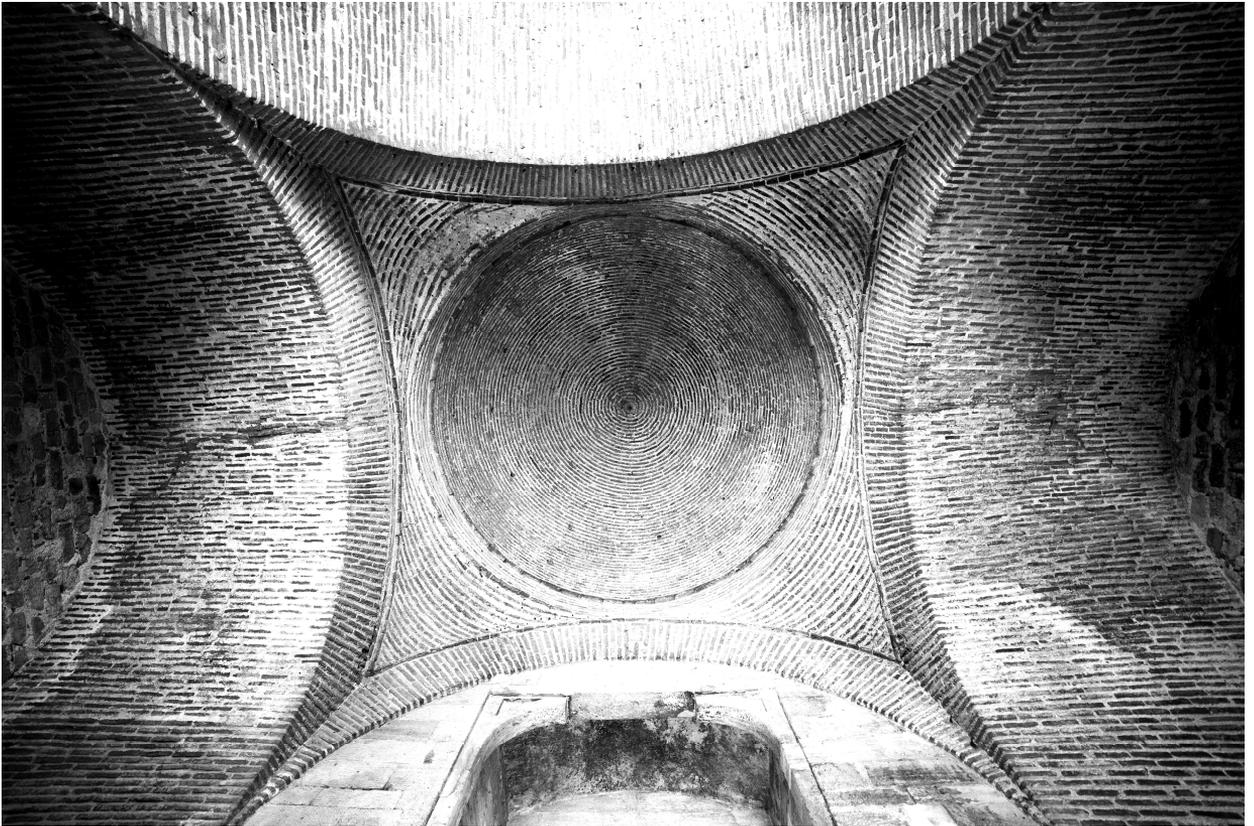


Holistic Science Journal

the quest for perception in lived experience

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Dynamic Wholeness



Journey to a Wake

Henri Bortoft. Philosopher. 1938-2012

A train, the time to focus on this crucial stage
Travel through life could have reached: abrupt.
Pistons hiss. Wheels turn, onward, where the world
Crosses the tracks, since minds have strode the globe:
From the iron age of steam; taking this rail
Guiding spirits who need to cross the land.
Work. Family. Wars. Calls to answer. Get aboard.
The past when they all came and went, fills up these gaps;
Floods back now on this stretch to reach
Last rites for a friend now ended; decades on
From our times shared. When thought, music, written works:
Looked such great parts of our time: fit to beat,
Or equal huge eras of classic worth: we feel
Must be valued, and added on to, in the sense
Living minds can open ways dead books still hold.
He followed this course deeply. The man who has passed on.

Patrick Henry



Ariadne's Thread

In *Taking Appearance Seriously* (p. 58.59) Henri Bortoft recounts a visit to an anthropological exhibit of masks, decorated shields and weapons in the Horniman museum. Henri became absorbed in the pattern of the layout of the exhibits:

'The decorated shields were arranged in a series so that the eye could move along from one to another whilst at the same time taking in the series as a whole. I was reminded of the way that Goethe laid out the leaves of a plant in a series, and I realised that here also with these human artefacts there are two ways of seeing. In one way we can see that they are all based upon the same plan. [...] But there is another way of seeing, which also begins with the finished products [in this case the shields], but moves in the opposite direction by placing ourselves within the coming-into-being of diversity. When we do this we see the unity concretely as a *productive* unity.

The unity can no longer be abstract, but includes difference within it as a natural consequence of the productivity. Difference stands out now, instead of receding into the background, but the difference is now the *dynamic* unity of the productivity. In other words, the unity is generated in the very act which differences, instead of being abstracted by ignoring the differences.'

In the 1960's, Basil Hiley and Henri Bortoft worked together on the question of wholeness in quantum physics. From this initial challenge Henri went into philosophy and Goethean Science and Basil into mathematics and physics. In this issue Basil Hiley brings full circle the work of Henri. Basil outlines for us the path by which the dynamic process of distinction revolutionises all levels of physics. This is to illuminate the very origin of Holistic Science, the attempt to make the dynamic arising of wholeness the central premise of physics.

Another key contributor in this issue is Patrick, Henri's life-long friend since schooldays. Patrick trod quite a different path through travelling, painting and expressing life in its essence. There has been no contradiction between the two friends. Henri's philosophy was to broaden out from the kernel of living truth into a communicable understanding; Patrick's to work inward from the wealth of experiences to portray its living centre.

Jacki, Henri's wife, co-edited this issue with us. Jacki's article joins together school-friend, physics researcher, teacher, guide, philosopher and writer. Jacki describes this as "a short piece about what I see as the different phases of our life together, for on reflection it feels like several 'different lives.'"

The range of friends and colleagues exploring their work through the influence of Henri meet in the vision Henri inspired in many people. Only in the way Henri lived did all these episodes, periods of time, areas of academic exploration come together to uniquely deliver Henri Bortoft and his work as testimony to a dynamic wholeness.

The import of Henri's work is to give us a dynamic sense of where we are in the world. We are no longer 'standing in front of the products' being faced with a situation over which everything has already been said. We find ourselves alive in a pattern of living that is showing itself to us with our creative input, desired, called for, included.

This issue is a testimony to one who lives on in many.

Philip Franses

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Pg 30 'Vanishing'. *Attributed to Shubun (n.d.) Japan, Muromachi period(1337-1573) Handscroll, ink and light colors on paper copyright Shôkoku-ji Temple <http://www.shokoku-ji.or.jp>.)*

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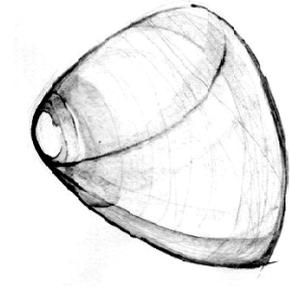
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Henri and I had passed the Eleven-Plus Exam in 1949, and found ourselves in the same classroom at Scarborough Boys High School. A third boy on our row asked Henri (then called Peter) what he aimed to become, and the answer came, "a nuclear physicist." I had no idea what that meant, but was impressed by the decisive, ambitious and accurate style of this fellow pupil. The other boy Michael, later a Naval radio officer, whom I met again forty years after, and now passed away, never asked me that question. Anyone could tell I had no idea where I was, or headed for. Then Henri went to an upper stream for those good at science and languages, not my departments at the time. Cycling, boxing and funny stories were the only areas I made much mark in. Rugby and cricket, I avoided much as Henri did. Myself never a team player in any sense. Henri only ever teamed up with philosophers through his lifetime. A body I admired, though never quite making their side either.

A few years on, aged sixteen, we both frequented All Saints Church Youth Club, a lively spot in that 1950s, pre-Disco, pre-TV-viewing era, when the term "teenage generation" thankfully did not yet exist. Square dancing, debating sessions, cycling tours and camping trips were offered by the club. Henri and I both developed interest in Modern Jazz. Very new, fresh, and expert at that time. Some could be detected in visiting dance bands, such as John Dankworth and Ted Heath. We came to know a local bricklayer, Ken Read, who spent most of his wages on jazz LPs. These had only begun recently and he possessed nearly every one existing: about fifty, I suppose. We, still schoolboys, plus others, went to his council estate house one night a week, to hear these gems. Soon after, Henri and I grew to like classical music, historic or contemporary. Henri's father, Ron, was a knowledgeable musician, who had played violin, guitar and organ. When I bought a disc of Stravinsky's Rite of Spring (still my favourite piece and I still spin that actual vinyl, bought in 1957) Ron Bortoft had me take it round to re-record in his

bathroom, the most silent part of the house, on his tape recorder, a mysterious ultra-modern machine to my naïve outlooks. Ron was a baker and ran the famous Waffle Shop on Scarborough seafront, where I worked in later years for him, and then his son Mike, who carried on the business until quite recently. At their home, I once met the legendary grandfather, Harry Bortoft. A stern, master-baker figure, still haunting stories of our seaside town.

Henri graduated in Physics from Hull University, and took a temporary teaching post in Surrey, around 1960, when I was working in London. Weekends, he came and slept on my floor in his sleeping-bag. This was virtually a Fulham doss-house for Irish labourers. My father and grandfather being such persons, I felt almost at home. Henri found it an exotic, weird experience, the kind of which he relished all of his life. Saturday nights we spent in Soho pubs and/or cinema going. London showed many films by Fellini, Ingmar Bergman and Kurosawa at the time - intriguing delights for our appetites. I still chase after re-shown classics of that era, when now the Bond, Star Wars, Potter-type garbage predominates. The intellectual cultural revolution we egotistically believed we took part in half a century ago, seems to have petered out.

Henri and I supported the CND Peace Campaigns and demonstrations. Now he was a postgraduate at Birkbeck College, London University, studying Physics and Philosophy with David Bohm. There he met Jacqueline Klein, biology graduate from Rhodesia, and they moved to a house in Putney, when he and I had shared a flat in Islington. Now I sometimes slept on their floor, reciprocating the old arrangement at the Fulham doss-house. The Henri-Jacki ménage a lot nicer, and would ever be so. They moved to Kingston, near London, and became part of the J. G. Bennett circle.

I went to their wedding at the church there and also the christening of their daughter Laura, to whom I became Godfather. Marlon

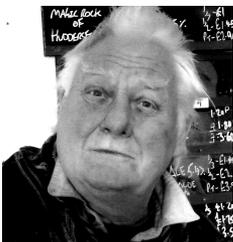
Brando was off away filming at the time. Bennett, I heard lecture at a place near Victoria Street, and understood nearly nothing. Henri took in a great deal which advanced his pursuit of knowledge. He and his family I saw quite a lot of over the years in London, Hertfordshire, Kent, Norfolk and Scarborough. I hope still to do so, except there is a huge absence, now we

have all seen Henri pass on. But we have not lost him. His presence will be ever enormous. Apart from my own parents (remarkable, but a different story) Henri has been the most inspired, perceptive, determined, likeable, generous person I ever met. His spirit is somewhere, close to us, in an age that needs such strength more than ever before.

RESPECTS AT ST. PETER'S, MATLASKE

A dialogue goes on underneath
This misty day where last respects are held
At a house; an inn; and at a Saxon church,
Dating from when belief, mystery, and mundane times reigned.
Our talk or silent thoughts, set out links between
Outer and inner worlds; and the sacred and profane,
Matters needed to weigh the worth of present life;
Grasped firm in the hand as a hank of wool:
Once the trade value for all on wide Norfolk land:
Raising a fleece to wear against the hollow chill,
Still stealing across this bleak day we take leave of one
Gone to an inner world, hard to fathom or to plan.
A paradox between the holy and the logic mind.
Our church songs raise this sense in their vibrancy of words.

Patrick Henry



Patrick Henry was born in Scarborough in 1938. He has lived in London, in the 1950s-60s. Cornwall and Yorkshire, in the 1960s, Paris and rural France as translator, interpreter, scriptwriter, antique dealer, grape-picker in the 1970s. He was an adult student at Harlech College, Wales UEA, Norwich. Trinity College, Connecticut in the 1980s. BA in American Studies. Scarborough postman, 1990s. Poetry and paintings tours of New York, Paris, Ireland, Australia in the 2000s. His art and writings are published in New York at <http://nycbigcitylit.com/>

HENRI AND I

A reflection on my life with Henri

The Early Years – Travel, Parties, Sun-Seeking

It was 1962, I was 21 and had been in England less than a year. I was a student of Biology and Chemistry at Birkbeck College where I also worked as a technician in the zoology prep room. One evening before classes, I was quietly having supper in the refectory on my own, when suddenly in front of me stood a thin pale young man in a lab coat with a shock of red hair and full red beard. He said, "Would you come out with me next Saturday night?" and I think I replied, "Oh my goodness, all this over a bowl of minestrone!" Well he wined and dined me in fine style and I learned later he'd laid his plan carefully, enquiring of a more sophisticated colleague where to take me for a special occasion! This I think became a feature of his person. I have found in his diary lists of interesting places to eat, to drink in London and elsewhere, books, music, films and recipes collected carefully for future reference. He had a great love of life and all it could offer.

Over the next months we discovered we liked many of the same things and particularly laid plans to travel during the holidays. A trip to Ibiza hitch-hiking that summer, and Paris. He was clearly an old hand at this travel method having made the journey to Malta twice already to stay with the family of a girlfriend. He loved the contrast between England and Italy, the Mediterranean, the youth hostels, sleeping on the beach in Nice, and travelling on the ferry, laden with priests and ordinary Neapolitans. I took some time to adjust to our travelling fare which tended to be a tin of sardines, local cheese, bread and often a bottle of wine. But there were great experiences to be had and a thrill from not knowing where your next lift would come from. The remarkable fact that the gloom that could settle after several hours on a hot dusty road would lift instantly when a car slowed and

JACKI BORTOFT



stopped for you. We both lived in North London and I owned a Lambretta which we travelled miles on to musical venues, parties, picnics in the country or the south coast and to visit friends in other parts of the city. In those days you could happily leave it propped by the pavement in Trafalgar Square or anywhere else in the centre and one way systems were unknown.

The following year I persuaded him to accompany me on an overland trip back to my native 'Rhodesia' to visit family and to have a different African experience, which it certainly was, through Egypt by train and the Sudan until the tracks stopped at Wau (where by chance Philip Franses also found himself some years later!). Then by merchant lorry to Juba and buses and lifts down through Kenya, and Tanganyika where the ostrich and giraffe ran alongside the road with the transport. Finally through many miles of msasa scrubland (trees with leaves red in the springtime) in Zambia where by complete chance a friend picked us up and drove us the final 100 miles or so back home. It took nearly six weeks.

In the next few years, other trips followed to southern Spain and Morocco. In Istanbul and the Russian border at Anni following a three day train journey across the country to visit Gurdjieff's birthplace in Kars. Then an adventure-filled return on local buses, taking in Erzerum, Kayseri, Goreme and it's ancient Christian rock churches, Hacibectas where the saint's birthday was being celebrated. Then to Konja, the home of the Mevlevi dervishes, and down to Adana on the coast. There we joined others travelling deck class on a cargo boat for a 4 day coastal cruise back to Istanbul, stopping for unloading and loading at Antalya, Bodrum, Ephesus, where we had ample time to visit historic sites and sample local food.

The Bennett Years – Articulation, Exploration, Research

We attended a lecture in 1963 by JG Bennett at the Conway Hall after his visit to the Shivpuri Baba. He played an interview with the saint on a tape recording but from where we sat it was almost inaudible. He, however, listened in rapt attention and I think was oblivious to the fact that few could hear the words. His own introduction was so interesting and inspiring that soon afterwards we started regularly visiting his teaching centre in Kingston where we enthusiastically became involved in the ideas and projects initiated by this remarkable man and teacher. We shared an upstairs flat in Putney and enjoyed a rich and varied social life with many friends among the artists, musicians and writers who mostly liked a good party – it was London in the 60s.

In 1964 Henri was given a fellowship at JG Bennett's Institute and was starting some of his research in perception, language and wholeness, working closely with Ken Pledge among a small group of other young scientists who Bennett had attracted to his work as he finished a major four-volume work of history and philosophy called *The Dramatic Universe*. Henri's thesis on the problem of one and two in the understanding of the diffraction pattern produced in the light experiment with a two slit barrier had been completed. I had started work at the Natural History Museum on snail taxonomy relating to the spread of a tropical blood disease.

We were married in 1967 and were, by then, living next door to JG Bennett and his family where he had set up a new organization focussed on education for the future. Henri was general editor of a series of six books for Oxford University Press which were education text books using an experimental assessment system. I was writing one of them on a biological topic. After reading a piece of text, questions were posed to the students and they had to generate answers from 24 concepts presented in the form of a matrix, to which feedback could be given according to the concepts chosen. This was all quite mechanistic

and happening just as the first 'small' computers were being developed. In addition, there were still groups locally and in London involved with more psychological investigations, daily exercises in meditation, developing attention, and the faculty of observation and imagination. There were weekly group investigations with 10 or more participants where Bennett suggested a variety of topics for reflection, many quite mundane, which stimulated our creative energy. I enjoyed these as it suited my rather slow ruminative brain function. I particularly remember one called, 'Why do we talk?' I came to see talking and language as the uniquely human sense organ which as a biologist, I could analogically map nicely onto the form and function of the other sense organs. Henri's philosophical work grew, he was fascinated by the question, 'What is a Fact?' and developed the observation that in most cases scientific facts are made by describing one phenomenon in terms of another.



Photo 1: Henri and first baby Laura

The work of Bennett's organisation moved into business consultancy and we had our first two children and moved to the edge of Richmond Park for the next few years. In 1970 Bennett opened his Sherborne Academy in the run down stately home in Gloucestershire mentioned by David Seamon. It was an experimental community which is richly described from her personal perspective by BJ Appelgren in her recent book *Sunny Side Up*. It

ran for 5 years until the year after Bennett's death, and we spent winter, spring and summer of 1974 there as students` and Henri taught his courses.

Public School Teaching - Developing the ability to communicate

As a new graduate Henri spent a probationary year teaching physics to students, many from overseas, at Guildford Technical College. At the time it was one route to becoming qualified as a teacher. He had been looking widely for teaching and research posts but nothing had worked out. Then, that summer, our dear friend Hamilton Wood (about whom one of Patrick Henry's poems was written) invited us up to his home in Norfolk. 'Bones' was a puckish character around whom strange things happened: he was a fine artist, teacher, journalist and father, and he was one of the principal instigators of an informal yearly camp which happened for a month over a number of years among the dunes at Winterton on Sea. For a couple of years previously we had joined this moving feast for itinerant musicians, story tellers, civil servants, architects, and his own and other families.

A particular favourite was a retired army major who lead 'Davenport's swimming party', of mostly children, daily at 3pm into the sea, whatever the weather. Bones knew the headmaster of Greshams School and in 1974 invited us to go with him there for lunch. At one point the headmaster came through the staff dining room saying, "Where can I find a physicist, my teacher is going off next term to stand as a conservative candidate". We all looked at Henri, and after a short interview it was arranged for him to start teaching the autumn term at the school. Before long the headmaster spoke to him saying, "You know you can do this, the boys say they can understand you and enjoy your classes". That was the beginning of nearly 20 years of teaching in the public school system, mostly at Tonbridge School in Kent. It was a very different life style to that we had been having and very hard work, but he adapted to it and brought his own liveliness and humour to unfamiliar situations. He got involved with

lighting school plays with the boys, supervising the less sporty boys in seasonal team games, often instituting his own 'rules of play'. He was able to communicate with humour, his enthusiasm for the ideas of physics and enjoyed the close friendship of various members of the common room.

He also had the opportunity to give outside talks occasionally to other groups who were interested in his understanding of Goethean Science which he began to see as a stepping stone to a new approach to knowing the world. This he taught at summer schools in Maine for several years. One of my involvements was producing the 'hidden giraffe', which has proved such a useful tool to some people in demonstrating and understanding the process of perception. Henri was looking for something to go with the duck/rabbit and the reversing cube diagrams. It brought forth various musings about the structure and function of camouflage in the animal kingdom, but whether it was done to order, or was just an enhanced tracing based on a picture in a magazine, a doodle, I can no longer recall. Anyhow it met the requirement. At that time I actually enjoyed doing various temporary office jobs in a variety of settings to fit in with the freedom given by the long holidays offered by Henri's teaching as well as bringing up our three children Laura, Arron and Michael.

I later qualified and worked for a number of years as a massage and aroma therapist visiting sites at a mental health hospital near Maidstone several days a week. In the early 90s physics was not a popular subject and 5 physics teachers in the one school was deemed excessive, and so an invitation was put out for voluntary early retirement. Henri had had some health problems and in the event two teachers left the school in 1994.

Retirement

We moved to Norfolk where we had bought a small property after leaving London and Henri quickly completed and published his book *The Wholeness of Nature* which was in effect a combination of two earlier pieces and an

extended commentary. Early on he had an unfortunate accident which saw him with his whole leg in plaster for several months and a slow recovery. But he was better in time for an extended American book tour for *The Wholeness of Nature*. I was spending time in Zimbabwe where my mother's health was starting to decline and for the next few years we both travelled back and forward to Africa, often for a number of months each year until 2002. We enjoyed the beautiful country and its good natured people, learned to play golf badly, and going to some wonderful afro jazz events. Henri continued working on his philosophy, researching and lecturing. As was his way, he once listed most of the venues where he had given presentations over the years and was surprised it numbered over 50. He was all the time clarifying what he wanted to say and finding a way to express it. The last book had a number of false starts but finally, when we were more settled again in Norfolk, he found the way to start the final version of what was to become *Taking Appearance Seriously*. His friendship with Brian Goodwin and other teachers at Schumacher College were important to him in his work and he valued that contact greatly. He was always able, often to my amazement, to compartmentalize his activities, apparently giving full attention to whatever he was doing at any one time and then to switch to something quite different.

He always relished his trips to London: to art galleries, plays, walking by the Thames, watching his son Arron run the Marathon, visiting his daughter Laura and grandchildren, visiting pubs with Michael and attending

meetings. Even in this last year when his health was not good he was thrilled to get there to meet Christopher Moore and later to visit the Science Museum for the exhibition on the Life of Alan Turing. He always enjoyed looking smart and choosing his clothes carefully. He loved meeting people both old and new and for several years in his early 70s he conceived a passion for Tango dancing and would travel to classes and dances in Norwich and other centres once or twice a week. It was not the dramatic mind and back bending nuevo-tango but the more genteel and social Argentinean variety and he always aspired to do it better. It was a sad day when he realized his deteriorating breathing had made it impossible to continue. He could be quite irascible and in his later years became particularly angry at the treatment of women in some societies and tried to support in a small way several charities that furthered humane treatment and misfortunate people.

Over the years he accumulated quite a substantial library covering the many subjects that he found interesting and he kept books by certain authors close-by for continuing reference and reflection, these included Idries Shah, Heidegger and Merleau Ponty. I consider myself very fortunate to have had a richly interesting and varied life with Henri which lasted 50 years. His presence will certainly be missed by me, his children and his grandchildren, but I hope there is now a momentum for the impulse he sought to clarify in his philosophy, to be carried forward.



Jacki and Henri



ENCOUNTERING THE WHOLE

DAVID SEAMON



In her apocryphal 1969 novel, *The Four-Gated City*, British-African novelist Doris Lessing defined love as the “delicate but total acknowledgement of what is” (Lessing). This description encapsulates the heart of Henri’s masterful work. He allowed things to be as they are. Through that “be-ing,” he became a medium whereby they could speak, be seen, and offer meaning. In turn, his teaching and writings ignite that hopeful possibility for us.

Getting to know Henri

In October, 1972, as a 24-year-old American, I arrived in the small Cotswold village of Sherborne to become a student at philosopher J. G. Bennett’s International Academy for Continuous Education. Over the next ten months, Bennett’s major aim was to get some 100 students, most of them young Americans and Brits, to see and understand themselves and the world in deeper, more engaged ways.

In working toward this aim, Bennett emphasized lectures, readings, meditative exercises, practical work in the big house and gardens, Gurdjieff’s sacred dances called “movements,” and seminars from visiting specialists, one of whom was physicist and science educator Henri Bortoft. During the 1972-73 Sherborne course, Henri offered us students two four-day seminars, one of which was called “The Hermeneutics of Science.” Henri had worked with Bennett in the 1960s on his development of “systematics”—a method of encountering and understanding whereby one might explore the various aspects of a phenomenon through the qualitative significance of number.

Of the many ways in which Bennett’s Sherborne experience transformed my self-understanding, Henri’s seminars were one of the most important because he motivated us

students to realize there was another way of seeing that was more open and intensive than the arbitrary, piecemeal mode of knowing that standard educational systems emphasized. Henri’s primary teaching vehicle was Goethean Science, which he introduced us to through a series of do-it-yourself perceptual exercises laid out by Goethe in his *Theory of Colours* (1810). I still have the notes in which I copied the key questions that Henri had us keep in mind as we looked at and attempted to see colour phenomena:

- What do I see?
- What is happening?
- What is this saying?
- How is this coming to be?
- What belongs together?
- What remains apart?
- How does this belong together with itself?
- Is it itself?
- Can I read this in itself?

My specific memories of Henri’s two seminars are cloudy. I do remember the sparkle in his eyes: Henri had an extraordinary spark way of radiating enthusiasm and profound regard for his subject. I also remember that the seminar sessions were held in the upstairs library of Sherborne House, the great country estate that Bennett had purchased to accommodate his educational experiment. As students in the program, we were divided into three groups of about thirty students each. Every third day one of the groups was responsible for “house duty”—cleaning, washing, and cooking meals for students and staff—while the other two groups participated in learning activities, including Henri’s seminar.

For the time he was with us, Henri would teach two sections of seminar daily so that all three student groups experienced the same set of

lectures. I remember his telling us in one session that, each time he repeated the same lecture, it arose and arranged itself differently. He explained that part of the uniqueness of the approach he sought to actualize was the spontaneity of the moment playing an integral role in how and what things ended up being said. So much of what he taught was grounded in a trust that, by making an effort to see and say, one could discover new, surprising insights. For me, each session was magical and inspiring. I gradually came to see how constricted I was by a limited, manipulative cognitive mindset that could only understand piecemeal.

At the time, I only grasped a small portion of what Henri was presenting. I did vaguely understand however, that if I could see and know in the way that Henri saw and knew, my future as a human being and potential academic might be entirely different than otherwise. I remember a moment of revelation in which I realized that seeing, saying, and meaning were all of a piece—the core of a deeper mode of understanding whereby things showed themselves as they were rather than as my narrow intellectual consciousness supposed those things to be. I remember that one fellow student became quite upset and angrily left the room when Henri suggested that one does not see or know if one cannot say what one sees or knows. He quoted hermeneutic philosopher Hans-Georg Gadamer's claim that, "in language the world presents itself" (Gadamer, p.449). This point, of course, prefigures the argument laid out in Henri's last work *Taking Appearance Seriously*, in which he contends, after Gadamer and phenomenological philosopher Martin Heidegger, that:

"Language is the medium in which things can appear as such, i.e., as what they are.... When things enter into language they enter the world. What appears in saying are things themselves—language is the medium, not the message.... [I]t is language which gives the world in the first place—i.e. [...] language is the condition for the possibility of there being

'world'. The world 'lights up' in the dawning of language ." (Bortoft, 2012: p.145-146)

What I encountered in Henri's Sherborne seminars played a major role in giving direction to my future professional life: An interest in phenomenology and the particular mode of phenomenological understanding offered by Goethe's unique approach to looking and seeing. Already, in 1971, Henri had written an article, "The Whole: Counterfeit and Authentic," that expressed the kernel of all his work that would later follow. Significantly, that article was originally a talk that Henri delivered on April 21, 1971, for a conference, 'Developing the Whole Man', which launched the fall 1971 first-course start of Bennett's Sherborne School that I would attend on the second course in fall 1972 . In the introduction to that article, Henri wrote:

"If the theme of 'Developing the Whole Man' is to have significance for us, it must have a distinct and unique meaning. Whatever this is, it must be integral. Which means that the meaning of 'developing' which is particular to this phrase is mutually dependent upon the meaning of 'whole man' within which the meaning of 'man' is dependent on the meaning of 'whole', and the converse. We shall go through the question, "what is the whole?" as it means to sounding out the meaning of Developing the Whole Man. We begin with situations where the whole is inescapable, and which thus can provide paradigms for the whole. We consider: The optical hologram, the gravitational universe, and the hermeneutic circle" (Bortoft, 1971).

Developing ideas

After returning to the United States in 1973, I continued my graduate studies and, in 1977, completed my doctoral dissertation that drew partly on Henri's ideas as they were in turn indebted to Goethe's way of phenomenological science (Seamon, 1979). In 1983, I envisioned, with philosopher Robert Mugerauer, an edited collection that would explore the value of hermeneutics and phenomenology for topics in environmental and architectural studies. Because Goethe's

way of science offered unique possibilities for a *lived* environmental ethics, I invited Henri to rework his 1971 article as a chapter in the proposed collection that Bob and I eventually published as *Dwelling, Place and Environment: Toward a Phenomenology of Person and World* (Seamon, 1985). Henri's revision, entitled "Counterfeit and Authentic Wholes: Finding Means for Dwelling in Nature," included his first extended discussion of Goethean science. In that chapter, he concluded by advocating a more receptive, empathetic way of encountering the natural world.

Authentic whole

It is widely acknowledged today that, through the growth of the science of matter, the Western mind has become more and more removed from contact with nature. Contemporary problems, many arising from modern scientific method, confront people with the fact that they have become divorced from a realistic appreciation of their place in the larger world. At the same time, there is a growing demand for a renewal of contact with nature. It is not enough to dwell in nature sentimentally and aesthetically, grafting such awareness to a scientific infrastructure which largely denies nature. The need is a new science of nature, different from the science of matter and based on other human faculties besides the analytic mind. A basis for this science is the discovery of authentic wholeness (Bortoft, 1985, 299-300).

In the later 1980s and early 1990s, Henri would write a series of essays on the nature of authentic wholeness (Bortoft, 1986). These essays would eventually become the chapters of his extraordinarily creative *The Wholeness of Nature*, (Bortoft, 1996). To me, this book is one of the great, unheralded works of our time—perhaps arriving too soon for many people to understand. But I believe firmly that this work is a harbinger of a new way of engaging the world that will grow in intensity and significance as the 21st century unfolds. As we typically are, we don't fully make contact with the world or with the things, places, and living beings in it. Henri taught a way of seeing that

graciously meets with the 'Other'. In allowing the Other to become more and more present and dimensioned, this method of knowing not only deepens our sensibilities but facilitates an emotional bond of wonderment and concern. We see more and through that understanding, may better care for our world.

One of Henri's most cogent portraits of this mode of seeing and learning is the 1971 article mentioned above and published in Bennett's quarterly journal, *Systematics*. There, Henri wrote:

"We cannot know the whole in the way in which we know things because we cannot recognize the whole as a thing. If the whole were available to be recognized in the same way as we recognize the things which surround us, then the whole would be counted among these things as one of them. So we could point and say 'here is this' and 'there is that' and 'that's the whole over there'.

If we could do this we would know the whole in the same way that we know its parts, for the whole itself would simply be numbered among its parts, so that the whole would be outside of its parts in just the same way that each part is outside all the other parts.

But the whole comes into presence within its parts, so we cannot encounter the whole in the same way as we encounter the parts. Thus we cannot know the whole in the way that we know things and recognize ourselves knowing things. So we should not think of the whole as if it were a thing[...], for in so doing we effectively deny the whole inasmuch as we are making as if to externalize that which can presence only within the things which are external with respect to our awareness of them" (Bortoft, 1971, p.56).

Relationship to J.G. Bennett

In ending this commentary, I want to mention Henri's relationship with the ideas and work of J. G. Bennett, who profoundly shaped my life because of the Sherborne experience. Though Henri said little publicly about how Bennett influenced his thinking, one should recognize that the impact was significant. As I mentioned

earlier, Henri worked with Bennett in the early 1960s to develop new modes of educational practice that would facilitate experience-grounded synthesis rather than cerebrally-contrived analysis. Drawing both from Western secular philosophy and science as well as Eastern and Western sacred traditions, Bennett explored the interpretive power of number as a conceptual means to describe the multivalent wholeness of a particular phenomenon. He called this approach *systematics* and demonstrated how each integer—1, 2, 3, and so forth, up to 12—could be drawn upon to explore different aspects of the phenomenon. Thus, “one” revealed aspects of wholeness, just as two revealed aspects of contrast and complementarity; three, relationship and process; four, activity; five, potential; six, event; and so forth (See Bennet, 1993 and 1995-6).

From Bennett’s perspective of systematics, Henri’s work is significant because he gave much of his intellectual attention to the nature of oneness—in other words, the whole and wholeness or, as Bennett called it, the *monad* (see Bennet, 1993 ch. 1). A good portion of Henri’s teaching and writings highlight the manner and means of encounter with the phenomenon—locating the thing, meaning, or the idea *as a whole* by engaging with that thing, meaning, or idea in a gracious, generous, comprehensive way. In this sense, Henri is an important figure in systematics research. He continuously sought to locate and intensify the first moments of engagement with the thing whereby the whole could be seen *as whole* through a progressively intensive encounter with the parts through which the whole could break through via an increasingly comprehensive clarity. To encapsulate this manner of seeing and understanding, Henri often repeated Goethe’s dictum that, “One instance is often worth a thousand, bearing all within itself.”

Conclusion

For those who wish to commit themselves to Henri’s way of seeing and understanding, they must soberly recognize that the effort is not

easy or certain. The style of encounter and understanding that Henri so perspicaciously delineates requires dedication, persistence, hope, and a deep wish to see, no matter where that wish takes one. I last talked with Henri in Oxford in the summer of 2011 when he had just finished a presentation for the annual International Human Research Science conference. Gordon Miller, the historian and photographer who had just completed a new illustrated version of Goethe’s *Metamorphosis of Plants*, had organized a conference session on Goethean science and Henri was one of the speakers. After his presentation, Henri and I talked only briefly because he was not feeling well and wanted to return home. What he did mention was his frustration with “followers” of his work—that too many took the Goethean approach too easily and fell too readily into cerebral, fantastical imaginings of phenomena rather than demanding of themselves a prolonged, engaged encounter with the phenomenon itself. In his writings, he called this hurdle to understanding the “hazard of emergence.” He wrote:

“A part is only a part according to the emergence of the whole that it serves; otherwise it is mere noise. At the same time, the whole does not dominate, for the whole cannot emerge without the parts. The hazard of emergence is such that the whole depends on the parts to be able to come forth, and the parts depend on the coming forth of the whole to be significant instead of superficial. The recognition of a part is possible only through the ‘coming to presence’ of the whole.” (Bortoft, 1985, p.287)

As his emphasis on hazard suggests, Henri’s Goethean phenomenology offers no guarantees. There are no shortcuts to seeing. One can readily read too much or too little into the phenomenon. One can sometimes go off track entirely. In this sense, Henri’s vision and method are a life-long endeavour not easy to learn or to master. This approach to seeing and understanding requires steadfast devotion over a long period of time. If successful, however, this way of discovery stirs tremendous personal satisfaction and helpful

insights that might inspire others. Perhaps most significantly for the future of humankind, Henri's work points toward a workable way whereby we might re-invigorate a sense of reverence and love for our world and Earth.

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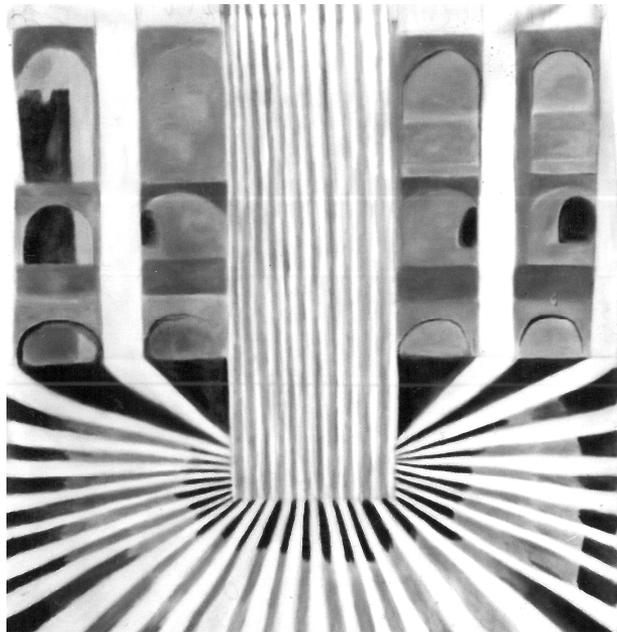
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Ancient Observatory, Delhi – Original Painting by Patrick Henry

PHILOSOPHY AS LIVED

More than a decade ago, while an Associate Chair in Philosophy at the University of Toronto, I encountered in the elevator a colleague who had just returned from teaching his first class in our introductory, first-year course. He proudly declared that he had managed to, “chase away a good third of the class.” He explained that he only wanted to retain students determined to be philosophy specialists.

My jaw dropped as he left the elevator. In my Associate-Chair capacity of what was then the largest philosophy department in North America, I still hoped our professional aim was to attract and *retain* students in our programs. But, beyond those administrative musings, I was appalled that my colleague envisioned philosophy as a discipline only for “specialists.” My view is that philosophical questions are important to everyone, whether or not one chooses dedication to academic study. In fact, to be human is to naturally reflect upon philosophical questions.

This colleague retired shortly thereafter but many philosophers still think as he did, and many journals—even those focusing on interdisciplinary environmental ethics—provide opportunities for philosophers to debate exclusively among themselves. Few academics possess the talent to communicate beyond the discipline in a way that preserves the academic integrity of ideas while making them accessible to a broader audience.

Henri Bortoft was the very opposite of my philosophy colleague. He was the quintessential teacher, able to straddle physics, philosophy and the study of the environment. Brilliantly adept at taking complex philosophical ideas about hermeneutics and holism and translating them, without loss, to non-philosophers, he was able to make these ideas legible and exciting. This talent is especially important in the environmental field,

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where issues such as pollution, climate change, declining biodiversity, ecological health risks and loss of sense of place are increasingly prevalent and where academics have a responsibility to contribute, beyond the comfort of their discipline, to solutions to these problems.

My first encounter with Bortoft’s writings was his 1985 article, *Counterfeit and Authentic Wholes: Finding a Means for Dwelling in Nature* (Bortoft, 1985). To my mind, this article remains one of the best introductions to hermeneutics, phenomenology and holism. Within philosophical circles, there have been important critiques of holism. For instance, in *The Case for Animal Rights*, ethicist Tom Regan claims that environmental holism is necessarily “eco-fascism” because individuals, such as animals, are sacrificed to an omnipotent whole, such as an ecosystem. Bortoft, however, demonstrates that authentic holistic thinking has nothing to do with creating a dominant “super-part” to rule over individual components sacrificed for the good of the whole. On the contrary, by brilliantly contrasting the image of a hologram with an ordinary photographic plate, he shows how the “whole” is properly reflected in the “parts.” He writes:

“If the hologram plate is broken into fragments and one fragment is illuminated, it is found that the same three-dimensional optical reconstruction of the original object is produced. There is nothing missing: the only difference is that the reconstruction is less well defined.... The entire picture is wholly present in each part of the plate, so that it would not be true in this case to say that the whole is made up of parts... On the contrary, because the whole is in some way reflected in the parts, it is to be encountered by going further into the parts instead of by standing back from them.” (Bortoft, 1985: p. 282-284)

What a lucid example to show how holistic thinking is more than merely additive! Bortoft

suggests a different kind of understanding that preserves the interaction and relation between whole and parts. He then makes links to hermeneutics and to the act of grasping meaning in a text. He speaks of a fundamental distinction between the whole and the totality. When we read a text, for example,

“We do not have to store up what is read until it is all collected together, whereupon we suddenly see the meaning all at once, in an instant... We reach the meaning of the sentence through reading the words, yet the meaning of the words in that sentence is determined by the meaning of the sentence as a whole.... We can say that meaning is hologrammatical “. (Bortoft, 1985: p.284-285)

Why do these ideas matter to the study of environment? They are important, first, because we realize how describing holistic phenomena, such as a sense of place, means more than only describing its component parts or even compiling an inventory of these component parts. To think holistically is to think in an essentially non-reductionist, non-calculative manner. It is to move beyond the study of delimited *things*, uncovering the ontological condition of the possibility of the meaning that is revealed in the relation *between* things, in the essence of the individual things themselves, and in the taken-for-granted context and interpretive horizon within which things appear in the first place. The challenges of such holistic thinking are huge: If Bortoft is right (as I think that he is), then thinking holistically about problems of urban planning or global climate change means developing new research approaches and study methods. This new way of thinking means that, in addition to complex engineering or Newtonian scientific models, we need to draw on a wider range of sources. Besides climate change science, for instance, we need to reflect on climate ethics and critically evaluate value systems sustaining particular calculative worldviews.

From Bortoft’s perspective, we need to rethink the way we do science in the first place. In this connection, he turned to Goethe’s method of “delicate empiricism” for guidance. In *The*

Wholeness of Nature, Bortoft explains how we must move beyond the “organizing idea” of “naïve empiricism” or “factism” which assumes that facts are “independent of an ideational element” (Bortoft,1996,p.144). Drawing from Goethe’s “whole way of seeing” the unity of the phenomenon, he introduces a new way of scientific thinking to supplement mainstream science—an approach that points toward a “radical change in our awareness of the relationship between nature and ourselves” (Bortoft, 1996, p.144).

The Wholeness of Nature is a powerful book that speaks for itself, and I invite readers to read this important work that can dramatically shift one’s understanding of understanding. Also significant is his recently published *Taking Appearance Seriously: The Dynamic Way of Seeing in Goethe and European Thought*, which continues to reflect upon phenomenology, hermeneutics, and a new vision of science. Here we read how, “phenomenology seems to take the ground away from under our feet, whilst at the same time, gives us the sense of being where we have always been—only now recognizing it as if for the first time”. (Bortoft, 2012, p.17) Interestingly, this description of phenomenology actually captures the essence of Bortoft’s own reflections, which make us aware, as if for the first time, of so much of what we take for granted about our relation to the natural world.

Henri Bortoft has left a significant legacy that enriches the phenomenological literature and reflects a profound and unique understanding of the meaning of holism. He is a thinker whose writings will continue to have impact for a long time to come. His was a life well lived and his accomplishments deserve to be preserved and celebrated.

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When we first met at a Goethean gathering some years ago, Henri Bortoft told me, in his quiet chuckling way, of the time when he was being interviewed for a teaching post at Tonbridge School, and they asked him something challenging like, 'What would you most look forward to if you came to teach here?' Henri's reply, it seems, was along the lines of, 'I really look forward to exploring new ideas in science with the boys.' To which came the observation, 'We don't think you'll find much time for that here, Mr Bortoft.'

To be fair, it seems Henri did find support from his first headmaster for some of his extra-curricular activities, and also opportunities for sharing his enthusiasms with pupils, mainly in the context of one of those (lameily termed) General Studies courses where teachers have free rein beyond the constraints of A-level exam preparation.

Not surprisingly, though, we know from his own comments in *The Wholeness of Nature* that Henri found much to criticise in science education as he was obliged to teach it.

If we are to have people who are educated to understand what science is, it surely makes more sense to introduce them to science as a cultural-historical enterprise than it does to subject them to the present approach of facts, experiments, and calculations torn out of their real context. On its own the current approach to science education gives a distorted image of science which results in a pseudo-understanding ... Without the historical perspective, science is too easily reduced to scientism, and knowledge ceases to be such and becomes an idol. (Bortoft, 1996: p.399, note 280)

The story above is typical of Henri's low key but delightful sense of humour. And we can easily imagine how fascinating a sixth form science course based on Henri's 'new approach' would have been, as so many of us

have been privileged to learn from him during courses or seminars. In a brief tribute to him, I wrote recently, *'I was bowled over by the lucidity and enthusiasm of his teaching. As we know, these two qualities do not always go together.'*

But when they do, they can change the way that you 'understand' things for the rest of your life. We remember this from those of our own childhood teachers whom we literally cherished, those who opened doors and windows for us - in my case, Mr Norton with his history of the nineteenth century, forever a land of vivid political storytelling for me; Mr Browncroft without whose clarity of exposition I would never have got the obligatory O-level in Maths to get into university; Mr Crawford and my first glimpses into the songlike poetry of Yeats. Each of us has a roll call of such memorable educators with whom we can echo the statement: 'Understanding is an event.' This is my strong recollection of sitting through a Bortoft lecture: you felt as you listened that a new panorama of understanding was opening up and being transferred to your own awareness. As long as Henri spoke, you could see and participate in what he was describing. When he fell silent at the end, the challenge arose of taking those insights away and making them truly one's own, and that in turn means embracing a process of profound change. In his last work, *Taking Appearance Seriously*, the keynote quote from Bergson sums it up: 'Philosopher consiste à invertir la direction habituelle du travail de la pensée.' This is indeed the call, to reverse one's habits, to venture beyond 'the logic of solid bodies' (Bergson again) and to begin to experience and see differently. Henri himself states in the Preface: *'this book is more "practical" than it looks. I have tried to write it in such a way that anyone who reads it slowly enough to follow the movement of thinking in the language, should find they begin to experience the*

dynamic way of seeing for themselves.'
(Bortoft, 2012)

That aim in itself would make the book rather special. What is even more special is that it succeeds in its purpose. As Philip Franses observes in his review: 'Bortoft provides us with a guide into a totally changed landscape of perception ...' (Franses, 2013)

We know that this change of perception doesn't happen overnight, that such an engagement involves reading and re-reading, along with practice and conscious effort, all the more so for having to overcome the entrenched nature of our customary thought. For we cling to the security of what we take to be known - reinforced and apparently given confirmation by cultural sharing. Our tendency through habit, custom, received ideas, and wanting to 'belong', is to let our views, attitudes, responses, endure in petrified forms, in increasingly deep attractor basins, out of which, left to themselves, they might never climb. 'Without chaos,' as Sally Goerner expresses it neatly in *The Web World*, 'one might lie endlessly in the basin of some thought, unable to leap to something new.' In an article on 'The Transformative Potential of Paradox', Henri talks of this task of confronting the polar and static nature of our thinking, and of how in the 1960's J G Bennett introduced him to 'the attempt to hold opposites together at the same time' (Bortoft, 2010). Instead of seeing things as defined, separate objects, we can work to apprehend their 'multiplicity in unity' in an intensive rather than extensive kind of perception. He describes how later in the 1970's, when engaged often in the practice of switching from one kind of perception to the other – which following Gadamer he calls 'philosophical work' – *'I used to feel as if my head had been taken off and another one put in its place, and sometimes this would happen spontaneously while walking down the street, doing the washing up, or whatever.'*

'What do you think about when you're peeling potatoes,' a friend of mine remembers asking a favourite aunt when he was a boy, watching her about her tasks. 'I think about the

potatiness of potatoes,' was the unexpected reply. At that moment, a door or window opened for my friend, on to a landscape of 'potatiness'. You could wander in that landscape (active) and simultaneously allow it to inform you (passive). This is where true imagination, in the sense of Goethe or Coleridge, comes into play. This landscape is not a Walt Disney fantasy in which potatoes talk, wear trousers or ride motorcycles. No, here potatoes 'do' and 'be' potato. My friend did not need to have read Gadamer to grasp the idea. The imaginative mind of the child 'got' it instantly. As Henri writes: 'Imagination is the kind of seeing which is also a kind of understanding (a kind of thinking). For imagination, seeing and understanding are one.' (Bortoft, 1996, p.304)

We find an instance here where, in the awareness of the child, the language became reality. '...Reality happens precisely within language,' in Gadamer's terms (see Bortoft, 1996, p.405, note 307). And this allows us to see, too, how successful Henri was in opening up new ways of seeing through a carefully constructed and lucid style of exposition. He stuck closely to his chosen philosophical discourse because he wished, especially in his last book, to walk with the reader along the path and go through the process together. The fifty pages of endnotes were the warp to the weft of the text itself, equally important in their own way but, as he said, 'not to get in the way'. This aim of avoiding distractions in the text itself made him shun a lot of modernisms, fashionable references to oriental thinking and even some quite major and familiar terms. I asked him on one occasion as we went through the chapter on language, why he didn't ever refer to the Logos. 'It comes too burdened with associations,' he replied.

As it happens, my friend's potato-peeling aunt was a lifelong teacher, and I think her gifted way of addressing the child reveals this. Like the best Steiner/Waldorf teachers, Henri also had this gift of illuminating within language. You never felt, listening to him, or reading him, that he was asking you to understand something beyond your capacity. Great teachers have this quality. It is as if they want

to share with you their own moment of illumination. As an instance of this greatness, I invite you to read again and again pages 17–18 of *Taking Appearance Seriously* where he gives the account of how he first ‘grasped’ the upstream/downstream concept which becomes so important an image in his exposition. In using the image so powerfully and poetically, he is of course, only following his own advice from *The Wholeness of Nature*, where he again castigates the educational approach of our time:

“Typically, modern education is grounded in the intellectual faculty, whose analytical capacity alone is developed, mostly through verbal reasoning. One notes, for example, that science students are often not interested in observing phenomena of nature; if asked to do so, they become easily bored. Their observations often bear little resemblance to the phenomenon itself. These students are much happier with textbook descriptions and explanations ... The experience of authentic wholeness is impossible in this mode of consciousness, and a complementary style of understanding could usefully be developed. This can be done, first by learning to work with mental images in a way emulating Goethe - i.e. forming images from sensory experiences”. (Bortoft, 1996: p.24)

As an editor, my first advice to authors is always: ‘Begin from what your reader knows, and then take them where you want to go.’ The examples above show that Henri knew superlatively well how to do this. So wearing my other hat, as an author myself, I am really obliged to follow my own advice, too. One of my self-imposed tasks as author has been to write a story, or series of stories, for young people in such a way that they could begin to question the idols and dogmas presented to them in our established modern culture, and to allow their last vestiges of childhood to grasp intuitively another way of seeing and thinking. Since my very first encounter with Henri, he has accompanied me in this task, though until last year he was largely unaware of it. More on that below. My notes and files for this work, and my well thumbed and pencil annotated copy of *The Wholeness of Nature*, are full of

‘Questions for Henri’. To keep it simple, all the questions came down to one: ‘How do you go about educating young people into holistic awareness?’ E-ducere here in the ‘leading out’ sense of the word.

Mostly, time and his own writings provided answers, but all of the scenarios had to allow for two realities. First, accepting the intuitive capacity of the young uninformed mind to seize new ideas without thinking. Second, as Henri points out above, overcoming the inability of the same mind trained only in verbal reasoning to see beyond ‘textbook descriptions and explanations’, in other words to experience the limits of reason.

My need to start from the familiar meant that the medium of the writing had to be story, and more specifically fantasy, a genre which is popular and readable for all age groups. I called the book *King Abba: A Philosophical Fantasy*, the subtitle created as a working label for my own convenience, then which, as time passed, I found to be a known and growing category of writing.

My heroes and heroines had to be teenage children, but with a Merlin father-figure, King Abba himself, to oversee and allow for events to become stages on hero journeys rather than just a series of misfortunes. And, while starting with my heroes and heroines living comfortably and securely in the world that they have known all their lives, supported by the twin pillars of Reason and Science, I had to allow for a total collapse of that world in order to oblige them to face up to radical change. At this point, the rational scientific certainties would cease to be certain, and the challenge would be to find other sustainable worlds in which to survive. Out of chaos, opportunity. Along the way with my characters, we would explore adventure, fairy tale, satire, philosophy, science fiction, and a certain sense of the ridiculous, reflecting the absurdity of the world that children are so often asked to accept without question.

So, with the book written at last, the next step was to seek out reader comments, above all from youngsters:

‘Eighty, no, ninety out of a hundred. I kept coming back to it because I’ve never read anything like it.’ (Tom, aged 12.)

'I really like the story ... I read it in one afternoon, couldn't put it down. Please write the other stories. I want to know what happens to the characters, especially Emerald.' (Alice, aged 14)

'Original and fascinating, written with evident delight in exploring ideas ... I found it a. absorbing, b. fascinating and c. beautifully written.' (Kate)

And then the final test, for me. What would Henri make of it? There was, after all, a good dose of Henri in the book. Last year, after we had finished the editorial work on *Taking Appearance Seriously*, I asked if he would like to read it, and then sent it to him. This was his generous reply in due course:

"I have read King Abba with much enjoyment. I think it is beautifully written, and therefore a joy to read, but also it kept me wanting to know what was going to happen next. I liked the way that ... it gradually begins to dawn on the reader just what a difference there is between the artificial environment which is ultimately a product of intellectual reason - but is mistaken for reality - and the genuine reality of the living world that we encounter through the life of the senses, and we cannot help but see this reflected in the way we are living/not living today. For this reason alone, apart from its sheer enjoyment value, I think it would be

very good if this work were to be published today. So when can I have the next volume please?"

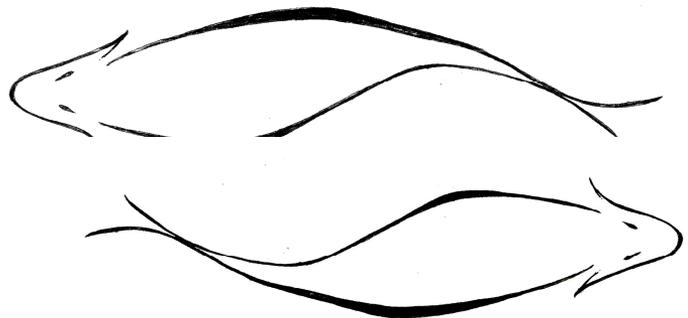
I was already working on the sequel and sent him the opening section. Sadly, his health was deteriorating fast at that time, and it was only a matter of weeks before he was brought down by his final illness. However, just before that, *King Abba* had been published as an e-book with the plan to create a print edition in 2013. I don't think even then he realised quite how much of an influence he had been on my own long journey.

There must be many similar individual stories of how the genius of Henri Bortoft touched and illuminated the way we see and do, the way we are. Working with Henri was both a privilege and, especially for me, an inspiration. Vale, magister.

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THE ARITHMETIC OF WHOLENESS

B. J. HILEY

Abstract

This paper is a tribute to Henri Bortoft, one of our former research students who went on to become an expert in the philosophy of Goethe and phenomenology. I will recount our struggle to come to terms with the notion of unbroken wholeness, a notion that David Bohm, along with Niels Bohr, saw as the essential new feature of quantum processes. Henri brought the unlikely combination of the philosophy of Goethe and the mathematics of Spencer-Brown into the discussion. Here I want to discuss how the Brownian Laws of Form lies at the base of a tower of Clifford algebras needed to describe the relativistic spinning electron.

1 Quantum Theory: the need for Unbroken Wholeness

I am very happy to be able to write this tribute to Henri. He was one of the first postgraduate students to join theoretical physics under the supervision of David Bohm when he was first appointed to the newly created Chair of Theoretical Physics at Birkbeck College. Bohm had written a book in his attempt to understand the orthodox interpretation of quantum mechanics (Bohm, 1951). Having completed the book, he felt dissatisfied because he felt something was missing; quantum mechanics provided no adequate notion of an independent actuality with which to describe the phenomena. By this he meant there was no way to discuss the actual movement or activity by which one physical state could pass over into another. All we seem to have is a physically challenging mathematical algorithm.

Bohr (Bohr, 1961) had correctly identified that a radically new notion of ‘wholeness’ was needed and it was no longer possible to subdivide quantum phenomena in such a way as to provide the type of description based on sharp, preassigned properties of individuals that had so successfully been used in classical physics. For Bohr this meant there was an essential ambiguity in the micro-world that forced us to rely solely on the mathematics. In other words it was no longer possible to find any unambiguous description of an individual process, a notion that he made into an inviolate principle, the Principle of Complementarity. There was no other way. All we had, fortunately, was Schrödinger’s mathematical algorithm which would allow us to calculate the statistical outcome of any given experimental situation. Such a description necessitated the inclusion of a specification of the measuring instrument which served to define the conditions under which the phenomenon appeared. In other words, no stand alone models and certainly no ‘pictures’ of individual processes were possible. All we had to do was to use the mathematical algorithm correctly.

When Henri joined the group, we were debating whether Bohr was right in insisting that it was not possible to introduce new concepts that would enable us to account for any specific actual underlying movement. Henri entered into this discussion with relish! Is there some other way of understanding an unfolding process while retaining a notion of unbroken wholeness? Bohm’s philosophical contribution came from continental philosophy via Schelling and Hegel, while Henri brought phenomenology into the discussions via Goethe. Henri went on to become one of the leading experts of Goethean Science and philosophy.

While I found these discussions fascinating, I have difficulty with the signs and the symbols of language, namely, words. Words for me are complex symbols steeped in ambiguity. I tend to follow Alice’s Humpty, “When I use a word it means just what I choose it to mean—neither more nor less”! Because of

this difficulty, I developed a preference for the mathematical symbol as I could choose it to mean exactly what I wanted it to mean! I think deep down, Henri shared this view as he tried to introduce an extremely novel form of mathematical symbolism, a symbolism first proposed by Spencer-Brown (Spencer Brown, 1969). At that stage the symbolism was perplexing, suggestive but puzzling. I later rediscovered this symbolism had been used by Lou Kauffman, whose work I find equally fascinating and very relevant. This mathematics has a beautiful and subtle structure and I would like to take this opportunity to say a few things about the way Henri saw unbroken wholeness within this mathematical structure.

Let me first set up the problem before discussing Henri's ideas. I start from the very familiar situation we are faced within quantum mechanics, namely, how to explain the classic two-slit interference pattern produced by single atoms or photons. Let us recall the phenomena. If we fire one atom at a time at a screen with a pair of slits cut in it, we find that after some time, what looks like a set of interference fringes appears on a screen placed behind the slits. This means that when both slits are open, there are points on the screen where no particles arrive. Now if one of the slits is covered, the fringes no longer appear, meaning that when only one slit is open, the previous points on the screen that were inaccessible, now become accessible. How can this be when the size of the atom is very small compared with distance between the slits? Here the assumption is, of course, that it can only go through one slit. How then does the atom 'know' whether the other slit is open or not? In other words, how does the 'one' perceive the 'two'?

Quantum mechanics also leaves us with a different but related question, namely, "How does the 'two' become the 'one'?" This arises not only when we talk about stable atomic and molecular structures, but also in trying to understand the puzzling behaviour of two 'entangled' particles. In the latter, the two appear to be 'locked' together as the 'one', even though they may be far apart and not linked by any known force. What Henri concentrated on in his M. Phil. thesis was the two-slit problem. His solution was brilliantly original, namely, in the case of interference, we must introduce a new mathematical structure where the 'two' cannot be 'one-plus-one'. In other words we can no longer use the usual laws of arithmetic when we are dealing with unbroken wholeness. So we need a new arithmetic! Does one exist?

2 The Algebra of Form

2.1 The Algebra

In his search, Henri discovered that Whitehead had already classified algebra into two types, numerical and non-numerical. Non-numerical? Yes, we no longer have "one-plus-one equals two". In the non-numeric arithmetic, we find that a and $a + a = a$ are equivalent. Is such a mathematics possible?

Whitehead made the following claim:-

' This definition [sic, of non-numerical arithmetic] leads to a simple and more rudimentary type of algebraic symbolism. No symbols representing number or quantity are required in it. The interpretation of such an algebra may be expected therefore to lead to an equally simple and fundamental science. It will be found that the only species of this genus which at present has been developed is the Algebra of Symbolic Logic, though there seems no reason why other algebras of this genus should not be developed to receive interpretations in fields of science where strict demonstrative reasoning without relation to number and quantity is required .' (Whitehead)

Sounds way out? Not really, since we already have an example, Boolean logic. Here we have two notions, true and false, or yes and no. We build an algebra of propositions, using symbols

$a, b, c, \dots, \bar{a}, \bar{b}, \bar{c}, \dots$ to distinguish each distinct proposition, true or false. Then we add a pair of relations to define the Boolean algebra. We can choose these to be

1. 'Conjunction' or 'and', symbolically written as $a \cdot b$
2. 'Exclusive or', symbolically written as $a \oplus b$.

To define the arithmetic of this algebra, we identify 'true' with 1 and 'false' with 0, giving us the integers that enable us to satisfy the rules of an arithmetic. In this case we obtain the rules of binary arithmetic, familiar to all computer geeks. Collecting together the results of multiplication and addition mod 2, we have:-

$0 \cdot 0 = 0$	$0 \oplus 0 = 0$
$1 \cdot 0 = 0$	$1 \oplus 0 = 1$
$0 \cdot 1 = 0$	$0 \oplus 1 = 1$
$1 \cdot 1 = 1$	$1 \oplus 1 = 0$

What Spencer-Brown did was to introduce a new symbolic notation that replaced 'not a ', usually written as \bar{a} , by a \ulcorner so that

\bar{a}	\bar{a}
$a \cdot b$	$a \cdot b$
$\bar{a} \cdot b$	$\bar{a} \cdot b$
$\bar{a} \cdot \bar{b}$	$\bar{a} \cdot \bar{b}$

But surely this is merely replacing one symbolism by another without seemingly gaining anything? Not necessarily. Let me recall what Dirac had to say about his bra-ket notation:

'In mathematical theories the question of notation, while not of primary importance, is yet worthy of careful consideration, since a good notation can be of great value in helping the development of a theory, by making it easy to write down those quantities or combinations of quantities that are important and difficult or impossible to write down those that are unimportant.' (Dirac)

How does our new notation add new insights? Remember we are starting with the notion of 'unbroken wholeness', how are we to talk about anything at all? To describe anything we surely must 'break it up'. The first thing we do is to look for a 'difference', we make a 'distinction', A is different from B . We start with a broad brush with which to make our initial set of primary distinctions. Within these primary distinctions we make finer distinctions and establish more relationships between these new differences. We then make yet more finer distinctions, establishing further relationships and so on. In this way we build a hierarchy of orders. (Bohm, 1965)

How do we start to describe this hierarchy symbolically in our case? To illustrate what we have in mind, consider a very simple example consisting of a plane piece of paper. Draw any closed curve on it to distinguish the 'inside' from the 'outside'. This curve is the boundary of the distinction. Spencer-Brown abbreviates this symbol to \ulcorner .

It names the inside. If we apply it again, we name the inside again, thus

$$\ulcorner \ulcorner = \ulcorner \quad \text{Marking or naming (1)}$$

Notice the 'mark' satisfies a relationship which tells us it is an idempotent. If you think of 'marking' as 'naming', then the idempotent is exactly what we need to describe some stable structure in a process philosophy of continuous change. Process always emphasises change, but there are special processes, processes that continually turn into themselves, $P \cdot P = P$. These establish the identity of the process.

This may sound a bit abstract, but think of a living animal. It is continuously taking in air and food and it is constantly expelling air and defecating, yet the living thing keeps its form. It is an idempotent, constantly turning into itself. (Well ‘almost’, but we will neglect the subtle processes that occur in ageing!)

We can also use \sqcap in another way, as an instruction to cross the boundary. Then crossing the boundary from the inside to the outside can be denoted by $1 \sqcap = 0$, while crossing from outside to inside will be denoted by $0 \sqcap = 1$. If we cross and cross again, we move from the inside to the outside and back inside again, so $1 \sqcap \sqcap = 1$. Alternatively starting on the outside and crossing the boundary twice will give $0 \sqcap \sqcap = 0$. Thus we have the crossing rule:

$$\sqcap = \quad \text{Crossing rule (2)}$$

N.B. The right hand side of this equation is intentionally blank. The two equations (1) and (2) are then the defining equations of the Brownian algebra.

2.2 The Form

We have been concentrating on the symbolism, but symbolism is sterile unless we bring out what we are trying to capture with it. Henri’s perception was that quantum ‘interference’ was about the ‘one in the two’ or in the case of a diffraction grating with it many slits, the ‘one in the many’.

We are using a key notion, that of ‘distinction’. With ‘distinction’ we have two extreme possibilities. The distinction could produce a set of ‘pieces’, like a jig-saw puzzle, each distinction can then be regarded as a distinct entity in its own right, independent of the context. This would just lead back to reductionism. It would lead to the destruction of the ‘interference’.

There is a second type of distinction, a type Henri had in mind, and that can be brought out by considering a vortex in a fluid. Although we see vortex as clearly distinct, it cannot be ‘cut out’ and removed like a piece of the jig-saw. The whole movement sustains it. Without this movement there is no vortex.

Perhaps a better metaphor, used by Henri to bring out this difference, is to compare a photograph with a hologram. If you cut the photograph up, all you get are the pieces. If you cut the hologram up, you still retain information about the whole, albeit with less sharply defined content. But this metaphor, as it stands, is too static and does not capture the dynamics, the active movement of change in the process. We want something like a hologram movie. Here the hologram is the movie, so you don’t even need the whole hologram to see the movie, a small part will do!

The idea then is that the region around the photon, say, is like a piece of a hologram. When the piece evolves in time, that is, as the process involving the photon unfolds in time, the ‘one’ will then include the two-slits, or the diffraction grating, so the ‘one is the many’. Thus we see Henri had a deep insight into quantum interference, but not in terms of the usual wave theory with all its problems involving the nonsense called ‘wave-particle duality’. However this is just a glimpse of a possible alternative way of trying to understand these puzzling quantum properties. Much more is needed, but we had to wait some time before the ‘more’ became apparent.

3 The Development of the Algebra of Forms

3.1 Relation to Standard Quantum Mechanics

I had always kept these ideas of Henri in the back of my mind. There was something fascinating there, but precisely what? Years later, a paper by Lou Kauffman's, *Sign and Space* [8] came to my attention. Suddenly I realised how we could take Henri's ideas further. Kauffman also starts with Spencer-Brown and the notion of distinction, but he develops the mathematics by adding some new structure. The resulting structure contains features that enables us to relate it to some aspects of the standard quantum formalism, indicating that this is not just some isolated piece of suggestive mathematics but may have direct relevance to actual quantum processes.

In standard quantum mechanics, the wave function can be regarded as 'naming' the state of the system. As such it is an operand which must be operated on. Similarly, as we have seen, in the Brownian algebra, the symbol $\overline{\quad}$ plays a 'naming' role but it also plays an active role, 'crossing'. It is an operand when it marks the boundary but also serves as an operator to signify 'crossing'. Can the wave function become an operator too, so that it can play a dual role? It turns out it can. It can be regarded as an element of what I will call the quantum operator algebra.

To single out this element we also need an idempotent, $\varepsilon \cdot \varepsilon = \varepsilon$, an element that, if you like, 'names the system'. Symbolically we write the replacement of the wave function in the form $\psi\varepsilon$, where ψ replaces a and ε replaces $\overline{\quad}$. Don't worry about the meaning of this symbol within the context of the quantum formalism, just note the mathematical similarity.

3.2 Kauffman's Contribution

Now I want to follow Kauffman and change notation again by replacing the symbol $\overline{\quad}$ by the symbol $[I,0]$. This symbol means the same, 'crossing from inside to outside'. But now we can introduce a dual symbol $\overline{[I,0]} = [0,I]$ means 'crossing from the outside to the inside'. Why not generalise, by writing $[A,B]$ to signify 'crossing from A to B '?

This is a basic change of symbolism, but how do we generalise this to handle terms like $ab \overline{\quad}$ or $cd \overline{\quad}$?

It turns out to be quite easy and extremely fruitful. Just define a multiplication

$$[A,C] * [B,D] = [AB,CD] \tag{3}$$

and we have turned the Brownian calculus into the 'itinerant' calculus of Kauffman (Kauffman, 1982). In fact the arithmetic structure we have just arrived at is well known under the phrase 'dual numbers'. Kauffman prefers to call them 'counter-complex numbers'. It is called 'counter-complex' because we can introduce a symbol ι that squares to one, not minus one.

To show how this works, introduce a symbol defined by $\iota = [1,-1]$ so that $\iota^2 = 1$. Then we can write a counter-complex number as

$$a + b\iota = a[1,1] + b[1,-1] = [a + b, a - b]$$

bringing out the importance of sums and differences in this structures.

Let us explore what we can do with our simple figure with its distinction between inside and outside. How can we play with this figure? We can destroy the inside while leaving the outside alone. We can do this symbolically by introducing an operator $p = [1,0]$, then $p * [A, B] = [A,0]$. Or we could destroy the outside leaving the inside alone by using the operator $q = [0,1]$

There is one more interesting thing we can do with our figure. We can turn it inside out! That is, put the inside outside and the outside inside! To do this we have to introduce a new operator that Kauffman calls a 'shift' operator (or a delay operator if we are thinking about a changing process (Kauffman,1998))

$$D * [A, B] = [B, A]$$

Now let us consider the algebra generated by the elements $\{1 = [1,1]; i = [1,-1]; iD\}$. We find we have generated the simplest possible Clifford algebra over the real numbers, denoted by the symbol $C(2,0)$. Notice we have arrived at this algebra simply by making a distinction between inside and outside and then 'doing things' with it. No sophisticated mathematical jargon, just defining symbols and explaining how to combine them to describe how we can play with a closed curve on a piece of paper!

Of course, recognising it as the structure lying at the base of a tower of Clifford algebras requires a considerable mathematical knowledge and we must also realise that this tower is required to describe non-relativistic spin, relativistic Dirac spin and even the Penrose twistor (Hiley, 2011). Note that we start this structure simply by changing the relations between the inside and the outside. But this all seems a little too crazy!

3.3 Annihilation and Creation

Bear with me a little longer as I go a bit deeper into the structure of a Clifford algebra. We can build a Clifford algebra from a pair of dual Grassmann algebras whose generators satisfy the relationship

$$[a_i, a_j^\dagger]_+ = g_{ij} \quad [a_i, a_j]_+ = 0 = [a_i^\dagger, a_j^\dagger]_+ \quad (4)$$

with

$$[a_i, a_j^\dagger]_+ = a_i a_j^\dagger + a_j^\dagger a_i$$

For the physicist, these relations will be recognised as *vector* fermionic 'annihilation' and 'creation' operators. But what are we 'annihilating' and 'creating' in this structure?

To see this, let us introduce two new operations

$$D = a + a^\dagger \quad \text{and} \quad iD = a - a^\dagger \quad (5)$$

If we operate D and iD on $[A, B]$ it is straightforward to show

$$a * [A, B] = [B, 0] \quad \text{and} \quad a^\dagger * [A, B] = [0, A] \quad (6)$$

Thus we see that here the 'annihilation' operator a destroys the inside and puts the outside inside. On the other hand the 'creation' operator a^\dagger destroys the outside and puts the inside outside! So they are not the simple operators creating and annihilating elementary particles.

We can actually carry our exploration further and ask what action does the ‘algebraic wave functions’ [AWF] if treated as an operator produce on $[A, B]$? There is one additional fact that we need to know before we can explore this idea, namely, there are actually two AWFs, $\psi_1\varepsilon$ and $\psi_2\varepsilon$ given by

$$\psi_1 = aa^\dagger + a^\dagger \quad \text{and} \quad \psi_2 = a^\dagger a + a. \quad (7)$$

Lets’s see what happens when we use these expressions to act on $[A, B]$. Straight forward use of the rules gives

$$\psi_1 * [A, B] = (aa^\dagger + a^\dagger) * [A, B] = [A, A] \quad (8)$$

$$\psi_2 * [A, B] = (a^\dagger a + a) * [A, B] = [B, B] \quad (9)$$

Notice the AWFs are conjugate to each other, just like ψ and ψ^\dagger in the conventional approach. Equation (8) shows us that ψ_1 , destroys the outside and puts a copy of the inside outside. Equation (9) tells us that ψ_2 , destroys the inside and puts a copy of the outside inside! In other words these operators remove the original distinction, but in different ways.

Let us take this discussion one small step further. Consider the following result

$$a * [A, 0] = [0, 0] \quad (10)$$

This should be compared with the physicist’s definition of a vacuum state,

$$a | 0 \rangle = a \Downarrow = 0 \quad (11)$$

where we have introduced the notation used by Finkelstein. Thus equation (11) shows that $[A, 0]$, the ‘inside’, acts like the vacuum state in standard quantum mechanics. Furthermore $a^\dagger * [0, B] = [0, 0]$ should be compared with $a^\dagger \Uparrow = 0$. Finkelstein calls, \Uparrow , the plenum. Thus we see that $[0, B]$, the ‘outside’, acts like the plenum.

We can notice two things from this. Firstly what the standard approach calls a ‘vacuum’ is not empty! In one sense the term ‘vacuum’ is a misnomer in the standard approach since quantum field theory introduces sets of ‘inequivalent’ vacuum states. However there is no physical explanation what these mean. In the approach discussed here, the term ‘vacuum’ state takes on a whole new meaning.

Secondly we see that the algebraic wave function takes on the role of an operator, something quantum field theory assumes in a formal sense. However the role here is clear, it removes distinction.

4 Conclusion

What I have tried to do in this tribute to Henri Bortoft is to show how a deep perception concerning the ‘one and the many’ may help us to understand quantum phenomena in a different way. In a way that is based on structural order. Not the order of static structures, but a flowing order. Of course a simple model of the type that I have discussed here cannot replace the standard quantum formalism yet, but it opens up new ways of looking at the phenomena.

What is striking in this approach is how organic it is. Here, at the fundamental level, the individual takes its form from an active environment. At this level there is no fundamental difference between physics and biology, no fundamental difference between ‘inert matter’ and ‘living matter’. Inert matter is a rather boring special case of the organisation of active process, where the stability is so strong that there is no change of form, merely changes of position. It is all a question of order, of the creation of orders, the stabilisation of orders and finally the decay of orders.

What it also shows is that we ourselves with our proxy instruments actively participate in the universe. We are inside looking out, not outside looking in. There is order in the process and we are also ordering the process. The deep question of whether this order provides an ontology, particularly for quantum processes, or whether it is a phenomenal order, is a debate that must continue. Thanks Henri for your many challenging discussions. We will miss you.

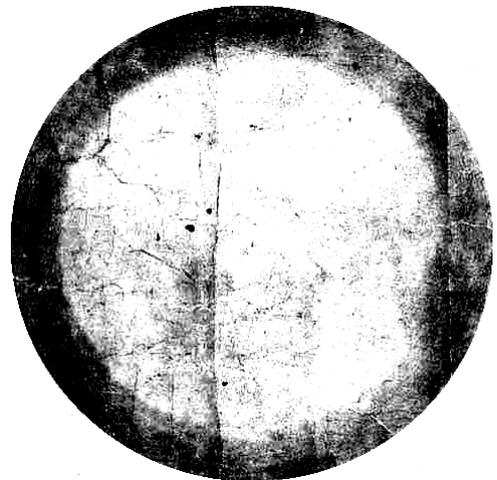
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'Vanishing'. Muromachi period (1337-1573) Japan. Handscroll, ink and light colours on paper

THE ACT OF DISTINCTION

HENRI BORTOFT



Editor's Note: *To appreciate the great depth in 'Taking Appearance Seriously' (Floris Books) the following commentary of Henri in his own words arises spontaneously as he reads pages 21 paragraph 3 – page 27 end of chapter 1. The idea of this commentary is to point more firmly to the depth of the book in which Henri felt his ideas had found their ultimate form of expression. The commentary is not taken to represent anything final outside the content of the book itself. Transcribed and edited by Philip Franses with due permission.*

I first got into recognising the importance of distinction through working on description in the 1960's. So this goes right back to 1964, 1965 when we were working on a way of trying to describe experience in a direct way, without introducing certain notions of time. So you could describe how experience appears if you could just do it in the present moment – as a philosophical exercise. Description was for me a practical activity (and very difficult). You think when you describe something that you look at what's there and you put it into words. When you get to this level I am talking about, it really isn't like that at all, because it isn't there. Actually you find it's not there until I describe it. Describing it, distinguishes it and it appears. In 1963, 1964, 1965 we worked on description and we saw there is a great deal hidden in description. People say, "that's merely a description, what we want is an explanation." The mystery was the description. That was the remarkable thing. Once you've got a description you can invent explanations ten a penny.

No one should feel that they can't do this. Everyone should have the confidence that they too can do this. Even something that you are not accustomed to, or if you are more tempted to entertain the idea, "I am not that sort of person, I can't do that sort of thing, others do that sort of thing, I'm not interested in that kind of thing I want to go and dig the earth or something." Whoever you are, whatever your background, everyone should feel that they can do this kind of thing. What inhibits us, makes us feel we can't, is the set of

assumptions we bring, presuppositions we bring from elsewhere as to what kind of activity this is. And it turns out to be not that kind of activity at all. So we should all be confident we can do it: including me!

I can think of these things directly because that is what you do in philosophical work. In English you say you think about something. This is not what you do. You think it, you don't think about it. You think distinction, not think about distinction. And by doing this, you can develop all of this. This is the basis of German idealism, Hegel and others. This is what you do: you think it. And particularly for the Anglo Saxon mind and I am English – you try to find concrete cases which serve as practical instances from which you can learn and then you work more imaginatively. So it is very useful for us to do this. You have to find examples of things. So when you spot one it is really a marvellous opportunity. This crops up in Oliver Sacks in an essay 'Witty Ticky Ray' from 'The Man who Mistook his Wife for a Hat' and I thought "O yes!"

"In 1884-5 Gilles de la Tourette, a pupil of Charcot, described the astonishing syndrome which now bears his name. 'Tourette's syndrome', as it was immediately dubbed, is characterised by an excess of nervous energy, and a great production and extravagance of strange motions and notions: tics, jerks, mannerisms, grimaces, noises, curses, involuntary imitations and compulsions of all sorts, with an odd elfin humour and a tendency to antic and outlandish kinds of play.

It was clear to Tourette, and his peers, that this syndrome was a sort of possession by primitive impulses and urges: but also that it was a possession with an organic base – a very definite (if undiscovered) neurological disorder. There was always, as Luria remarked of his ‘mnemonist’, a fight between an ‘It’ and an ‘I’.

Charcot and his pupils, who included Freud and Babinski as well as Tourette, were among the last of their profession with a combined vision of body and soul, ‘It’ and ‘I’, neurology and psychiatry. By the turn of the century, a split had occurred, into a soulless neurology and a bodiless psychology, and with this any understanding of Tourette’s disappeared. In fact, Tourette’s syndrome itself seemed to have disappeared, and was scarcely at all reported in the first half of this century. Some physicians, indeed, regarded it as ‘mythical’, a product of Tourette’s colourful imagination; most had never heard of it. It could not be accommodated in the conventional frameworks of medicine, and therefore it was forgotten and mysteriously ‘disappeared’.

In 1969, I started to speak of ‘Tourettism’, although I had never seen a patient with Tourette’s.

Early in 1971, the New York Times, which had taken an interest in the ‘awakening’ of my post-encephalitic patients, published an article on ‘Tics’. After the publication of this article, I received countless letters, the majority of which I passed on to my colleagues. But there was one patient I did consent to see – Ray.

The day after seeing Ray, it seemed to me that I noticed three Touretters in the street in downtown New York. I was confounded, for Tourette’s syndrome was said to be excessively rare. It had an incidence, I had read, of one in a million, yet I had apparently seen three examples in an hour. I was thrown into a turmoil of bewilderment and wonder: was it possible that I had been overlooking this all the time, either not seeing such patients or vaguely dismissing them as ‘nervous’, ‘cracked’, ‘twitchy’? Was it possible that everyone had been overlooking them? Was it possible that

Tourette’s was not a rarity, but rather common – a thousand times more common, say, than previously supposed? The next day, without specially looking, I saw another two in the street. At this point I conceived a whimsical fantasy or private joke: suppose (I said to myself) that Tourette’s is very common but fails to be recognised until it is recognised (and, thereafter, is easily and constantly seen).”
(Sacks, p.89)

Once it was recognised, you could see someone on a street corner and recognise it. You can’t say it was always there. That’s the trouble. People think it was always there. It was only there’d when it was distinguished. It is only there in appearing. It doesn’t mean it came out of nothing. This disease hadn’t existed before. Of course it existed. But it hadn’t appeared. And therefore it wasn’t there.

All these things turn out to be instances of appearing. This brings us to what phenomenology is really about. This is the fundamental phenomenological step from what appears to the appearing of what appears. It is important to recognise that it is the appearing of what appears, you haven’t separated the appearing from what appears.

We shift the focus of attention within experience from the outcome into the happening which results in the outcome. This statement, the next one, is in Husserl’s lecture *The Idea of Phenomenology* in 1907. Husserl wrote in a way in which you would expect today no one could understand anything. In his own day, because he was working in a context, the people of that day could understand him. And indeed it an extraordinary thing in his own day that people came from all over Europe to listen to his lectures.

People picked up the fact that he was doing something extraordinary. Now if you turn to his writings you would get such a shock. Because you wouldn’t see anything extraordinary about them at all, you wouldn’t understand them – I don’t. But they really affect people, he really had a lot of followers.

They realised this was a way of seeing and you can go in many different directions. It fired people up. It was a real revolution in philosophy, it's the unknown revolution of the twentieth century. His first work was *Logical Investigations*.

"The word phenomenon is ambivalent because of the essential correlation between appearance and the appearing. A phenomena is not only something which appears, but something which appears as *appearing*." (Husserl, 1907: p. 11)

He captures the whole thing. It appears as appearing. It doesn't just appear. There is the shock of appearing. A phenomenon is not only something which appears. It is something which appears as appearing. And this doesn't get understood. When people talk of phenomenon they talk of something which appears, they don't talk of something which appears as appearing. So what phenomenology is about doesn't get understood.

This is the phenomenon - the appearance of what appears. The word appearance has a double meaning. It can mean the look of it. But it also can mean the appearing of it. You have to make the shift it's not merely its appearance. For phenomenology it is the appearing of what appears - that is the key thing.

The happening of appearing, the appearing of what appears, is a manifestation of the thing itself. It actually is there. It is not a representation of it. It is direct, because it is appearing. If it appears it must be the thing itself. That's an astonishing thing. Phenomenology takes you right away from the representational picture which says all we have is a representation of things, we can't have things themselves. No we can have things themselves. They appear directly. They may appear under some circumstance, they may not appear totally, completely, there may be more to come, but it is nevertheless the thing appearing, not something subjective. Subjective in the subjective sense, of locked up in our consciousness.

Consciousness has the connotation of a box with things in it. What happens in phenomenology is the term consciousness just drops out of use. We have gone beyond consciousness, to the appearing itself, so we no longer need it. That's extraordinary really. If you focus on the appearance you can't say that it is the thing itself. But if you experience it as appearing then it must be the thing itself. This is the great step forward of the twentieth century, it just hasn't been noticed. Which leads straight to a quite remarkable quote from Heidegger's *Introduction to Metaphysics*.

"Being means appearing. Appearing is not something subsequent that sometimes happens to being. Being presences as appearing." (Heidegger, p.107)

"Being means appearing." (Appearance is the thing itself.) "Appearing is not something subsequent that sometimes happens to being." (There is being, that might appear or might not. Being and appearing have been separated throughout the philosophical tradition. What we now understand when we move into the appearing, the appearance is being, the thing itself. It is not that there is being hanging around there and suddenly it appears.) "Being presences as appearing."

This does cause some difficulty. Because people say, 'Well the thing must have been there'. Well, the things are there of course. Things exist, but they haven't appeared. There is a depth in appearances and that depth is the appearing. The happening of appearance is the depth in appearance. If you start from the appearance then the depth in that is the appearing of the appearance. So there is a depth where being is now hyphenated to being, not an entity behind - a being which then appears. Be-ing is appearing. It is now verbal. This is the dynamic depth of the coming into being. In English the word being is both a noun and a verb. There is no two world ontology, but it is not reduced to a flat land, there is a depth. The depth is the appearing itself, which is dynamic. It is a miracle, the world is totally dynamic. It can't be understood in any other way. This is remarkable.

It does depend on us. Ian McGilchrist writes about this:

“There is a process of responsive evocation, the world ‘calling forth’ something in me, that in turn ‘calls forth’ something in the world.” (McGilchrist, p.230)

And I like to put it this way:

“There is a process of responsive communication, which is reciprocal. Something in the world calls forth something in me which in turn calls forth that in the world which called it forth in me. “

It appears. That is *appearing*.

Now it’s perfect. Now I’m happy. Now we can stop.

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River Marne, France – Original Painting by Patrick Henry

SOMETHING REALLY HAPPENED HERE



PHILIP FRANSES

Starting with a question

Holistic Science begins with a question. How do we arrive at a science of whole form?

Henri said that the twentieth century was the greatest revolution in philosophy, of phenomenology, which no one even knows about. In the same way the twentieth first century is offering to us to take part in a revolution of science that is also happening quietly without any fanfare.

In creating the space for this question to be understood - at Schumacher College, in the Holistic Science Journal and in the series of events Process and Pilgrimage - the reward is to see the convergence of ideas upon a whole new foundation to science and to living. The philosophy and mathematics of wholeness rebuild the nature of our understanding from basic principles.

The true philosopher

Henri was working directly from a philosophical instinct for what is true and then translating this into a language of everyday account that could fill out this intuition in a way people could understand. Thus he was working at a level of insight reserved for a different level of living philosophy (one could think of people as Nietzsche) where his understanding was direct and his work was to give an accessible meaning to what he received. The question was never about the truth of his insight which arrived without the intermediary of thought as it usually engages in metaphysical questions, but how to bring these insights across without sullyng them with his or any one else's interpretation on the way. My colleague Stephan Harding would say, "It is like having Wittgenstein in the room". The impression was that one was hearing how things were related directly and the only way to understand was to listen neutrally without imposing any interpretation, to let the lesson awaken

something real in oneself. This can be misunderstood even in Henri's book, where the words can be mistaken as an argument of a position. Rather he was one of those rare philosophers who are able to breathe at another level in which thought becomes the instrument of receiving truth in direct insight.

The point about genuine philosophy is that it is not trying to argue mankind or the world, from a fixed position. Rather the nature of thought is to tune in to the experiential position of our living in the world. Our response when listening deeply to such a philosopher is to know instinctively what he is saying, to recognise ourselves as directed through the insight. Thought is privy to the underpinning tapestry of existence, without thereby imposing any structure as mediating narrative. The feeling is of a movement, an emotion of becoming more oneself in the understanding, of turning towards something disclosing one's own journey. One is not able to catch this feeling definitively, but must instead give space for it to manifest itself as it will.

The struggle is that the philosopher is continually being asked to state clearly what they mean, to make it simple. But to make it simple is already to give an interpretation. Before it is difficult or simple, something is being brought out, asked of us, demanded of us in order to live. And this is not exactly stated, but is communicated in the recognition of a shared possibility. Henri discovered he could do philosophical work, getting into this direct insight of lived experience; and that he could offer his insights to whoever could tune in to the way of his saying.

In the world

The insight is that truth is always to be found in the in-between: in between *us and the world*; in between the stages of growth of the rose; in between the different ways we have found of expression. Anything we know, philosophically,

intellectually, exactly, is not the world at all. All the striving for exactness is to an ever greater degree to un-know the world. Instead the world tells itself in the dynamic of the everyday to each of us uniquely. The antenna of the world is in the in-between. And so we are all tuned to the wrong station when looking to the masts of exactness as if in this solidity the world is to be found. The fact that mankind is making for himself a pole of the absolute of understanding as a yardstick of progress is creating this ever widening in-between space, where thinkers like Henri are tuning in to some coherent dynamic resonating to many people's understanding of its movement.

Putting into practice

Goethean process is to let the stages of the process of the plant enter ones own livingness and thereby occasion the appearing of its whole nature. By understanding the movement between the various stages of growth, the living study is seen as the message of its in-between-ness.

In these examples by the student Rachel Solnick, (see figure below) the rose is drawn at various stages of its coming to life in cold January. Putting these examples of budding life into an animating story, Rachel describes the joy of suddenly feeling the whole impulse of unfurling life, as a movement sensed in its own dimension. The rose comes alive as itself. Rachel could then go on to imagine the movement through further stages.

Similarly in life, we become transfixed in the moments we have where life seems to animate us in our purpose. But looking for some fixed understanding in these moments, we miss that the real message is in the in-between. In-between us and other people, in-between the un-knowledge of our presumed place in the world, and the miracle of being, the dynamic is pointing us further. The message life has for us is in the phenomena.

Rachel Solnick writes "There are two lessons I found within my first practice of the Goethean method that for me mirror these two elements

in my life. Namely that my recognition of the Rose as a sentient being itself, and how this then reveals the intrinsic value of nature, reflects many of the drivers for my work; and the recognition that I am not in anyway distinct from the Rose reflects my deeper understanding of my wholeness with nature. When I feel myself touched, seen by the Rose I am humbled. I am stripped of my ego. To recognise oneself being seen, both allows me to understand another as equal, but simultaneously to understand that I am also seen by many more things than just this individual"

Mathematically we can take non-numerical formative logic as the basis of physics. Philosophically we can interpret this logical approach as an engagement with meaning. Taken together, the mathematics and the philosophy imply that in the suspension of logical analysis, a dimension of practical engagement arises that carries its own dynamic of meaning. This is the very journey addressed in Process and Pilgrimage. Inside us is our own meaning to give (and receive) form to the world we act in.

Process and Pilgrimage

Henri came to the inaugural meeting of Process and Pilgrimage at "Birkbeck College" (where he had studied with David Bohm) in 2009. At that gathering, Basil Hiley gave an in-depth mathematical talk about Process and mathematically proved the philosophical hunches of David Bohm on the implicate and explicate order.

At "The Window" in London also later in 2009, "Wholeness in Three Panels", Henri gave a talk on the "upstream" experience (see article *Upstream Thinking* below) and then held a discussion about the revolution in philosophy this implied.

In 2010 I mailed him about coming to Italy for the next session of Process and Pilgrimage, a seminar on Paradox. He mailed back that he was reluctant to come, but had put down a few thoughts which we might want to use at the

gathering. These thoughts “*The Transformative Potential of Paradox*” became the impetus for starting the Holistic Science Journal. The words and sentiment of the article needed a platform on which to appear that was outside all those other specialist disciplines representing one area of knowledge.

On the strength of his article, I then mailed Henri again about the developing idea for the seminar under the title, “*Seeing through Paradox, Believing through Difference*”. Henri was immediately excited by this title and agreed to come. In Bettona, Italy Henri gave two talks along the theme of chapters 1 and 3 of what became his book, *Taking Appearance Seriously*. We also launched the Holistic Science Journal there.

So we see how the question with which we started, how to arrive at a science of whole form, has progressed on two different paths: of

philosophy and phenomenology with Henri Bortoft; and mathematics and physics with Basil Hiley. Coming together in the articles of this issue of the Holistic Science Journal, these two approaches address a specific question of our time. Holistic Science is finally turning from an abstract debate into the foundation of a new way of seeing.

As Henri said on our departure from Bettona,

“*Something really happened here.*”

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Original drawing of Rose Unfolding – Rachel Solnick



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UPSTREAM THINKING

Bortoft's New Realm of Inquiry Into Different Possible Ways of our Being Human



JOHN SHOTTER

"This book is about a different way of thinking" (Bortoft, 2012, p.10).

"A change in the way of seeing means a change in what is seen" (Bortoft, 1996, p.143).

"What is said does not encapsulate its own meaning, as if it could be fully understood independently of the context within which it is said – where 'context' refers to everything that is meant 'with' the text (con-text) but which remains unspoken, What is said 'carries with it the unsaid', i.e., what is not said but is intended along with what is said" (Bortoft, 2012, p.162).

Downstream to Upstream Understandings

"Philosopher consiste à invertir la direction habituelle du travail de la pensée" (Bergson)



Henri Bortoft begins his book with an experience that was clearly of great importance to him – indeed, it seems to have been a major *guiding resource* in shaping his orientation toward the new kind of thinking needed in taking appearance seriously. He recounts taking a walk in the countryside in an effort to allay his anxiety before beginning a set of classes entailing a whole new way of teaching. Instead of talking to a class of students *about* hermeneutics and phenomenology, he faced the task of trying to give them at least, "a taste of this way of seeing for themselves" (Bortoft 2012, p.17). At a point in the walk, he stopped on a bridge over a flowing river. Looking downstream at the river flowing away from him, he inexplicably felt uneasy. Only when he turned in the other direction to look at the river

flowing towards him, did he feel better: "*I began to be drawn into the experience of looking, plunging with my eyes into the water flowing towards me. When I closed my eyes I sensed the river streaming through me, and when I opened them again, I found that I was experiencing the river flowing towards me outwardly and through me inwardly at the same time. The more I did this, the more relaxed and free from anxiety I began to feel*" (Bortoft 2012, p.18).

The feeling did not last, however, and as he walked down the long corridor toward the classroom, his anxiety was at its height. But as he opened the door, expecting to fall into an abyss of embarrassment, he heard himself saying: "*Our problem is that where we begin is already downstream, and in our attempt to understand where we are we only go further downstream. What we have to do instead is learn how to go back upstream and flow down to where we are already, so that we can recognise this as not the beginning but the end. That's phenomenology!*" (p.18). And it is this still not fully articulated, global whole – the idea that upstream 'things' are not yet fully formed but that they become more well-articulated in the course of their flow downstream – that Bortoft uses as a hermeneutic, as an "organizing idea" (Bortoft, 1996), that is *implicitly* at work in him *making sense*, i.e., giving *meaning*, to what, *explicitly*,

he does say.

Indeed, Bortoft's turn here to hermeneutics is, I think, of even more importance than his turn to phenomenology. 'Brought up' as a student of David Bohm (e.g., see Bohm, 1980) to think in holographic terms – for in a hologram, a whole visual scene is 'present' even in broken-off parts of the plate, while every point in the scene is 'present' in any part of the whole plate – "it became obvious that the holographic approach to wholeness – with which it was intended to replace the systems approach – had a form which is very similar to that of the hermeneutic circle, and hence that what we thought of as a 'holographic' survey could equally well be thought of as a 'hermeneutic' survey" (Bortoft, 2012, p.15). What is different, however, is that in our everyday lives, a *developmental* flow of undivided activity is at work. Thus, rather than simply being already 'present', both the relevant 'whole' and its 'parts', says Bortoft, using Heidegger-ian terminology, 'presence' or 'come-to-presence', i.e., they *emerge*, together within a period of time.

In this way of seeing, then, unique, uncompleted 'time-shapes' become more important to us in our inquiries than nameable, completed spatial-shapes, i.e., forms or patterns out in the world. They become more important because they arouse *tense feelings* within us, unique *expectations* as to what we next *need* to make contact with as we move around in our surroundings, if we are to relieve the *felt* tensions they arouse in us; they can thus both *motivate* and *guide* us in our conduct of our inquiries.

As we move upstream, so to speak, to those beginning-moments in the flow, say, of speech communication, we find events occurring of a quite *different kind* to those which can develop from them later. Upstream, although already articulated, differentiated, or specified to a degree, they are still open to yet further differentiation or differencing – but now, only *from within* the differencing or articulation that has already occurred. A male student says to a female student: "There's a really interesting

movie on at the campus cinema this evening." And she straightaway replies: "Are you telling me, or asking for a date?" She's relationally clever; she recognizes he is deliberately expressing a still *indeterminate* meaning, open to a number of replies, to avoid the responsibility of explicitly asking for a date.

Bortoft explores this point in a perhaps more strikingly material fashion in relation to plant growth. He notes that the difference between a wild and a cultivated rose is that, botanically, rings of stamens in the wild rose seem to have 'metamorphosed' into rings of petals, one organ seems to have turned into another, while in other flowers, we can seem to see the reverse: "So that when we look at a water lily the overall effect is that we [also] seem to 'see' one organ turning gradually into another one. *But this is not what is happening*: a petal does not materially turn into a stamen. Rather, what we are seeing here is one organ manifesting in different forms, and not one organ turning into another one – i.e., no finished petal. changes into a stamen The metamorphosis is in the embryonic stage of plant growth and not at the adult stage" (Bortoft, 2012:p.64, my emphasis). An earlier indeterminacy later becomes more specifically determined in different ways from within different developmental contexts.

It is at this point that he introduces what is, perhaps, the most important idea in the book: the idea of the *self-differencing* organ. What we find when we go upstream is that, "if one and the same organ presents itself to us in different forms, then each organ *is* that organ, but differently, and not *another* organ – Proteus is always one and the same Proteus, not another Proteus" (Bortoft, 2012, p.71). This means that, whatever nameable 'thing' or 'object' we might see before us at any one moment in time, we should look to see in its appearance, its *way of appearing* as such to us, for it is in this *movement* – from up- to downstream – that we can *sense* its *meaning* for us; its meaning is not only to be found in its finished, objective *form*.

This theme continues on into the penultimate chapter – *Catching Saying in the Act* – where

Bortoft remarks: “Although we may talk about ‘language and the world’, the ‘and’ is fictitious because it implies that we could have ‘language’ and ‘world’ *separately*. But in fact we cannot, even though we are accustomed to thinking as if we could” (Bortoft 2012 p.147, my emphasis). Indeed, we meet exactly this separatist thinking when people talk of a person’s “body language,” as if on the one hand, there is their spoken language and on the other, their expressive, bodily, gestural movements, when in fact they are all of a piece. “It only looks like language *and* the world – as if they exist independently and are brought together extensively – when we begin downstream with the world already languaged. But if we shift upstream to try to catch language in the act, then we find, not just that language discloses world, but that language and world are disclosed *together*. The ‘language-world’ is really the concrete phenomenon, from which ‘language on its own without the world’, and ‘world on its own without language’ are abstractions” (p.149). Our growing into a languaged world when young really is a matter of our growing into a certain, specific *way* of being a certain kind of human being. To fully learn to speak another *first* language, is learning to live in another *world* altogether.

All this means that, as Bortoft makes very clear in a short final chapter, that we have got it seriously wrong in thinking that we ‘picture’ or ‘represent’ *in consciousness* what is ‘out there’ in the world at large, and that we can find the *meaning* of people’s words as expressions of their ‘thoughts’, by assuming that it is *contained* in the *forms of words* appearing in their utterances – which is, of course, the assumption made in countless research inquiries based in interview transcripts. It is *transitions* that matter and we express our *meaning* in the *differencing* that occurs as we move on from one ‘state of affairs’ to another. Thus it is our *words in their speaking* that matters to us, not the *patterns in words already said*. We don’t have to wait until a person has finished speaking before we can sense ‘where they are trying to go’ in their speaking.

Conclusion: coming to be human, differently

As we saw above, as we grow into the languaged world around us, we grow into a *consciousness*, into a sharing *with* (con~) the others around us of a *languaged-awareness* (~scientia) of *our* surroundings. As such, it is a languaged awareness which in its upstream incarnation, as Bortoft (2012) makes magnificently clear, is forever open to yet further development, but which its downstream *forms* can easily become ‘fossilized’. And it is difficult not to over-emphasize the importance – in social policy making, health-care, financial affairs, economics, environmental thinking, etc., etc. – of the shift in our thinking that Bortoft is outlining in this book.

I began this review of it by suggesting that we currently seem to be living within a mass illusion. Bortoft (2012) succinctly expresses it as manifesting in our current assumption that, “truth is what is discovered by science... and as such it takes the form of being the very same for everyone,” and “we can see this very clearly in the universalism of the mathematical style of thinking which has gradually dominated since the time of Descartes – and which is now applied so widely that we just take it for granted, even though there are many kinds of situation where it is highly inappropriate” (p.168). Whereas, “what we can call the ‘hermeneutic style of thinking’ *turns this inside out*. What looks like the sheer plurality of many different viewpoints, and hence seemingly subjective becomes instead objective manifestations of something coming-to-be differently in different contexts and situations” (p.168, my emphasis).

Our current downstream thinking is, we can say:

- **Beside the point**, in that it orients us toward seeking regularities, already existing forms, This diverts our attention away from those fleeting moments in which we have the chance of noticing previously unnoticed events that might provide the new beginnings we seek.
- **After the fact**, for our aim is to

understand the as-yet-non-existent activities involved in our approaching nature differently, not that of discovering already existing factual states of affairs. Or, to state it differently, as thinkers, concerned only to bring out what is necessarily implied our *a priori* concepts, we arrive on the scene too late, and then look in the wrong direction, with the wrong attitude.

- **Too late**, because we take the ‘basic elements’ in terms of which we must work and conduct our arguments to be already fixed, (i.e.) already determined for us by an elite group of academically approved predecessors.
- **In the wrong direction**, because we look backward toward supposed already existing actualities, rather than forward toward possibilities.
- **With the wrong attitude**, because we seek a static picture, a theoretical representation, of a phenomenon, rather than a living sense of it as an active agency in our lives.

To orient ourselves intellectually, in relation to still developing phenomena, we require another mode of inquiry. But where might we begin our explorations in the search for it, if we cannot begin from our *a priori*, theoretical assumptions and suppositions? We can only begin with our *noticings*, and with the *acutely discriminative sense* that we can have of their qualitative nature. We can thus begin, both with our own sensings, and with our noticing the spontaneous expressions of others as they respond to events occurring to them in their surroundings.

As an example of someone who has been very clear about the need to adopt such a different starting point, is Amartya Sen (2009) in his book, *The Idea of Justice*. He begins it by quoting Charles Dickens who, in *Great Expectations*, put these words into the mouth of the grown-up *Pip*: “In the little world in which children have their existence, there is nothing so finely perceived and finely felt, as injustice” (p.vii) – where the grown-up *Pip* is recollecting a humiliating encounter with his

sister, *Estella*. In other words, Sen wants to begin his inquiries, not by asking what a perfectly just society would look like (Rawls, 1971), but from our *felt sensing of a something being unjust*, from our *disquiets*, from our feelings of *things being not quite right*.

Why? Because: “What moves us, reasonably enough,” he remarks, “is not the realization that the world falls short of being completely just – which few of us expect – but that there are clearly remediable injustices around us which we want to eliminate” (p.vii). Thus, by situating ourselves within a particular practical situation it is possible to have a *shared sense* – along with all the others around us – of a particular *injustice* at work; there is a real chance of all involved, working together, to arrive at a way of remedying it. For they can all find in such a situation both a guiding motivation, and, as they mentally move about within it, *ways* to bring to light the *resources* needed to move on from that injustice – where the *ways* needed will involve their *thoughts* and *ideas*... not to be used as explanatory devices, but as “organizing ideas” to think-with, to hold alongside themselves as aids in our coming to a *felt sense* of what the particular injustice in question is both *like*, and yet also *different* to.

Thus, my overall aim in exploring Bortoft’s new, dynamic way of seeing in *Taking Appearance Seriously*, has been to pursue this question: “Is it possible to devise, as part of a new approach to the study of actual everyday life activities, a special way of ‘seeing’ them which will not, on the one hand, distort their nature, but which will, on the other, allow us as professional social and environmental scientists to deepen and enlarge our understanding of them?” – and I think on the basis of what Bortoft offers us in *TAS*, the answer, clearly is: “Yes!” In other words, we need to relinquish the still unfulfilled dream – and, as he sees it, the *forever unfulfillable* dream – of our gaining the very general objective results we currently seek in our inquiries, and to be content with the limited, partial, and situated results that we *can in fact obtain* – which, in the end, both he and I

believe, will turn out to be, perhaps surprisingly, of far greater practical use and value to us. In the process, we would become a very different kind of human being.

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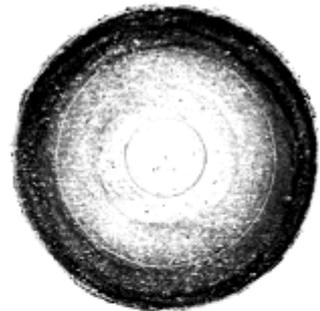
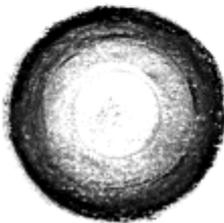
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The space between.

THE PHENOMENOLOGY OF WATER

Reflections on the Oneiric Draw of Hidden Streams



INGRID L STEFANOVIC

Around the world, we are turning to the nature that we have hidden.

Trailer, *Lost Rivers* documentary
(Catbird Productions, 2012)

As we walk through our cities, we rarely pay heed to the fact that buried streams move underfoot. Yet the soil itself is saturated with water. Below the rigidity of the asphalt, hidden groundwater tables sustain our daily rituals of drinking from the tap. So often we take water and these waterways for granted.

But if you have ever stopped to wonder why certain streets meander in what appear to be arbitrary ways, you may be drawn to realize that these built landscapes have been shaped by underground water's flow. At such moments, one is reminded of these hidden sources and may become inspired to bring the water to the surface.

So, in the extraordinary example of the Cheonnggyecheon Stream Restoration Project in Seoul, South Korea, an elevated freeway was demolished and the underground stream was "daylighted" in 2008 along a 3.6-mile long central corridor, increasing corridor biodiversity by over 600% and providing new pedestrian walkways beside the recovered, flowing waters. (Landscape Architecture Foundation, 2012)

Other initiatives around the world aim to promote awareness of underground waterways even if full physical "daylighting" is thwarted by economic constraints and lack of political will. Examples, at varying levels of success, include the River Tyburn in London, the Saw Mill River in New York and the Bova-Celato River in Bresica, Italy. In Canada, heritage maps of underground rivers have been developed in Guelph, Ontario, and in Vancouver, British Columbia, a rehabilitation initiative aims to enhance green space by

restoring open sections of Still Creek and "daylighting" other sections in order to increase water quality, enhance adjacent streetscapes and advance environmental education. (Lees *et.al.*, 2002)

In my own hometown of Toronto, "Lost River Walks" have been organized by local environmental groups, aiming to promote understanding of the former Aboriginal sacred gathering places and to "tell the fascinating story of the city when it was a place of deep ravines, babbling brooks and primordial forest." (Helen Mills, cited in Easton, 2009: 1) What inspires these communities to bring underground water to the surface? Many streams are now part of the sewer infrastructure of cities, buried at a time when public health concerns arose from contaminated waterways. Why not let the remnants of these past waterways be? Perhaps a phenomenology of water can begin to help us to answer these questions. In the following pages, I propose that a subtle, oneiric draw to hidden streams reflects a primordial ontological meaning and value of water, even as buried. I suggest that a place-based ethic of care may emerge as more than simply a matter of identifying cerebral, abstract values, reflecting instead a deeply embodied *ethos* and belonging to the natural world within which human dwelling is embedded.

The ancient Eastern thinker, Confucius was apparently asked: "Why is it that when a gentleman sees a great river, he always gazes at it?" He is said to have replied:

"Water, which extends everywhere and gives everything life without acting, is like virtue. Its stream...is like rightness. Its bubbling up, never running dry, is like the way (dao)." (Allan, 1997: p.23-4)

In Confucius' eyes, there is both an ontological as well as moral draw to the passage of waterways. Here, it is not simply a matter of visualizing the river's artistic beauty. Rather, the movement of water captures the dynamism and virtue of life itself, not only in the form of an analogy but in a much more embodied sense, as an incarnation of the very temporal roots of human becoming and goodness.

To be sure, "there is an art to looking at water," as there is an art to reflecting thoughtfully upon the meaning of one's finitude. (Allan, 1997: p. 23) How might one begin to artfully, poetically, engage with a stream, even if it is buried below the streets?

Perhaps we must recognize the originary draw of water itself as the giver of life. As phenomenologist Gaston Bachelard so thoughtfully notes: "Water...is a seed; it gives life an upward surge that never flags." (1983: p. 9) Perhaps recalling a hidden stream to the surface is itself a deep recollection of the beginnings of our liquid existence in the womb and an attempt to appropriate the mystery of creation itself. To "daylight" a hidden stream is to seek to illumine something meaningful about the very source of our being.

Even so, it is important to recall that the source of a natural spring reveals images of cyclical connections, as well as transience and broader forms of continuity. (Allan, 1997: p.13) The source of a hidden stream is itself more than a simple physical point of entry, connected as it is to a continuous historical embeddedness of memories of place, as well as to the broader, hydrological cycle that defines the landscape.

In fact, Chinese thought teaches that a waterway's source constantly replenishes itself, "like a reputation that may be passed down over the generations or, more metaphysically, it is like 'what passes,' time itself." (Allan, 1997: p. 36) Gaston Bachelard describes water as "truly the transitory element." (1983: p. 2) There is a temporal value to water that we instinctively understand as

we are drawn to its presence. In this sense, the story of water must acknowledge that "in his inmost recesses, the human being shares the destiny of flowing water...A being dedicated to water is a being in flux." (Bachelard: 1983: p. 6) The flow of water reflects the streaming of time itself.

The German philosopher, Martin Heidegger once wrote: "Time is not a thing, thus nothing which is, and yet it remains constant in its passing away without being something temporal like the beings in time." (1972: p. 3) In a similar vein, phenomenologist Theodore Schwenk writes that "in regard to water's potential – whether in a falling raindrop, meandering stream, curling wave, tumbling cascade or swirling vortex – water adopts a host of forms, while always remaining the same." (1996: p. 235.) Water never disappears but surfaces in many different ways.

"Water is the mistress of liquid language," Bachelard tells us, "of language that softens rhythm and gives a uniform substance to differing rhythms." (1983: p. 187) Again, the ancient Chinese knew to read such a language of water, that language of fluidity. Water does not flow haphazardly and it was by recognizing how to use the natural movement of water wisely that ancient civilizations prospered. The earliest Chinese myths reflect the importance of assigning order and meaning as a condition of habitability in the world. Civilization could only advance when river channels were dug and river courses were directed by respecting the natural flow of waters and water systems. Such a sensibility was essential to advancing agricultural sustainability and the survival of human communities. (Allan, 1997: p. 39)

Goethean phenomenologists Mark Riegner and John Wilkes similarly point to this "precise and rhythmical" nature of water. (1998: p. 238.) Drawing upon Goethe's phenomenology of science, a group of thinkers have explored ways in which to enhance water's life-supporting capacity through better understanding the rhythms and "flowforms" of water that bring a sense of order to its cascading movement. The streaming of water

is seen to reveal a number of characteristics: its “flow” discloses a relation to the riverbank; its “gliding” presence illumines “water flowing over and under itself”; its capacity for “shearing” changes the shape of stones and landscapes; its “turning” is an aligning with the current. (Müller and Rapp, 1977: p. 98-103) We intuitively know how water’s movement is rich and bounteous, if only we attend to it.

To be sure, water also inevitably carries waste. “In its streaming, the river is source and sink at once.” (Müller and Rapp, 1977: p. 95) Designs for water treatment, irrigation systems, aquaculture systems, desalination processes and even food processing activities have been developed that utilize the natural flow of water as it “opens itself to the harmonies and laws of the heavens.” (Schwenk, 1996: p. 98.) We find ourselves drawn to the cleansing rhythms of water in waterfalls, streams, waves and flows, much as in our oneiric dreams, we are drawn to reflect upon time’s seasonality and its own rhythmic measures of movement and duration. “Water becomes an image of the stream of time itself, permeated with the rhythms of the starry world.” (Schwenk, 1996: p. 68)

Schedules, calendars and the frenzy of ontic commitments move to the background in these moments of reverie whereby we are drawn to gaze and dream, rather than theoretically construct, by watersides. “To contemplate water is to slip away, dissolve, and die” rather than to manipulate, fabricate, intellectualize and hurry on. (Bachelard, 1983: p. 47) It is to contemplate one’s own vulnerability in the face of the passage of time, recognizing that to be human means that we are each not simply “an onlooker but a participant in nature’s processes.” (Bortoft, 1996: p. 108)

And so, while life-giving and cleansing in its flowforms, water also brings to presence the meaning of our finitude. As much as we have colonized the earth, the untraveled abyss of underground waters and the deepest oceans inspire wonder as much as dread. Philip Ball reminds us that we somewhat naively associate water simply with life and well-being. Yet, we must not forget how our myths often

connect water with a journey unto death, reflecting a more complex awareness of water than simply as life-giving. The Styx is the medium to Hades, just as the Ganges is a vessel of the deceased. (Ball, 2001: 23.)

He who drowns at sea is subject to “an altogether more fathomless fate than those whose corporeal being is returned to the shallow earth.” (Ball, 2001, p. 24.) The oneiric significance of deeply buried waters invites us, no less than with violent waters, to imagine the temporal vulnerability and finitude of being itself. “To disappear into deep water or to disappear toward a far horizon, to become a part of depth or infinity, such is the destiny of man (*sic*) that finds its image in the destiny of water.” (Bachelard, 1983: p. 12) Just as I am pre-reflectively aware of the vulnerability of my temporality and finitude, even as they remain invisible to the naked eye, so too, like any deeply buried stream, I know when I attend to them, that both time and water define my being in this world.

In the end, perhaps the reason for a community’s desire to recover and restore buried streams relates to a pre-reflective desire to recover the meaning of being human. It is to draw close the significance of water’s life-giving essence; of the defining importance of its flow in a temporal world; and of the remembrance that it elicits of the vulnerability of human existence.

It is to remember that water and the activity of being human belong together more than simply in a biological sense but ontologically as well. And it is to recall that nurturing a genuine sense of place and an ethic of care in our cities cannot proceed in the absence of water as embodied in earthly existence itself.

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High Sea at Nice, France – Original Painting by Patrick Henry

WHEN WHAT IS GIVEN IS WHAT IS NEEDED

EZRA HEWING



I once read that Goethe claimed he was a very old man when he finally learnt to read, and in the same sense I am still at a very early stage in learning to see dynamically; there is still much in Henri Bortoft's work that I have yet to absorb. Nonetheless, I am indebted to Henri for the influence he has had on my work in the field of mental health. His writings have helped me to better understand the body of knowledge known as the Human Givens, itself the result of a holistic approach to psychology have enabled me to look afresh at challenges which elude the grasp of systematic or reductionist approaches to explaining the world; given me the patience to let go of habits of thought, even when it has taken years, and let meaning present itself on its own terms.

Adopting richer organising ideas gave rise to the insights contained in Cannabis-induced Caetextia theory - Caetextia meaning context-blindness; the only model to date which accounts for the paradoxical effects of cannabis use that cause so much confusion in the substance abuse field. Reading Henri's work also helped me to perceive the relationship between these seeming paradoxes: why using cannabis increases the risk of developing mental health problems like depression and schizophrenia; why some people find that cannabis helps them to relax, reduce stress and alleviate the symptoms of mental health problems like depression, anxiety and post-traumatic stress disorder; and why some people find that using cannabis gives rise to unusual thoughts and access to imagination and creativity.

In developing a resource to address mental health in an Islamic context for Muslims and Muslim communities, Henri's work enabled me to better grasp the central Islamic concept of divine unity – an insight reduced from its allegorical presentation in the poetry of the Qur'an, to a rigid set of totalitarian rules and regulations in the contemporary world - and see how it could underpin a holistic approach

to mental health and wellbeing. Henri's writings on the nature of authentic and counterfeit wholes helped me understand the comments of Muhammad al-Ghazali, the 12th century Muslim polymath, on the nature of the self: *"There has been tremendous confusion in this matter, because for purposes of examination and teaching, the essential self has to be given a name...this is at best an illustrative distinction."* (Shah) The holistic approach to knowledge has echoed down the ages and survived because of the commitment of those truly dedicated to making reality a little clearer to the rest of us.

The Human Givens

The Human Givens Approach (see Griffin) is a set of organising ideas which seeks to understand how individuals and societies function, by drawing upon the latest scientific understandings from neurobiology and psychology, as well as ancient wisdom and new insights; the role of the REM state in programming psycho-biological templates during pregnancy and discharging emotional arousal during dream-sleep, for example. At the heart of the Human Givens Approach is the insight that humans, like all organic beings, come into this world with a set of needs. To the extent that those needs are met in healthy ways, we thrive. Conversely, when they are poorly met we suffer distress and, if we suffer sustained exposure to distress, we become unwell and at greater risk of developing addictions and serious mental illnesses. As well as physical needs, our emotional needs include the need to give and receive attention, a connection to the wider community, intimacy, a balanced self-esteem which comes from a sense of achievement and competency, a sense of meaning and purpose which can come through stretching ourselves to learn or commitment to something larger than ourselves. To compliment these needs, nature has gifted us with instinctive knowledge, an observing self that experiences the world as a

unique centre of awareness, a dreaming brain which discharges emotional arousal enabling us to restore our emotional templates to their default setting. Our innate resources can help us to meet our needs, provided that we use them properly and are living in a healthy environment. These resources, together with our physical and emotional needs make up what are termed the human givens. Having worked to help corporate businesses change their perception towards mental health and wellbeing in the workplace, I was left to reflect on the limitations and pitfalls of working in a way which reduces the individual to a part, rather than an authentic whole.

How do we know when we have absorbed an organising idea?

I remain concerned, however, about the dangers of reducing an organising idea to a system and how this might affect the future of workplace wellbeing. The pattern of the human givens organising idea about human functioning allows us actively to perceive what is missing in a person's story or in their lives. As a result, when seeing through that pattern, questions and interventions naturally arise in response to the gaps we perceive. I think such perceptions arise most frequently when we are in flow and that the richness of the pattern bears a relationship to how well refined our own emotional templates are. In contrast, there have been times when, while working with somebody, I have become stuck; when I had the feeling that I had tried everything in my toolkit, when I revisited questions to try and get better information because I was sure I must have missed something. Those are the times when we know that we should tolerate the ambiguity of not knowing the answer but, finally, in exasperation, we may fall back on counting through the list of needs and resources in a rote fashion. Thus, the person we are working with becomes a set of fragmented parts, a collection of needs and resources. When we do this, we turn the human givens approach into a system or a checklist to be scored, and it ceases to be for

us a pattern of perception, a way of seeing with greater clarity. Clearly, it is necessary, particularly when we are learning about needs and resources for the first time, or when we ask a client to use an Emotional Needs Audit as a tool to get them thinking about their needs, to consider needs and resources individually. However, after a time, to become a truly holistic way of seeing, rather than a checklist of disconnected parts or, worse still, a vague nominalisation, our attention must shift to perceive the relationships between needs and resources. When this happens, our minds begin to form a template, or lens, through which we perceive – a new organ of perception. The holistic perception of needs is authentic in the sense that the individual or organisation is perceived as they really are; coming into being from moment to moment. While completing an Emotional Needs Audit captures a valuable snapshot at a specific time, our emotional needs are constantly in flux, and so they should be; our shared need to be stretched, drives us to refine our emotional templates, seeking completion, and when we stop doing so we stagnate. The same is true for a business or an organisation. If it is to be “dynamic” and in tune with the evolving needs of its workers and customers, it must be “unfinished” and never “fixed, ie dead” (Bortoft). A living organisation must conform to the law of living things, which the human givens approach articulates. A life form must take nutrition from the environment and absorb it correctly in order to sustain and repair itself. When a culture exists where enough people can actively engage with this quality of attention and it becomes a shared perception, wellbeing will become the norm instead of the exception.

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SEEING THE ORGANISATION WHOLE

How the dynamic way of seeing is being applied in organizations

SIMON ROBINSON



Henri Bortoft was one of the few people who took us into an expanded level of consciousness and dynamic way of seeing. In the late 1960s and 1970s, Henri spent a period of time in organizational consultancy where he was given an opportunity to put into practice his teachings which only now are being appreciated by leading business thinkers such as Peter Senge (learning organizations and systems thinking), Otto Scharmer (change management and dialogue) and Thomas Johnson (business processes and organizational design).

More and more in my work, I can see what Henri was showing us was the limitations in our own abilities to see what is right in front of us. Phenomenology *is* a way of seeing, one in which we focus not on the objects which are out there in the world, but where we move our attention to the act of seeing itself. Once this fundamental point is understood, we then begin to ask questions relating to meaning, how it is that we can have a meaningful experience, and how our experience relates to those of others.

A leading example of the benefits of 'movement in thinking' comes from Tim Brown, creator of Design Thinking, and founder of Ideo, a design agency regarded as the most creative on the planet.

In a recent interview, Brown said that his inspiration came from history and science, and most of all the history of science. One of the great examples Henri used was the role that Darwin's eight year study of barnacles played in his realization that evolution was not just sporadic, but ubiquitous in nature. Darwin's great skill lay in observation, in seeing variety and variation where other scientists indoctrinated into the religious world view of order in nature would "see" no variation.

But Darwin then moved from this sensory way of knowing phenomena into the rational-intellectual mode, and sought explanatory mechanisms, which came from economic

theories and industrial practices of his era. Following Henri's recommendation I read Adrian Desmond and James Moore's epic biography of Darwin without doing which I would have missed the great relevance of these acts of observation. I would have missed understanding how our science and theorizing is intimately connected with our culture and notions of societal order in which the science takes place. Henri's made crystal clear the thinking processes of scientists, and it is with a similar clarity I now feel I can witness the same limitations of thinking of those in business today.

When someone says to me "I see what you mean" I stop and ask myself have they really seen what I mean, or have they only been able to see that which they have already understood? Does the person have such a level of self-awareness that they can monitor their own mental models of reality and appreciate when these are lacking, or do the mental models of that person enslave them to an extremely limited view of reality?

As Henri said, "If we were re-educated in the receptive mode of consciousness, our encounter with wholeness would be considerably different, and we would see many new things about our world." It is here where the seeds of innovation and real creativity lie.

Henri's philosophy and teachings are of direct relevance in business and organizations. Thomas Johnson studied *The Wholeness of Nature* in detail, and gradually came to realize how he could see Goethe's philosophy at work in the way in which the Japanese workers at Toyota came to develop their production processes. The mistake Johnson sees economists and business leaders making, is that they "objectify quantity. They treat quantity as a concrete feature of the world separated into parts, and hold that these parts should behave in strict quantitative terms that can be influenced and determined by external controls." (Johnson, p.46)

In his book *The Art of Design, A Book of Lenses*, Jesse Schell discusses the relevance phenomenology has on designing video games, vital for comprehending, understanding and mastering the nature of human experience. Although more commonly associated with Apple, “the customer experience” was an approach to design pioneered by the Human Factors department of BT Laboratories, the largest department of its kind in Europe, of which as a young psychologist I was a part in the early 1990s. One trial we did was to follow customers home, to watch them open and set up their answering machines. To the product manager these were easy to use products, but with crying children, visitors and phones ringing, the time taken to set up a machine was far longer than thought, along with the frustration and need to phone customer services. Still to this day I feel that product managers little understand their own products. The relevance of these questions to business is to enable more profound enquiries, not only about the products we buy and consume, but about the meaning of our place within our organizations, society and our relationship to nature.

Goethe once said, “A person hears only what they understand” and my wife Maria Auxiliadora, who is the Education Director of one of Brazil’s leading independent consultancies and who uses Henri’s abstract diagram of a giraffe to explore thinking, seeing and perception had this incident to narrate. One executive responsible for business strategy remarked after this exercise “I see now. What we need in our company is a new giraffe!”

Maria invites senior business executives to meditate on the movement of starlings, and even blindfolds them and asks them to work with clay, in order to take them into the receptive mode of consciousness of which Henri discusses.

Sensemaking (Dave Snowden’s Cynefin framework) and Storytelling are two new

major trends in business thinking. Gunter Sonnefeld has developed his Story (Bio) Dynamics methodology based on Husserl’s phenomenology, which he sees as aiding core progress in domains as diverse as big data, product development, governmental policy formation and venture investment. Holacracy One have a very interesting approach on how to craft a dynamic adaptive living organization. with profound awareness of its purpose, doing this through the various tools they have developed, including a new legal structure for businesses which transforms the “operating system of the organization.”

To study Henri is to really begin to make more sense of the world and without Henri’s philosophy I doubt I could have fully appreciated the subtleties and benefits of these new business practices, inspired by the wholeness of systems in nature and informed by phenomenology and hermeneutics. Henri has made me a more perceptive analyst, better able to comprehend the dynamics of human systems, communication and dialogue, really appreciating what and where interventions are required in organizations.

Henri’s philosophy has deeply influenced what I now teach to business students to help them better understand complexity and chaos, sustainability and innovation. His work has also highly influenced the dynamic games and exercises I develop which students play to help them experience the teachings, not just think about them. Like all who knew him, I will desperately miss Henri, and was hoping this year to be able to share with him the many projects we have in Latin America to bring his work to the attention of a wider public, predominately the business community. It was an honour and privilege to have been taught by Henri, and I only hope I, like so many others, can carry on the profound work he did in his lifetime, helping us to take appearance seriously.



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Roads Taken

To sense being part of lands owned by others:
Rich in soil. Spruce grass. Lush trees. Full streams:
Holds some small part of you, as clung burrs catch,
To stir awaking, or memories: feeling right.
Until others break that link started keen inside.
First, those level, warn, you're not their wavelength.
Next, higher kinds curb your acts; trying to change
Your traits; hating all that makes being yourself.
Pushed to outer limits: land that no man wants.
Void engulfs the reason and emotions. Left no way.
But, a count of values lost, or ordeals skirted;
Gives a settled balance, calm in mind.
Vistas of chance open down the bare roads out;
No one else takes. They can become your own.

Patrick Henry

Metaphorisms

Time back, country parts gave names to ways we act:
Power, the sun. Moon, mystery. Stars, arrays of hope.
Clouds, doubt. Mist, evasion. Rain, relief
For thirst in throats, and the land's need to grow.

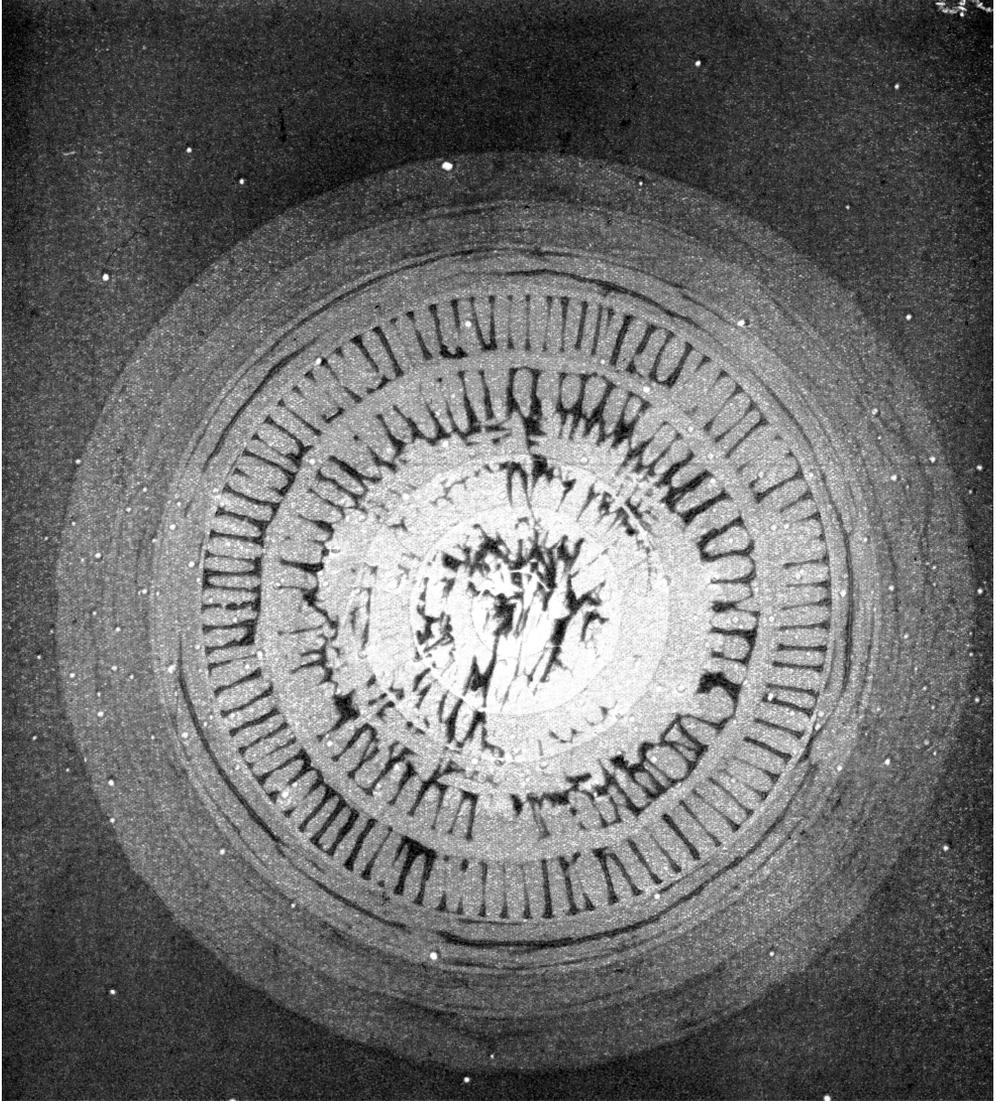
Ice gripped the earth. Fire burned in air.
Wind blew sky high, or crashed hopes down.
Trees thrust strength. Hills reached high aims.
Plains stretched plans. River and sea bore trade.

Apples spelt The Fall. Nuts, the mad. Grapes, bitterness.
The rose, beauty. Lilies, the idle. Violets, shyness
Horses meant force. The bull, boldness.
Fox, stealth. Crows, theft. Trout, still calm.

All shut off now, beyond tight new windows,
In cars speeding past views, scarce glanced upon;
Or double-glazed in the house returned to, where no birdsong,
Or breeze pierces. Machines micro-whisk junk meals;

Or contact on-line chat; switch on tinny music;
Screen videos, of star drama, or soap trash. Who cares?
Answers once came from the grain of the earth.
Now they lie in the media. Rawness keeps its metaphorisms.

Patrick Henry



A JOURNEY INTO THE QUESTION

PAUL CARTER



I've been in prison / for many long long years / seems like you never gonna let me leave / I've got to stay right here. / I've got lifetime here baby / and you won't even look this way / you promised to come and see me / on every visiting day. – John Brim, Lifetime Baby, Elmore James/John Brim, TOUGH 1968

Dusty twang, driving rhythm. Creaking-deep vocals ploughing the depths of emotion, squeezing every last drop of melody from life. This is the way I was hit by Blues, which is much more than just a kind of music. At university, I was really studying music and skateboarding while enjoying biology as something like an intellectual tourist.

Feeling lost as a student stuck in education, the emotional rawness and defiantly rich tones of Blues music resonated deeply with me. In Blues I found a way of celebrating the woes, struggles and wonders of life without feeling a shred of guilt. After lectures and between frustrating episodes with course-work, I would either pick up my guitar or head to the record shops for a refreshing breath of Blues to put the colour back in things. Such were my years in the concrete collage of Plymouth as a young student.

2008 saw to it that I got a job working in education – I couldn't seem to get away from it. This new “professional” perspective left a strangely familiar impression on me: I began to feel caged. Yet another instance of this kind of “trapping” was to find expression in my thinking.

A robin redbreast in a cage / Puts all heaven in a rage – William Blake, Auguries of Innocence 1863

I had studied biology for some years and was now aware that modern science didn't entertain questions I asked. (At university a good tutor once advised me, in a jocular way, to give up my degree and become a science fiction writer – I could see the serious side of my tutor's comment.) Proceeding by way of

methodology was not going to tell me anything about value or Quality – something Wildlife Conservation, music and surfing all made clear to me, and which reading Robert Persig's Zen and the Art of Motorcycle Maintenance also confirmed. So I left empirical science and instead took up philosophy.

Troubling mind, I'm blue / but I won't be blue always / sun gonna shine in my backdoor someday. – Brownie McGhee and Sonny Terry, Sun's Gonna Shine, on BROWNIE AND SONNY 1966

My departure into philosophy took place in my spare time and elicited from me a feeling of freedom. In philosophy I found the space to ask questions such as the ones Alice entertains:

I wonder if I've been changed in the night? Let me think: was I the same when I got up this morning? I almost think I can remember feeling a little different. But if I'm not the same, the next question is 'Who in the world am I?' Ah, that's the great puzzle! – Alice from Lewis Carroll's Alice's Adventures in Wonderland 1865

My formal adventure into philosophy coincided with my 25th birthday. In celebration I took a train ride to Canterbury that spring, and there I found myself buying a copy of Descartes' Discourse on Method and the Meditations. I studied the book closely for the next year, especially during the winter months, and attempted to write an essay considering the arguments Descartes uses to justify a mathesis universalis – a universal science based on mathematics. I was holding up the foundations of modern science for inspection and this seemed like the right way forward. It wasn't long however, before my initial feeling of freedom seized-up around me, like I was a fly that had entered a glass bottle. I had unwittingly reasoned myself into an impenetrable glass container of “mind” and, more troublingly, I hadn't left any clues to show myself the way out.

What is your aim in philosophy? To show the fly the way out of the fly-bottle. – Ludwig

Wittgenstein, *Philosophical Investigations* 1959

It's fortunate that life has a way of showing one the way out of an intellectual snare. No matter how far our movements in thinking go, no matter how abstract our conclusions, we are always faced with the immediacy of everyday, ordinary living: experience. It didn't take long before my senses and feelings naturally pointed to experience as a way out of my mind's glass bottle; listening to this intelligence took the form of taking up swing dancing, writing poetry and walking along to the beautiful ebb and flow of the river Avon. Eventually real ballast was brought to bear on the philosophical wonderings I had been on.

Are you crying / I thought you was laughing? / Hold up your head baby and let me see. / If you want me to go why are you weeping? / Stop your crying darling you'll be alright; / Honey you know I cannot stand tears. – Ted Hawkins, *Stop Your Crying, WATCH YOUR STEP* 1982

A dynamic pattern now stood-out in my experience: whatever I sought, whether I obtained this or not, I was left in the same place of empty-handedness – if anything I usually felt caught out by my circumstance, but some occasions were graced with a taste of complete freedom. A question of self-understanding was clearly at the heart of my adventures: I seemed to be at once the protagonist and the antagonist of my life, and I was yet to understand this dynamic properly.

Only a handful of people were willing to explore this theme seriously with me. A lot of my friends simply wanted talk about their jobs and relationships, and did not share my need to consider what the nature of reality is. This exploration was at its height when I lived with two of my good friends, one had long been a devoted Christian and the other was now a budding Buddhist. I called our household "the walk-in joke". Finding such good companions to journey along with is something I was very grateful for, and naturally I wanted this good fortune to translate into other domains of my life. Only a few avenues suggested themselves for exploring the nature of reality seriously.

Philosophy was still a strong candidate and remained a passion of mine, but I needed a teacher, someone who knew what they were doing, not just an academic caught up in debates of metaphysics and theory of knowledge.

I had already heard of holistic science as an undergraduate, and the subject appeared to be the vehicle that would take me to the heart of my philosophical desires. I found it interesting that Schumacher College seemed to be the only institution hosting an academic conversation dealing with the question, What is wholeness? So there I rode.

I'm a stranger that just rode in your town / Oh yes I am, I'm a stranger that just rode in your town / well, because I'm a stranger, everybody wants to dog me 'round. / Well, I wonder why some people treat the strangers so. / Oh, yes, I do, I wonder why some people treat the strangers so. / Well, he may be your best friend that you will never know. – Brownie McGhee and Sonny Terry, *Just Rode in Your Town BROWNIE AND SONNY* 1966

In Bristol I remember telling people "I'm off to study a course in holistic science". And I would invariably hear the reply "What's that?" To my surprise, the subject was becoming increasingly difficult to pin down. Every time I attempted to answer this question I found myself fumbling with the words "complexity theory", "Gaia theory" or "Goethean science". I think I gave the most accurate description of holistic science in a letter I wrote to my aunt: "I'm going to study the science of wholeness, in Devon ..." September 2011 saw my return as a student of the University of Plymouth, but my residence was now in Dartington. My new educational setting offered remarkable contrast to the main campus I was well accustomed to – not just in terms of location and environment, but also subject-matter.

Schumacher College introduced me to three different kinds of wholeness: (1) wholeness that is a thing; (2) wholeness that is no-thing; and (3) wholeness that is plain rubbish. The real challenge proved to be learning the art of carefully discerning the difference between kinds (1) and (2).

“Is complexity science holistic science?” was a question that occupied my first three months at the college. Speaking in terms of the logic of the part and the whole, complexity theory is a subtle form of reductionism (holism) whereby the whole is emphasised over the part. In other words, the relationship of whole to part is not one of mutual dependence, but of subordination (the part is of less significance). Primacy is given to the dynamic expression of the system as a whole.

I shall never get you put together entirely, / Pieced, glued, and properly jointed. / Mule-bray, pig-grunt and bawdy cackles / Proceed from your great lips. / It's worse than a barnyard. – Sylvia Plath, *The Colossus* 1960

I found complexity science at its best when used as a way of illustrating the limits of exactness in modern mathematical science: exactness does not tolerate any ambiguity or variation, but the “messiness” of dynamic systems as represented mathematically offers a door out of the conventional view of the perfect, idealised object. Authentic wholeness however, cannot be represented in complexity science. To show this I wrote an essay entitled “On the Problems of Holistic Thinking in Light of Considerations in Time”, the writing of which convinced me that complexity science should remain distinct from holistic science.

This is the phenomenon: the appearing of what appears. – Henri Bortoft, *Taking Appearance Seriously* 2012

A realisation accessible by careful and considered study of one’s experience. Experience here means the full spectrum of the known unfolding dynamic of the mind, body and world. Thus holistic science requires a shift in one’s perception that is not at first obvious. Put in the language of phenomenology, we know this phenomenon when we step back into the dynamic appearing of “what” appears. The amazing thing about holistic science is that its subject-matter doesn’t succumb easily to light treatment. One cannot simply answer what its content is in the format of a casual conversation. To borrow one of Heidegger’s expressions, to get into holistic science requires “doing violence” to the assumptions

bequeathed to us as commonsense. As a discipline, holistic science offers a way of knowing the concrete phenomenon of wholeness as intrinsic to the dynamics of being

If you came this way, / Taking the route you would be likely to take / From the place you would be likely to come from, / If you came this way in may time, you would find the hedges / White again, in May, with voluptuary sweetness. / It would be the same at the end of the journey, / If you came by night like a broken king, / If you came by day not knowing what you came for, / It would be the same, when you leave the rough road / And turn behind the pigsty to the dull façade / And the tombstone. And what you thought you came for / Is only a shell, a husk of meaning / From which the purpose breaks only when it is fulfilled / If at all. – T.S. Eliot, *Little Gidding* 1959

In the spring of 2012 I was fully exploring the phenomenon of wholeness and the implications this has for contemporary biology. This is when the significance of Henri Bortoft’s teaching – which I was deeply impressed by – really began to flourish. In Henri’s seminars, a certain space in experience opened because his mastery of language allowed the unity of experience to presence in his teaching as a phenomenon. Henri’s words described this phenomenon with luminous clarity over and over again: “unity which is also multiplicity”, “going up-stream”, “the saying of what is said”, “the appearing of what appears”. The culmination of Henri’s work in *Taking Appearance Seriously* is so impressive because it works with this same insight to undo problem after problem. His movement in thinking is subtle because each problem poses its own intricacies and challenges and thus demands a specific way of being unravelled. Undoing such problems is what I considered the work of holistic science to be when writing my MSc thesis. However, presently, as I begin my doctoral work, I have found that holistic science asks one to go further than achieving an intellectual understanding of wholeness, i.e. when the questioner clearly sees whence a problem came, and sufficiently reconciles it without cause for doubt. I now see that this science is not just something to be thought

through (an intellectual exercise collapsing logical problems), the real challenge is a practical one: to align one's life with the values this knowledge gives foundation to. I believe this to be the ultimate expression of holistic science.

*Both bad and good. Last season's fruit is eaten
/ And the fullfed beast shall kick the empty pail.
/ For last year's words belong to last year's
language / And next year's words await
another voice. — T.S. Eliot, Little Gidding 1959*

Acknowledgements: *Writing this prompted me to engage a voice I am seldom at ease with using. I am indebted to my good friend Scott Lesley Bryant for*

introducing me to Doc Togden's beautiful biography An Odd Boy volume one. I found this book to be written in such vivid prose that it threw as much light on my own past as the author's. Peppering my prose with the song lyrics, poems and other voices that have spurred me along the road was a style Togden's book opened to me. I am also grateful for the many rich conversations I have had the fortune of stumbling into, especially with Patricia Shaw, Philip Franses and Stephan Harding of the Holistic Science faculty, and with the other students of Schumacher College.



Paul Carter graduated from the MSc in Holistic Science at Schumacher College 2011/12. He lives in Totnes and is currently exploring his options in taking this work further through different modes of enquiry – academically through teaching and a PhD and in the living-ness through windsurfing.

A Beginning

Whatever you think, in the evening, walk
From your room turned stale from overuse.
At the road's end, near open space, that's your house.
Whatever you think.
Your weary eyes which can hardly
Free themselves from this doorway so worn;
Lift up slowly to a black tree.
Focus it on the sky: slim, alone.
And you've rebuilt the world. It grows
As an unspoken word still turning ripe.
When your urge holds meaning in its grasp,
Let awakened eyes now turn it loose.

Patrick Henry Translated from Rainer M. Rilke

IF GOETHE HAD A CAMERA?

*“He stood breathing,
and the more he breathed the land in,
the more he was filled up with all the details of
the land.*

*He was not empty.
There was more than enough here to fill him.
There would always be more than enough.”*
(Bradbury 1953)

A modern compact digital camera can provide instant gratification for amateur and professional photographer alike. A small fraction of a second to snap a shot. An equally miniscule amount of time to display the picture. Within a short moment a new image is produced. I personally like to photograph nature and particularly enjoy macro photography of wild plants. This style of photography I have dubbed ‘a bee’s eye view’; examining closely the beautiful detail of plants, the intricate colourful patterns of their flowers and delicate botanical parts.



Photograph 1: *Tropaeolum majus*

Whilst studying Goethean Science and learning of Johann Wolfgang von Goethe’s (1749-1832) intuitive approach to studying plants, I came to consider what he might have thought of modern photography and the digital camera itself. I asked myself whether Goethe would consider something so instantaneous to be contradictory to his contemplative methodology.

Would he be able to see any relationship between modern digital photography and the raising of our natural awareness in this present



GRANT RILEY

time of ecological disconnection? Would Goethe be in agreement that photography enables us greater depths of plant understanding?

Goethe’s scientific method, detailed in ‘The Metamorphosis of Plants’ (Goethe 1790), when utilised, allows the observer to be able to ‘see’ nature as an interconnected web of relationships and not as inanimate, separated set of independent parts. The essence of Goethe’s teachings (in regards to plants), is to be intuitively aware of a wild plant specimen, to spend time in its presence and to slowly allow the plant to reveal itself in detail through a deeper understanding and connection. This can be derived through intuition, artistic imagination and by working with a subjectively inspired approach, as opposed to the more classical objective, mechanistic epistemology. Goethe’s approach to scientific enquiry produces imaginative and detailed paintings or drawings of the specimen studied. This process comprises of seven stages: Exact sense perception; exact sensorial imagination; seeing in beholding; becoming one with who you are; catching the idea; growing the idea into matter and new product (Colquhoun & Ewald 2003).

I considered whether this process of snapshot photography with my digital camera was entirely in contrast to the teachings of Goethe. I am aware that photography cannot be strictly adhered to Goethean scientific method due to Goethe’s specific instruction of the use of drawing/painting. However, I value my photography as having intrinsic artistic value as well as a scientific worth. During these thought processes the digital camera itself became to symbolise the haste and speed of modernity to me, particularly in the context of my relationship with nature.

Almost all modern activity appears to me to be fast; Fast food, fast car... fast snap shot photo?

However, there is a non-physical functioning related to my photographic approach that I myself do not so clearly understand. Perhaps to comprehend this quality better I shall simply quote the commonly used phrase:

“Beauty is in the eye of the beholder”.

This discourse intends to look at one aspect of Goethe’s work, his understanding of plants through the process of intuitive re-cognition with nature and to explore the connection with the modern art of digital photography. Firstly, I would like to discuss my own understanding and interpretation of the Goethean method. We are part of nature; Nature is part of us. Goethe’s methodology of intuitively being and studying plants involves a meditative approach to observing the plant as a whole. It encourages a connection with our lesser used instincts, a flexing of long redundant senses, a reconnection with our primitive selves --- senses possibly more akin with the ancient forager or hunter rather than that of the modern scientist.

When I study flora it is often with a guide book in one hand, my camera in the other. If I come across an unfamiliar species to identify, a photograph is taken. Once back home, I then upload the image onto my laptop and an internet search begins for information on this newly identified or unfamiliar species. This has been one of the most effective ways I have found to extend my wild plant knowledge. Of course, In Goethe’s lifetime he would have had no access to any of these afore mentioned tools.

There were botanical drawings, literature and plant knowledge kept amongst certain members of society, but there was probably scant remainder of the common oral tradition of plant knowledge. European indigenous wisdom of plant knowledge maintained through an oral tradition would have been lost, eradicated or kept secret in Europe at that time.

During the fifteenth through to the seventeenth centuries, the systematic eradication of witches and the practice of witchcraft led to the loss of traditional herbal

medicinal knowledge and its practice for common people (Wertheim 1995).

The connection with nature’s pharmacy was severely diminished for the European people, even the fear of possessing such knowledge had become dangerously taboo. The execution of witches had finally come to an end in Goethe’s lifetime, but the presence of Christian dominance in society would have meant any animism of flora or fauna continuing to be strictly forbidden. However, Goethe’s revered status as a writer, artist and politician would have won him exemption from such purgatory and his seemingly Paganistic ideas and works were thus able to be published.

"Botany and medicine came down the ages hand in hand until the seventeenth century; then both arts became scientific, their ways parted and no new herbs were compiled. The botanical books ignored the medicinal properties of plants and the medical books contained no plant lore." (Leyel 1931)

Extant Indigenous Knowledge

“If it's the greatest, the highest you seek, the plant can direct you.

Strive to become through your will what, without will, it is.”

(Goethe 1790)

The Goethean methodology also appears to be not so dissimilar to the indigenous methods utilised by many herbal medicine practitioners globally.

Medicine men/women, spirit guides and shaman share similar intuitive approaches to understanding their plants and their potential medicinal values.

Taking time out, the use of intuition and imagination, the slowing of thought and putting oneself into the mindset of a plant could easily be condemned as absurd from a modern western perspective, listening to plants deemed ridiculous. One only has to look at the mockery Prince Charles received from the British media when he declared that he talked to his plants; maybe he should have listened to his plants, but that is a matter of opinion.

In indigenous cultures, where there may be no access to doctors, hospitals or 24 hour

pharmacies, self reliance and herbal plant knowledge are essential to survival. In these conditions, the approach to plant knowledge is taken a lot more seriously than in a modern, supposedly 'civilised' society.

In Stephen Buhner's book 'Sacred Plant Knowledge' (Buhner 1996); he describes the extent to which some indigenous North Americans go in their understanding of plant medicine. Buhner writes, "It is often a good idea for people desiring to make relationship with plants to carry a plant they feel drawn to in a medicine pouch around their neck, hanging it down to heart level, and that they do this for as long as a year. In this manner your body becomes more accustomed to the plant's presence and you become accustomed to thinking often of the plant."

He goes on to detail further methods, "at night it is good to sleep with the root of a plant you are working with under your pillow. This often results in easier access to dream medicine about the particular plant for your use and helps deepen personal relationship with it." It is clear that many indigenous cultures have an extensive holistic relationship with their plants; understanding their medicinal values, their nutritional properties, their habitats, their presence, as well as having spiritual connections with each individual species.

These other worldly plant properties are clear, obvious and animated in the hearts, souls and minds of indigenous peoples; this concept still remains incomprehensible to many western minds today.

Another example of human and plant relationships can be observed amongst indigenous American herbal practitioners (although undoubtedly similar methodologies are employed globally), by those known as Curandero. The name Curandero is literally, as translated from Spanish, as the 'healer', or more probably recognised in the west as a Shaman or medicine man.

The Curandero's unique relationship and extensive plant knowledge stems from journeying with plants on the spiritual plane, through consumption of plant concoctions, often hallucinatory, powerful and emetic, the Curandero 'travels' with their 'patients' and

seeks healing divination of the appropriate herbal remedy via the practitioners extensive knowledge and understanding of plants and their properties.

"The internal dialogue is what grounds people in the daily world. The world is such and such or so and so, only because we talk to ourselves about its being such and such and so and so. The passageway into the world of shamans opens up after the warrior has learned to shut off his internal dialogue" (Castaneda 2001) In essence, I personally believe Goethe's work with plants was a rebellious act against the contemporaneous scientific epistemology of his time. By diverging from a mechanistic, reductionist view of studying what was essentially botany and ecology, Goethe maintained a link between what would have been European Pagan methodologies of plant understanding with those methods we find utilised within indigenous communities currently and historically across the globe. Goethean science represents to me a bridging link between extant European indigenous knowledge and our current globalised renaissance of attempting to re-connect with nature.

A Cup of Liberty Tea?

My own personal journey utilising Goethean methodology is a vignette that I feel is worthy of mention.

I come from a professional background of woodland and countryside management, I have also worked as a freelance ecologist for some years. My relationship with plants has been on many levels, for example; from utilising scientific accuracy in the identification of plants for professional surveys, report writing and habitat management planning. I have also been interested in the medicinal and nutritional properties of wild flora and have embraced this journey as an amateur pursuit; this has also contributed in broadening my plant knowledge. And of course, in regards to the title of this essay, I love to photograph and try to capture the true beauty of Mother Nature herself, her flowers being some of her most expressive gifts.

I think I approached wild flora in a truly holistic way, long before I had discovered Goethean

science. One part of me utilising a reductionist western scientific epistemological approach as the ecologist, mixed with a methodology more akin to the feral ancient forager combined with my own personal take on an indigenous spiritual perspective. However, I was keen to approach Goethean science with a clear and open mind. In September 2012 I moved into accommodation at Schumacher College to commence study of the MSc in Holistic Science. Outside the front door of my new abode I was aware of a tall, yellow flowering plant that stood out of the semi-wild and diverse gardens that surround the accommodation blocks at the College. The plant had caught my attention - familiar, yet not. It seemed oversized for what I suspected the plant to be. However, it remained in my mind.

As part of studying Goethean science I was required to utilize his method of intuitive recognition and it was obvious to me which plant species I was to study. This plant had already 'spoken' or stood out to me. The plant's vivid colour and abundance had caught my attention; its attraction for so many pollinators in this late summer had also fascinated me. The summer of 2012 in the UK had seen unprecedented amounts of rainfall and I was acutely aware of the drastic consequences for so much wildlife, particularly invertebrates. I looked upon this plant and was curious to see how strikingly copious its pollen was, it was almost as if the plant was compensating for such hardships suffered earlier in the summer months. I proceeded to sit and contemplate this species and draw and study it intently. I later returned to my identification books and found in Philips' 'Wild Flowers of Britain' that it was the plant I had suspected it to be, *Solidago canadensis*, commonly known as Golden Rod.



Photograph 2: *Solidago canadensis*

I had moved from the South East of England to Schumacher College in the South West and read in Philips' book, "...abundant in England except for south east." On further investigation I discovered that the plant could be used in a tea and is used to boost the immune system, particularly at the onset of the winter months. *Solidago canadensis* is a seasonally late flowering species, blooming fully in the autumn, and as I discovered this plant's properties in late September, the timing was perfect, and I promptly prepared a brew. An interesting tale I also discovered about Golden Rod was its popularisation as a tea after the Boston tea Party in 1765. Golden Rod mixed with other herbs, including raspberry leaves, was then used as a substitute for black Chinese tea by the American colonists to evade the British tea tax. It became known as 'Liberty Tea' (www.mountainroseherbs.com.2012). There is no conclusion here that Goethean scientific methodology led me to a plant that helped boost my immunity at the onset of a seasonal change, but an interesting study none the less.

Recognising and Re-connecting to Nature

By photographing the wild flower, nature has attracted me to her presence; the flower being one of the most delicate and beautiful of her possessions. One may be presumptive that in her design the sole purpose of colours, delicate arrangements and wonderful diversity of the flower are there solely to attract the pollinator. Show a harebell to a small child, or a foxglove to the most hardened of urbanites and I would be surprised if you did not receive the smallest of smiles.

To spend just a moment looking into the wonderment of a wild flower embraces one with a feeling of warmth and tranquillity that nature gives to us. We can attend as many self-help groups, counselling sessions, even yoga classes and meditations, all of which are good practice in their own right, but for me, biagnostically (based on empathy and not reason), nature provides us with our own Prozac, there, right inside the view of that flower, for free.

Recent work by the Norwegian scientist and photographer Bjorn Rorslett has highlighted the complexity and purpose of flower patterning (www.naturfotograf.com 2012). Rorslett utilises ultra violet photography to highlight nature's intricate artwork within the parts of a flower and how it assists in directing pollinators to their bounty. The patterns located in parts of the flower operate as landing lights, similar to those on an airport runway, to guide the pollinator to the source of nectar.

'The primary function of many floral traits appears to be to ensure that flowers are highly visible, recognizable and attractive to animal pollinators. One floral trait that has been shown to increase pollinator visitation to a flower is that of contrasting colour patterns. These patterns can act as guides to pollinators to aid foraging by highlighting the location of nutritional rewards, or can increase visibility by using strongly contrasting colours' (Mitch 2003).



Photograph 3: *Mimulus guttatus*

The Science of Art, the Art of Science

Through the arts man has eternally attempted to express that feeling of reconnection with the natural environment. A lengthy list could be compiled of all the poets, musicians, composers and artists that have been inspired by nature. So many have tried in a multitude of media to describe that ineffable feeling... that incredulous moment when nature enraptures us.

".....Enough of Science and of Art;
Close up those barren leaves;
Come forth, and bring with you a heart
That watches and receives."
(Wordsworth 1798)

In reflection of the original question, 'If Goethe had a camera?' one can only muse. After all, he had lived during the early development of photography (the first permanent monochrome image being produced in 1826 (www.rps.org. 2012)), however my own research has revealed no information regarding whether Goethe had any knowledge or opinion of this early photography. Nevertheless his scientific method has survived and is currently enjoying a renaissance and I suggest, as a fellow biophiliac, that Goethe would have appreciated and supported deeper understanding of the plant through photographic practice as I have outlined in this dialogue.

Photography helps people to see. My own personal slant on photography tries to capture the moment I am entranced by nature; I can bring the image home with me and then share it with others.

In working with nature one learns to slow, to be contemplative and reduce one's haste; to find a pace more appropriate for the natural world rather than the speed of our own anthropogenic domain. Consider the time framework of a tree's lifespan, think of the lapse of the seasons, even contemplate the unfathomable time of the geological processes and one can slow to something more suited to nature's pace.

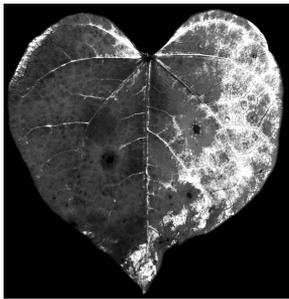
Plant inhales carbon dioxide, exhales oxygen;
Man inhales oxygen, exhales carbon dioxide;
plant inhales carbon dioxide...and so forth. We live and breathe together.

In woodland, when alone, I like to enter as silently as possible and when comfortable find a place to sit. Most of the birds will have been calling their alarms at my first entrance to the wood; squirrels scurry up trees, the wood mouse will hide back into the undergrowth, all eyes are upon me. The whole forest will be alerted to my presence. Many creatures will remain perfectly still; any movement could be the giveaway between life and death. I also remain perfectly still, unthreatening, and breathe in the forest. Eventually my presence may become recognised as harmless. I continue to sit and be still...and after some time the forest starts to unwind from its coil of alarm. None of this happens swiftly.

Eventually the woodland creatures begin to reveal themselves, the boldest first; squirrel reappears back down the tree and continues in its forage, after some time wood mouse cautiously continues about its business, the birds once again resume their daily frolic. The woodland eventually re-embarks in its interactions as if I never existed.

Simply sitting and finding my place in the woodland is similar, for me, to the principles of Goethean science. The exercise of patience, acute observation and deep intuition lead to a better understanding of nature.

You then might find yourself in a position of greater awareness and knowing, and if you are lucky enough...nature may reveal some of her precious secrets for you.



Photograph 4: *Cercis Canadensis*

Love is the whole thing. We are only pieces.
~Rumi



Grant Riley is a free-lance ecologist currently studying on the Master In Holistic Science at Schumacher College, Devon, UK. He has spent several years working in woodland and countryside management in the south east of England. In 2008 he graduated and received his Bachelors degree in Ecology and Biogeography from Brighton University.

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All photographic images in this essay are original photographs by Grant Riley.

THE BUDDHA AND WHOLENESS

SATISH KUMAR



One day Buddha was sitting by a pond, disciples gathered around him, everybody sitting calmly and in silence. The Buddha held a lotus flower in his hand and looked into the eyes of the monks sitting in front of him. The monks were looking into the eyes of the Buddha in return but there was a kind of blankness in their eyes. The blankness was caused by bewilderment and wonder. The Buddha kept holding the lotus. Moments later one disciple called Ananda smiled joyfully at the Buddha who returned the smile with equal joy. The Buddha placed the flower in the pond, got up and moved away.

The rest of the disciples looked at Ananda in amazement and asked him, “While we were looking at the Buddha and wondering why he was holding the lotus flower in his hand, you smiled joyfully that the master was delighted and he blessed you with his smile, with a twinkle in his eye. Please, Ananda, tell us what went on between you two.”

Ananda replied, “When I saw the lotus in the hands of our enlightened master the Buddha, I saw it as a lotus, nothing but a lotus, just a flower from the pond. Then I saw the sunshine in the flower, I saw water in the flower, I saw mud in the flower; no mud, no lotus. Then I saw the Buddha in the lotus; no lotus, no teaching of the Buddha. In that moment of great teaching I saw the lotus and the Buddha as one. I saw the whole universe in the lotus; macrocosm in microcosm. I understood the meaning of co-dependent arising – everything is made of everything else – life is one, holding many elements within it and manifesting in many forms, but totally dependent on each other. When I realised this truth, the unity and wholeness of life; I was filled with joy, so I smiled. I think the Buddha understood what I had experienced. So he blessed me.”

The disciples heard Ananda in stunned silence. They too got a glimpse of the truth of wholeness.

The Buddha’s teachings spread far and wide; even though the Buddha only went as far as his two legs could take him. He spoke few words and communicated through many gestures. More importantly he made a great impact by his living example. Even though there were no means of communication other than word of mouth, thousands upon thousands of men and women came to hear him, learn from him and follow his example. What he taught was pure truth from his heart and he taught it with profound compassion for all people irrespective of their caste, class, creed or status.

Such teachings of wholeness are most inspiring. No wonder that even after 2,600 years since he passed we still find his teachings so uplifting.



Satish Kumar renounced the world at 9 and joined a wandering brotherhood of Jain monks. At 18, he left the monastic order and became a campaigner, working to turn Gandhi’s vision of renewed India and a peaceful world into reality. He undertook an 8,000 mile peace pilgrimage, walking from India to America without any money. Since 1973, he has been the Editor of Resurgence magazine.

www.resurgence.org

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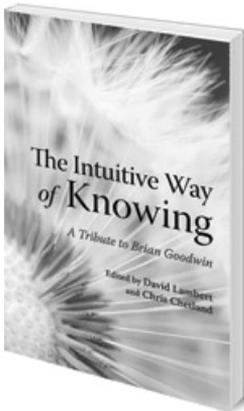


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To continue the discussion on Dynamic Wholeness and other related topics covered in this Journal, the website www.journeyschool.org will be online soon. There you will also find information on the various events of Process and Pilgrimage.

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