FLOAT LIKE A BUTTERFLY; STING LIKE A BEE

Float Like a Butterfly: Sting Like a Bee *charts the historically complex interspecies relationship developed over millennia between Human and Bee societies and traces the ever shifting metaphors of governance and social organisation that the Bee colony has provided. The paper examines the intertwined trajectories of the Bee and the Chemical industry in their parallel roles in Agriculture and Warfare and concludes with an illustration of the Author's personal engagement with the hive-mind in his efforts toward the co-creation of artworks.*

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Out of the eater came forth meat and out of the strong came forth sweetness. [1]

September 1st 2013: As I write some over-caffeinated almost-adult sits in a Texan bunker plotting the target coordinates for a series of drone strikes on Syrian military targets. With some foresight they may avoid liquidating the Sarin gas stockpiles close by the Jordanian border, a collateral damage disaster utterly remote from the worldview and experience (and therefore judgement) of the juvenile games-jockeys who fly these virtual weapons. Their puppet masters, the hive-mind of the Pentagon is abuzz with swarming algorithms developed for them by the Rand Corporation in a 125 page document espousing strategies based upon an almost total misunderstanding of the behaviour of bee swarms.

November 28th 2013: Looking back, a deal was struck, the world focussed upon the chemical warfare issue with a relatively fast and efficient outcome, that however provided a smokescreen for the regime to pursue its offensive against the civilian population unhindered.

Nigel Helyer
Float Like a Butterfly; Sting Like a Bee, 2013

Swarming and the future of conflict

Swarming is a powerful metaphor currently applied to contemporary military strategy. The Rand Corporation's report Swarming and the Future of Conflict commissioned by the US Department of Defence promotes the swarm metaphor, of semiautonomous, networked mobile units that continuously synchronise and adapt.

Swarms are complex adaptive systems, but have no central planning, simple individual rules and non-deterministic behaviours that evolve with the specific situation.

Somehow the Rand Corporation have characterised bee swarms as malevolent and aggressive! [2]

Chemistry

The Assad regime has weaponised Sarin (Russian, Chinese or British?) and honey bees are plagued by Neonicotineoids, increasingly linked to Colony Collapse Disorder. It is ironic that our agricultural output, our global food security rests upon a knife-edge. On the one hand we depend upon chemically 'nurtured' crops, pest and weed suppression, on the other hand, the same chemical armoury threatens the destruction of insect pollinators who are responsible for some 50% ~ 80% of our crops.

Nigel Helyer
Float Like a Butterfly; Sting Like a Bee, (spylens) 2013

It is even more ironic that the chemist Fritz Haber, who received the Nobel prize in 1918 for his work in synthesising Ammonia, vital for the production of artificial agricultural fertilisers (upon which half the world relies for food production) is also notorious as the Grandfather of chemical warfare. As patriotic German (albeit of Jewish descent) Haber, developed the methods for producing and delivering the Chlorine gas weapons so feared in World War One trench warfare. This ethical non-sequitur is perhaps put into context by recalling that Nobel himself was the inventor of Dynamite.

We are currently witnessing the chemical and pharmaceutical giant Bayer challenging the European Union ban on the pesticides they manufacture which have been shown to cause massive bee die-off, imperilling the entire food-chain.

Bayer`s corporate tagline is *Science for a better life!* But the company has a murky past being implicated in the development and production of poison gasses used in the trenches of World War One, including chlorine and mustard gas. As part of IG Farben, Bayer was subsequently engaged in the development of the next generation of chemical warfare weapons such as organophosphate compounds, again used as both pesticides and as Sarin and VX Nerve agent.

Reframing the Bee, Sentience

A spider conducts operations that resemble those of a weaver and a bee puts to shame many an architect in the construction of her cells. But what distinguishes the worst architect from the best of the bees is this, that the architect raises his structure in his imagination before he erects it in reality. [3]

Can a bee dance about dancing?
Or think about thinking?
Are we perhaps trapped by our own mechanistic metaphors?
Can we think about bees?

From Fritz Haber we turn to another German Jewish scientist of a more pacifist disposition. Karl von Frisch who make a comprehensive study of the language of bees. So what of language, of negotiation, of discussion, where do bees fit? Karl von Frisch who decoded much of bee communication (and awarded the Nobel prize in 1973) held a strong empathetic relationship with bees, characterised their communication as symbolic, as a language but never as speech, instead a precise and highly differentiated sign language.

Karl von Frisch and his assistant Martin Lindauer conducted the bulk of their research on bee communication and behaviour during World War Two in a relatively peaceful rural setting. As part Jewish, Von Frisch was due to loose his professors post, it was only a plague of Nosema Apis that threatened the Nazi agricultural war effort that gave him a temporary reprieve.

Nigel Helyer
Float Like a Butterfly; Sting Like a Bee, (detail) 2013

It is hard to miss the irony that whilst the human world descended into chaos von Frisch quietly decoded the highly complex, cooperative organisational and behavioural structure of the hive and the role of individual bees within it.

Von Frisch and his hives outlived the Third Reich to give the world the dance of the bees. In his novel Austerlitz, W.G. Sebald wonders.

There is no reason to suppose that lesser being are devoid of sentient life...Do Moths dream? Do they know they are lost when, misled by a flame, they enter a house to die?

By what criteria can we judge the behaviour and the language of beings so ancient and so utterly alien to ourselves? Such judgement is a paradox of our own language and forms a Procrustes Bed for our intellect and sensoria.

Reframing the Bee

The metaphor of conflict. The uncomfortable linkage between modern agriculture and modern warfare that shares its toxins with human and insect alike is paralleled by an ancient linkage between the bee and warfare. For millennia colonial insects, ants, bees and termites have been employed as models of social hierarchy, especially noted for their prowess in conflict.

Bees have been at the forefront of entomological warfare from the outset ~ indeed the word Bombard is derived from Latin meaning buzzing or booming and is the Genus name for the bumble bee *Bombus*.

The role that bees have played in warfare since antiquity is well documented, a dramatic example being the decline in the honey bee populations during the late Roman era, principally caused by the use of hives as missiles, launched from catapults during sieges and in open field warfare. The practice of weaponised bees was widespread, English castles had Bee Boles

constructed along the battlements, with hives ready to fall upon foolhardy invaders.

Even Richard the Lionheart employed so called Nest Bombs during the third crusade against his Moslem enemies.

In the Fifth Century BCE the army of Xenophon was bought to its knees (sic) due to his men bingeing upon Mad Honey, the product of bees foraging exclusively in Rhododendron groves. The Romans later employed this toxic substance to good strategic effect. Mad Honey eventually became a commodity, during the C18th up to 25 tonnes of Turkish Deli Bal was shipped annually to Europe where, in mild doses, it was used as an intoxicant.

Reframing the Bee, Political and Social metaphor

That the bee, termite and ant as colonial insects with a strong social order should make a convenient metaphor for human social structures is both obvious and ancient. These metaphors have however evolved with both the increase in knowledge of insect ecologies and as reflections of changes in human social mores.

The bee for instance has been (and remains) symbolic of good (hierarchical) government with a vast population of obedient workers ruled over by a Queen. We still use the terms *As busy as a bee* and *A hive of industry* as affirmative phrases. As the reproductive cycle was, until quite recently, a mystery, the Queen was long regarded by the Christian Church as analogous to the Virgin Mary; until it was discovered that she made a single but prolonged nuptial flight mating with up to eighty males, retaining their sperm for the duration of her long productive life - not such a chaste Lady after all!

The workers who make up the vast majority of the hive population, have stood for loyalty, obedience, courage and selflessness ~ and much of their behaviour would seem to support these anthropomorphic metaphors we attach to them - perfect role models for Nineteenth Century industrial capital, which like the Monarchy is based upon an autocratic power pyramid.

However, turn this pyramid image upon its head and consider for a moment the still mysterious behaviour of bees in Swarming mode. The hive has grown and the colony divides. The outgoing group muster, hanging from a branch somewhere, considering a new location. The swarm sends out a stream of scouts, often over a period of days, who report back, using methods similar to the bee dance to relay complex qualitative information. Somehow a collective process is engaged, the swarm considers this growing matrix of spatial data and eventually they fly to the most favoured location to begin a new colony.

This is not the work of an individual mind, it is a product of parallel processing, a natural neural network, if you like, that has evolved over a 100 million years, the hive as super-organism.

Reframing the Bee and the Post Human

Perhaps our biggest mistake is the illusion of individuality, of considering our sentience to be set apart. Individual consciousness set apart from our species and apart from the fabric of the planet. Viewed from a theological perspective the ontology of an individual being is a thorny issue, of the what next after death variety. Viewed in the context of the flowing fabric of a species it is hardly worth a mention. In the long-haul the collective model of the super-organism may serve us as species better than our obsession with individual consciousness.

The post of post-human has never resonated for me, suggesting a premature philosophical sleight of hand in which our species has skipped the most difficult and essential stage of its development. Leap-frogging from the sub or pre-human (perhaps via the in-human) to arrive at the posited post-human. [4]

As a species so obviously out of equilibrium with its environment and fellow travellers this short-circuit eschews our organic being and becoming, increasingly placing us centre stage of an existence co-produced with informatics.

Reframing the Bee, Morphology

The gradual symbiotic transformation of the honey bee and its inclusion within the human orbit precedes the domestication of other species by millennia. Selective breeding and husbandry techniques have modified size, behaviour and productivity, but contemporary research interests seize upon other key bee features, such as sensory faculties and communication and navigation abilities, to recast the bee in the mould of informatics and robotics.

The war on Terror requires new technologies of warfare but even more importantly new technologies of surveillance. [5]

Nigel Helyer
Float Like a Butterfly; Sting Like a Bee; hive with audio actuator and spy-hole lens. 2013

Reframing the Bee, Instrumentalisation

One might ask, why the sudden interest in bees? Is it simply so that we can instrumentalise them as miniature flight navigators for smart weapons, as chemical sensor arrays, or is it the sombre realisation that without them we may be collectively resetting to zero; game-over for agriculture?

At the Stealthy Insect Sensor Project (Los Alamos Labs) bees are now deployed as BioSensors, undertaking work for eco-toxicologists, gathering data and mapping the distribution of chemical pollutants, land-mines and radionuclides.

Bees and the products they collect (and metabolically filter) are increasingly used for Bio-monitoring toxic and trace elements. However unlike man's best friend (the Bassett Hound) bees are not obedient to human demands or affections and have a tendency follow their own (non mammalian) agendas.

My conversation

My own experience has been a slow and subjective conversation, one at first full of apprehension which has been slowly eroded by my curiosity. My initial fears were a compound of a sense of alarm when opening a hive to experience the intense sonic blast, the hive body and hive mind at work, coupled with my mild claustrophobia bought about by the Bee-suit.

Suiting up in the Beekeepers outfit is for me identical to the constricting embrace of scuba gear, the mesh hood and the tightly fitting mask share the same restricted tunnel vision. The physical conditions invoke the same sense of immersion, of an environment that surrounds, be it suspended in water or surrounded by a swirling cloud of worker bees, the super organism spatialised.

In the white hooded and visored bee suit, the white gum boots and the heavy arm length gloves - I am dressed like an emergency worker in the nuclear industry, approaching a rogue atomic core, the hive radiating a dense energy, apian atoms vibrating on waxy fuel-rods compressed into the containment vessel.

Increasingly I realise that we do not inhabit the same world, we live in different spectra, operate at difference frequencies with different clocks. By comparison I often feel clumsy and under-evolved

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when I regard these creatures bristling with antenna, with resonant carapace, responsive to electromagnetic fields; to gravity; to vectors of sunlight; to magnetism; to tactile; chemical and vibratory sensations. Creatures capable of making complex colony wide decisions that leave us baffled.

Despite this we collaborate and cooperate, each party working in ignorance of the other, although it is sometimes difficult not to imagine a collusion, a thought transference.

As an example, in the small sculptural work *Float like a Butterfly; Sting like a Bee* [6] I placed a small architectural model of the Brandenburger Tor (the Brandenburg Gate in Berlin) in the upper Super of a hive. Ironically this coincided with a cessation in the honey season and the bees did not build any comb, they did however construct a wax column which appeared to me to resemble the Siegessäule (the Victory Column topped by a statue of the Goddess Nike) located in the Tiergarten close by the Brandenburger Tor. From here the metaphors began to condense, thoughts of Fritz Haber and his antithesis Karl von Frisch, of chemicals and bees; of bees and warfare; of bees and the Vergeltungswaffe, the infamous V1 BuzzBomb - its sonic signature not so far from that of the roar of an angry hive.

Not unlike a Surrealist working with Automatic Poetry the bees have become my unconscious collaborators, working beyond my beck and call to deliver images that like Rorschach Tests inevitably acquire meaning in the pattern hungry human brain.

End Note

From their home they fly now here, now there, feeding on honeycomb and bringing all things to pass. And when they are inspired through eating yellow honey, they are willing to speak truth; but if they be deprived of the gods' sweet food, then they speak falsely, as they swarm in and out together. [7]

And a final pause for thought, the next time you put a teaspoon of honey in your tea ~ reflect that this little drop of sweetness took twelve bee lifetimes to make, who traveled a collective flight distance of 10,000 kms.[8]

Notes

[1] From the Riddle of Samson, Book of Judges, also used since 1904 as the Logo of the Tate and Lyle Syrup Co. In classical times insects were thought to arise from the miasma of Nile mud and rotting carcasses hence the association of Bees with the Cult of the Bull.

[2] Rand Corporation Abstract for Swarming and the Future of Conflict: Swarming is a seemingly amorphous, but deliberately structured, coordinated, strategic way to perform military strikes from all directions. It employs a sustainable pulsing of force and/or fire that is directed from both close-in and stand-off positions. It will work best — perhaps it will only work — if it is designed mainly around the deployment of myriad, small, dispersed, networked manouver units. This calls for an organisational redesign — involving the creation of platoon-like pods joined in company like clusters — that would keep but retool the most basic military unit structures. It is similar to the corporate redesign principle of flattening, which often removes or redesigns middle layers of management. This has proven successful in the ongoing revolution in business affairs and may prove equally useful in the military realm. From command and control off-line units to logistics, profound shifts will have to occur to nurture this new way of war. This study examines the benefits — and also the costs and risks — of engaging in such serious doctrinal change. The emergence of a military doctrine based on swarming pods and clusters requires that defense policymakers develop new approaches to connectivity and control and achieve a new balance between the two. Far more than traditional approaches to battle, swarming clearly depends upon robust information flows. Securing these flows, therefore, can be seen as a necessary condition for successful swarming.

[3] Karl Marx, Das Kapital.

[4] This critique could apply equally to Donna Haraway's ironic Cyborg version of the Post-Human, Hayle's move from materiality to information or the futurism of the Trans-Humanists.

[5] Donald Rumsfeld

[6] In 1964 Cassius Clay (aka Mohammed Ali) was asked how he would deal with the presumed unbeatable champion Sonny Liston. Clay pronounced he would "Float like a butterfly, sting like a bee. Your hands can't hit what your eyes can't see."

[7] Melissae, Bee and Honey Nymphs - Homeric Hymn 4 to Hermes 550 (trans. Evelyn-White) (Greek epic C7th to 4th B.C.)

[8] 1 kg of honey equals how many be lives, how many kilometres of flight. A Bee makes 0.4107ml honey in its lifetime, so it takes 2,400 bees to make 1kg of honey and they will travel about 1,926600 kms to do this.

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