TRANSITARIA

SUSANNE RAMSENTHALER

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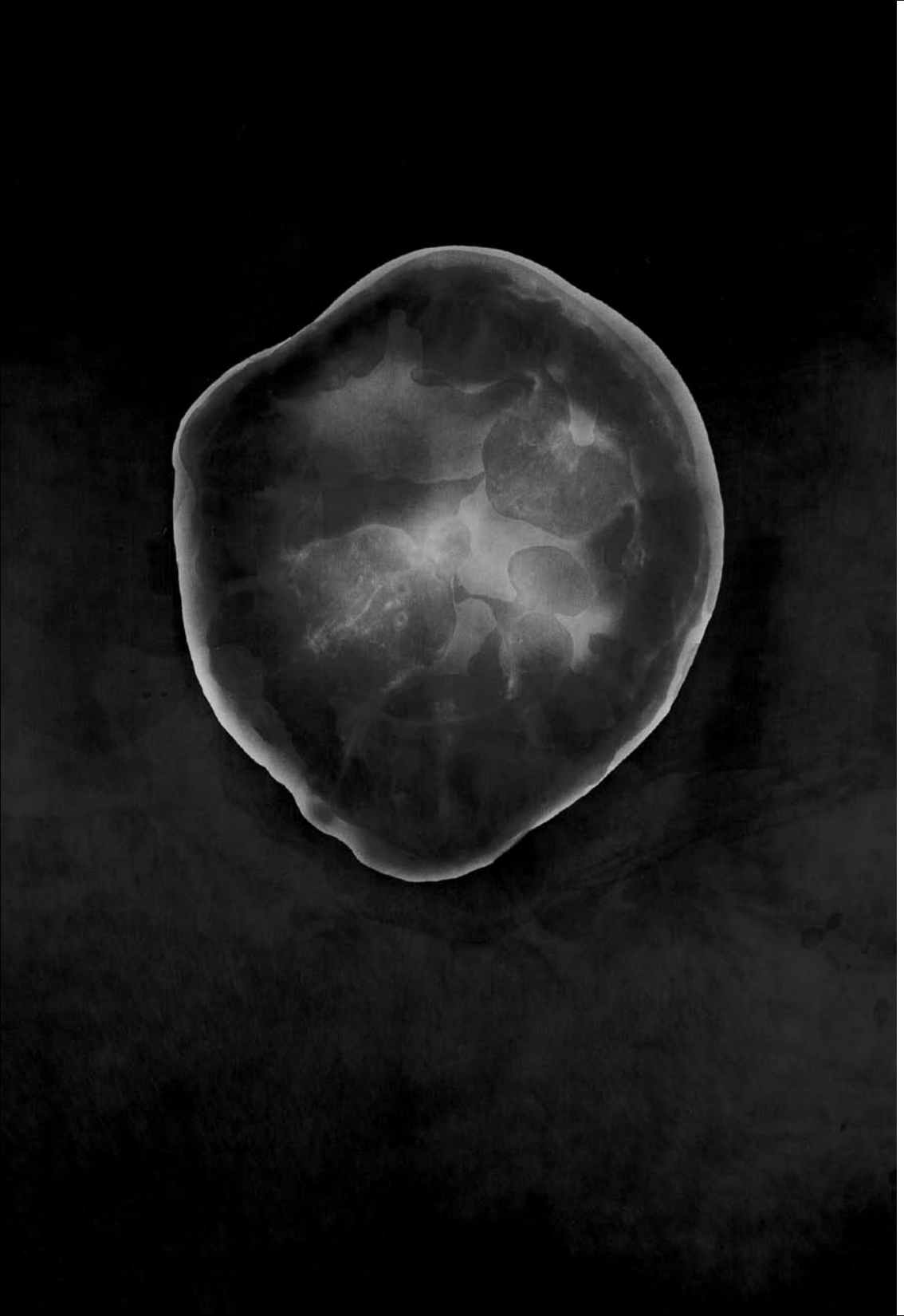


INTRODUCTION/Dallas M Mechan

Image from the series *Bloom* by Susanne Ramsenthaler

transitaria [tranzitā'ri-ə] *n*.
The process of transition from one state to another.

Like the images in this publication, not everything is as it first appears. This is an imagined definition of the word which artist Susanne Ramsenthaler herself fabricated as a title to encompass four recent bodies of work. In visual terms, the work examines an encounter with jellyfish and our ambivalent reaction to them, at the same time making a visceral connection back to the more primitive functions of our own bodies.

Transitaria's publication coincides with the showing of the exhibition of the same name at Kirkcaldy Museum & Art Gallery from December 2008 to February 2009. It includes three bodies of still images- ***Hybrids, Flux*** and ***Bloom***. A fourth video piece - ***Breathe***-included in the exhibition is not illustrated here.

The series ***Hybrids*** are digitally manipulated images of jellyfish and emphasise the idea of metamorphosis and mutation of life forms. The heightened colour and luminosity in the images has almost turned these creatures into a new species inhabiting a different realm.

Each image in the series ***Flux*** is unique. With no camera or negative, these are giant photograms created directly by exposing photographic paper to light through moving water and capturing its fluid, chaotic and organic qualities.

Bloom also uses this technique but here the shadows are created not by water but by jellyfish. These striking monochrome images with their ghostly traces are both beautiful and strangely moving.

Transitaria reflects Ramsenthaler's interest in liminality - the state of being on a threshold between two sensory experiences or two worlds. Jellyfish, at the end of their life cycle, left behind by the tide on the eastern and western shores of Scotland have been transformed by Ramsenthaler's creations. In life, we are in turn fascinated and repelled by their tendrils, by their aqueous slipperiness. Through her we encounter these creatures anew in a very different context. Cut loose from any fixed point we find ourselves floating with them in their world – but with no sense of scale we might be floating out in the universe, in the shallows of a rockpool or even under the microscope in a Petri dish.

This publication brings together Ramsenthaler's stunning images and writings inspired by her work or linked to the ideas and subjects it covers. Ramsenthaler chose each of the artists to contribute to the project. Philosopher Alphonso Lingis was invited to contribute an existing essay, because the ideas it explored - our animal nature - chimed with aspects touched on in Ramsenthaler's work. The others were invited to participate by using her evocative images as a springboard for the creation of new work. The result is lyrical poetry by Anna Crowe, quirky science fiction tales by Alistair Potter and Steve Hughes' intriguing exploration of symmetry breaking.

None of these writings describe any specific individual image, and none of the images illustrate the writings. Rather they link to and reflect different facets of each other. Together they form a powerful, stimulating and thought provoking body of work.

Dallas M Mechan
Curator

SUSANNE RAMSENTHALER

Susanne Ramsenthaler is a visual artist and part-time lecturer in photography at Edinburgh College of Art.

Her work is largely lens-based, encompassing a wide range of practice, from antique non-silver printing techniques to Digital Imaging and Computer Animation.

As well as making bodies of work that examine the difference between human perception and the photographic image (something which is mostly thought of as one-and-the-same), she addresses perception in psychological and phenomenological areas, i.e: how the information and experiences of everyday life are being digested and edited in the process.

Recent research attempts to identify the difference in the cognitive perception of the regular photographic image versus touch orientated processes such as the photogram and, by extension, x-rays.

Her interest lies in things that are liminal, on the edges, or hybrids: … the fine line between attraction and repulsion, for example, and things that fall into that category.

In this spirit, mixing low-tech with high-tech, old with new, has become a regular mode of working.

Susanne has carried out various commissions and exhibits widely on a national and international level. Her works have been exhibited in the USA, South Africa, Spain, Germany, Croatia, the UK, and at the St. Petersburg Biennale, Russia.

CONTRIBUTOR BIOGRAPHIES

Anna Crowe

Born in 1945, Scottish poet and translator Anna Crowe teaches poetry-workshops at the University of St Andrews (dept of Continuing Education). She is the co-founder of StAnza, Scotland's International Poetry Festival, and was Artistic Director for its first seven years. Her work has been widely anthologised.

Publications: *Skating Out of the House* (Peterloo 1997); *A Secret History of Rhubarb* (Mariscat Press 2004); *Punk with Dulcimer* (Peterloo 2006); *L'ànima del teixidor* (in parallel text, Proa 2000); *Punk con salterio* (4 Estaciones, Córdoba, 2008).

Translations: 2 books of poems by Joan Margarit:— *Tugs in the fog* (Bloodaxe 2006), a Poetry Book Society recommendation; and *Barcelona Amor Final* (Proa 2007); *Music & Scurvy*, poems by Anna Aguilar-Amat (trilingual edition, Blesok Press, Macedonia, 2006); *Light Off Water*, an anthology of XXV Catalan poems (Scottish Poetry Library/ Carcanet Press 2007).

Awards: Peterloo Open Poetry Competition (1993 and 1997).

In 2006 she received a Travelling Scholarship from the Society of Authors.

She is married to Dr Julian Crowe and has three grown-up children.

Alistair Potter

Alistair Potter writes Science Fiction and Fantasy. Primarily a novelist, he also writes poetry and short stories on any topic. Though unpublished in novel form, several magazines have accepted his short stories and cartoons. He has had work presented on BBC Radio 4 in their Scottish Shorts Afternoon Readings slot, and is a former recipient of a Scottish Arts Council New Writer's Bursary.

Steve Hughes

Steve is a lifelong committed sailor always anxious to get afloat in anything from a homemade canoe in the creek to a tall ship racing across Biscay. His working career has been mainly spent in labs as a research biologist with interests ranging from bacterial genetics to plants crops and food. Most recently, while resident at the ESRC Centre for Genomics in Society he has become engaged with the sociology and philosophy of science and has started to move this closer to his creative interests in poetry and sculpture. He has exhibited work at Dartington, Spacex, Havenbanks and Edinburgh Fruitmarket Galleries.

Alphonso Lingis

Alphonso Lingis is professor of philosophy emeritus at the Pennsylvania State University. He has published *Excesses: Eros and Culture* (1984), *Libido: The French Existential Theories* (1985). *Phenomenological Explanations* (1986), *Deathbound Subjectivity* (1989), *The Community of Those Who Have Nothing in Common* (1994), *Abuses* (1994), *Foreign Bodies* (1994), *Sensation: Intelligibility in Sensibility* (1995), *The Imperative* (1998), *Dangerous Emotions* (1999), *Trust* (2003) , *Body Modifications: Evolutions and Atavisms in Culture* (2005), and *The First Person Singular* (2007).

JELLYFISH/ANNA CROWE

Images from the series *Bloom* by Susanne Ramsenthaler

for my grandchildren

They drift to memory's beach like summer ghosts,
those jewels we learned as children not to touch:

blur of Blue John galena amethyst

paperweights pinning the hours between the tide
and tide; glass beads round the neck of the bay—

Tregonhawke Fisherman's Candle-grease Polawn

domes of soft translucence, tentacles gone;
storm-fruit, windfalls pregnant with beauty and risk;

trilobite rib-cage St Brendan's curragh

small foundered boats upturned beneath the sun,
your tang of salt smelling of home, you remind us

embryo honesty seed love-in-a-mist

how fragile are the lines that bind us, flesh
to earth; how, having staked our claim, we have lost.

tiger's eye ice-flower guillemot's egg

If we could attend to *Aurelia*
aurita's joyful pulsing, and learn to drift,

coral reef green island mother-of-pearl

salt on our lips, with *By-the-wind-sailor*, lives
attuned to whale-song, trusting the vagaries

a pair of clogs sea- urchin hungry mouth

of wind and current, luck, the hands of strangers,
and steer by the twin stars of love and guesswork,

hare-in-the-moon dewdrop misshapen pearl

we'd see the everyday transfigured: the way
the hour the window westward blazed with gold

sunflower hawkweed star-of-the-sea

my grandfather would stand to light the lamp,
and Eddystone out in the bay would answer;

aureole pulse nebula water-mark

just as this bloom calls out in recognition
of the child poised inside its mother's womb

viscera millefiori poppy-head coral

like radiant flower or like a bird that feeds
in a walled garden, safe from flood or fire.

rainforest burning hurricane's eye Sargasso

Seeing all this, can we not tread the earth
more lightly, knowing we share its fields and firths

skerries freshets saltmarsh wrinkled sea

with otter, corncrake, eider? Rain on the window
reddens like lava in the bonfire's glare

flexing lens torrent fire-storm flux

while into the dark we hurl our bright, unquiet
desires. The raindrops trickle, merge in lines,

harpoon stone sea-lily permafrost thaw

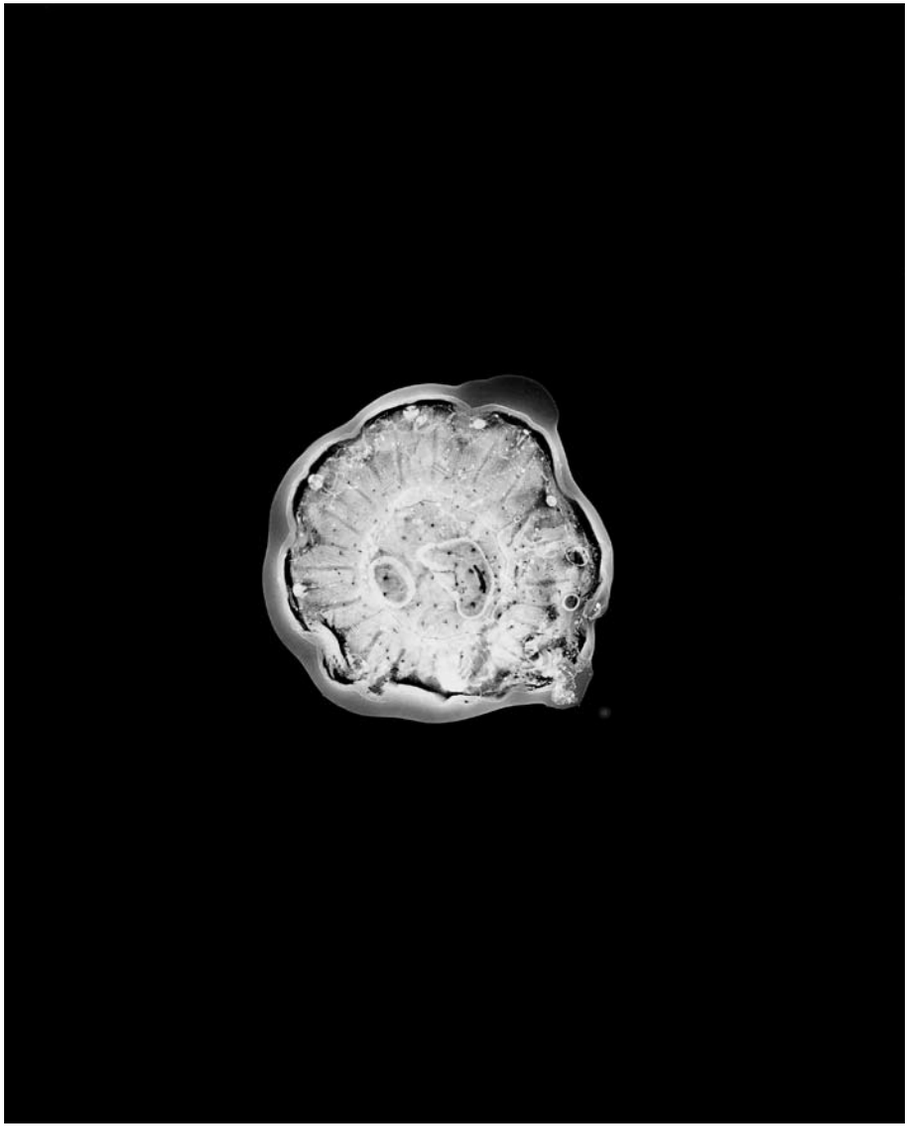
run swiftly down, obedient to earth's pull;
entering rivers, oceans with their currents,

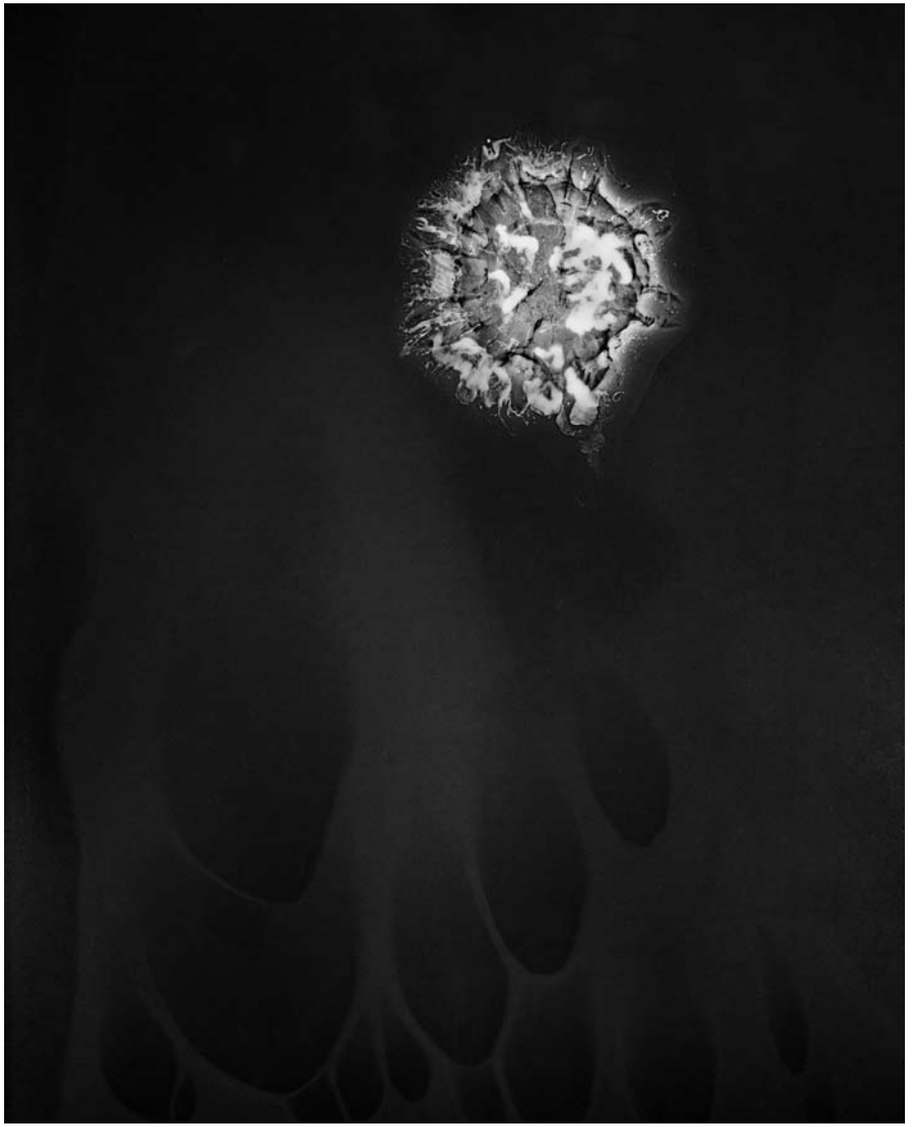
ebb estuary rise and fall of breath

tides, eddies, clouds, rain like a sacrament.
On the sand our footprints fill with water.

cirrus nimbus iris ultramarine

St Andrews, November 2008





THE VISITORS

ALISTAIR POTTER

Images from the series *Flux* by Susanne Ramsenthaler

Ted Harveys was bored. Something he could never admit to Mission Control, or in fact to any of his colleagues. In theory he had one of the most prestigious jobs in the world, or rather outside of the world, in near-Earth orbit. As senior scientific officer aboard the International Space Station, he monitored and managed the constant flow of scientists from Earth. They brought with them their experiments, their foibles and their egos. He dealt with all of that, stopped anyone from accidentally blowing a hole in the station's fragile shell, settled arguments about lab rotas, and made sure everyone had enough air to breathe and food to eat.

His scientific credentials were as a communications expert; gifted in languages of all types, human and mathematical. But somehow, he had managed to leave most of the science behind and become a glorified office manager. Sitting in his personal environment unit, one of forty that formed a connected ring spinning at 1G of simulated gravity, Ted could have been in an air-conditioned office anywhere on Earth.

He was actually very good at what he did. His insight had saved many a near-failing experiment, prevented non-starters from wasting valuable station resources, and found gems among the chaff desperately seeking off-planet time to develop groundbreaking advances, but still, he was bored.

He sighed, gritted his teeth and opened yet another block of admin files waiting on his terminal. Twenty minutes later, he was so engrossed in the tedium of the job he almost missed the alert box flashing in the top corner of his display.

His only remaining experiment was running on auto, collecting electro-magnetic pulses from deep space. The alert meant it had found a repeating pattern. These are not uncommon, but certain types are worthy of more attention.

He pulled up the data. It was very clear; a pair of pulses, both regular but with different frequencies; one about 40 Hz the other about 50Hz.

Ted generated a graphical plot of the pulse data already collected, and made a startling discovery; it was a repeating sequence lasting about five seconds. Both pulses started at the same time, ran for the five seconds, then the slower pulse stopped and the faster pulse ran-on for about a tenth of a second more. The sequence repeated after a short gap. In addition, while the slower pulse remained at constant amplitude the faster pulse started with a weak amplitude that grew steadily greater. When the pulse amplitudes matched, the slower pulse vanished. A quick check produced another startling revelation. The signal was getting steadily stronger.

"Holy shit, ho-leee shit," the words spilled out of Ted. *Something* was generating this signal, and it was very likely that the *something* was getting closer at an appreciable rate. It could be a first contact situation.

He punched a sequence into the terminal. Lenska, his favourite admin slave, and a gifted biologist, appeared top-centre in a conference box.

"What's up, Ted?"

"I need you to get me on the deep space array ASAP!"

Lenska's eyes shifted focus as she pulled up the access rota on her own terminal. "I can fit you in next Tuesday, there's a forty minute slot available."

Tuesday was three days away. "I'm probably not making myself clear," said Ted, "I mean ASAP, I need to use it now!"

Lenska's eyebrows went up. "Are you making a priority mission objective request? And before you answer I should tell you, you'd be bumping Silverman off his schedule."

Silverman was a prestigious scientist, once a rival, but now his status eclipsed Ted's by a significant degree. Silverman was so well connected on Earth that something as simple as pushing him off the schedule could damage Ted's career, worst-case scenario it could mean the end of Ted's off-world duties. It would be prudent to wait and take the next slot.

Then Ted had an awful thought; though Silverman was working in a very different research area, they shared each other's raw data. If Silverman picked out that one particular data stream for analysis, he would almost certainly follow it up. First contact in any form would be a major scientific coup, regardless of the source of the data, or the effort that went into gathering it. Silverman had climbed over many backs, including Ted's, to get where he was. He would think nothing of grabbing the kudos. Though often shrouded in other research, it had always been Ted's dream to find intelligent extra-terrestrial life. It was too big a chance to take.

Lenska still waited.

It was all or nothing. Ted took a deep breath. "Yes, I'm invoking a priority mission objective request."

A small wicked smile appeared on Lenska's mouth. "Yours in 15 minutes. You'll need assist on the terminals. Strangely, I'm also free in exactly 15 minutes."

"My god," said Lenska, "they're beautiful."

Ted had to agree. The cluster of strange lights they had found on the edge of the solar system were indeed beautiful. They were also enigmatic, impossible, wonderful, and really, truly alien. They matched no known astronomical objects, and the most startling piece of data so far; the signal had only started as the cluster crossed the outer boundary of the solar system.

"Do you think they're life-forms?" said Lenska.

There was the impossible thought. "Who knows," said Ted. "Best not to get ahead of ourselves, we don't want to get a reputation for *loonie talk.*"

"Just us two here," said Lenska. "I know the drill outside. Statement of fact only, no speculation without adequate grounds; but come on Ted, they look so... organic, like well... jellyfish."

Ted lowered his guard. "That would be something, wouldn't it? A swarm of giant creatures, travelling across the vast emptiness of space."

"Shit, Ted, where'd that come from?"

"Just *talkin' loonie*."

Lenska swivelled around in her chair. "Well, what are we going to call them? The Harveys cluster?"

"Sounds like a social disease. How about The Pherkov-Harveys cluster?"

"That's kind, but almost as bad. Harveys-Pherkov will do just fine." Lenska rattled away at the terminal. "There, that's a quick statement of what's just happened. Want me to release it station-wide first, or will we go the whole-hog and release it planet-wide?"

"God, if this really is first contact... won't we be stepping on some toes?"

Lenska shook her head. "The rate these things are approaching they'll be visible to even simple optical scopes in a few months. I say get it out there now, while we can still grab a bit of fame."

"Ok, do it!"

Somehow Ted had managed to keep a finger in the pie, but only just. Silverman had used all his connections to grab a plum position on the Mission Control team. Ted was left with a choice of minor jobs, including, to Ted's delight, one of the three volunteer-only scientist-astronaut positions.

Early on, it was decided the cluster was a group of creatures, and that they were not drawing energy from the sun, rather directly from the vacuum; Zero Point Energy—the holy grail of modern science. That element alone had ensured sufficient funding for the mission. As the creatures passed by, they could provide vast quantities of world-changing data.

Though following a common path, the creatures were in a constant motion. The flight path of the mission vehicle was decided after an analysis of this motion, putting the vehicle as close as possible, while still keeping collision risk to a minimum.

The logistics of matching course and speed were impossible. The mission vehicle had instead followed a curving intercept, to maintain speed, before cutting power to run parallel, ready for the creatures to catch up and overtake. This only allowed a brief thirty minutes of close-contact before they had to fire-up the engines to start the six month journey back to Earth. The fuel calculations were tight, even requiring them to dump substantial non-essential mass for the return.

Ted, Lenska and Jia Heng, a Chinese propulsion expert, were 50 million kilometres from Earth, and about to witness the most spectacular fly-by in the history of history.

In preparation, they moved from the relatively spacious and gravity-normal crew quarters of a modified Mars Mission Vehicle into the cramped scientific module that replaced the Mars Lander normally strapped to the front of the vessel. After final messages from and to Mission Control, they swung the communications dish to face the cluster, temporarily cutting the link with Earth.

Ted's stomach churned, but this had nothing to do with the zero-G in the scientific module, more the awesome nature of the spectacle unfolding in front of him. The creatures were iridescent and huge, filling most of the module's forward view.

He did one last check of the probes. All systems were optimal.

“Heng, are we ready for probes release?”

“We are.”

“OK. Let them go.”

In successive waves, fans of small rocket flares spread from beneath the forward view; a dismal fireworks display compared to the glories beyond. They had released 60 football sized probes, gathering between them nearly 2,000 individual data streams. Ted carefully checked his display; all probes were on-line and already firing copious amounts of data back into the mission vessel’s massive data core. With no current means to forward this to Earth, it was buffering in the data core until after acquisition.

Twenty minutes later and Ted was very pleased. Only two of the probes had failed. The rest were on 5% power remaining, and rapidly approaching the end of their brief, frenetic electro-mechanical lives.

There was still the important question, what happened when the probes entered the cluster? What additional information would they gather, if any? Ted stared at his display in expectation; but in rapid succession, every remaining probe readout went dead as it prematurely drained of power. Brief energetic flashes quickly followed, as each probe vaporised on contact with members of the cluster. It was a disappointment, but one they had considered. To survive in space the creatures had to have an effective way of dealing with space debris.

They’d done their job and silence now filled the module. Ted stared in wonder at what he knew was a once in a lifetime event.

Heng broke the spell. “I’ve an alert showing one of them on a collision course.”

Ted’s thoughts went ballistic, he immediately accepted he was about to die, but on board the main vehicle, stored in the data core, was a vast treasure of information. Even if they could only transmit a portion of it, it would be invaluable.

“Lenska, realign the dish. Start data transfer ASAP.”

She was on it in an instant, her fingers dancing over her keyboard.

“One minute to contact,” said Heng.

Ted bit his tongue; anything he said would only distract Lenska from her task. Had the probes destruction triggered a primitive defence reaction, or was this just random bad luck? He guessed they’d never know. The same Guidance Management System that had been subtly changing the orientation of the ship to keep the scientific module pointing directly at the cluster, also handled collision avoidance. When the GMS announced an imminent collision, it was a statement of fact. It had already run a full test of possible escapes, including using the main engine, before concluding a collision was unavoidable. It had then done the only thing it could; inform them.

Twenty seconds later, Lenska announced data transfer had begun. Sitting in Ted’s head was a pertinent fact; the data transfer rate of the transmitter. He did a quick calculation. In the time remaining, roughly 2.5% of the acquired data would reach Earth. It was better than nothing. He stretched out to squeeze Lenska’s arm. “Thanks.”

He then offered his hand to Heng. “It’s been a privilege.”

Heng shook Ted’s hand. “For me too.” Heng turned to stare through the forward view, his face lit with the glow of the cluster. “I wouldn’t have missed it for the world.”

Lenska’s hand wriggled its way into Ted’s and remained there. He gave it a firm squeeze. “15 seconds,” said Heng.

They could see the collision creature approaching as it filled more and more of their view. Ted felt no anger towards it, any more than he would to a jellyfish in the sea that stung a passing swimmer. Though it was life, he now thought of it as a very rudimentary form of life.

“10 seconds,” said Heng.

All the displays inside the module faded to black, and the spacecraft went deadly silent as every device on board drained of power and ceased functioning.

Just the same as the probes thought Ted, he knew what to expect next. A brief nauseous sensation ran through his body. He saw the others react to it too. But that wasn’t the collision, too soon,and he was still here, conscious.

Almost too bright to watch, the creature completely filled the view, its surface in slow turbulent motion, rainbows of colours deep within pulsating regularly. It was beautiful, mesmerising. Ted closed his eyes and counted off the last few seconds... and then on; two, three, four, five...

Ted blinked his eyes open. The creature was gone, unidentifiable among the others in the cluster. “Heng,” he said, hesitantly.

“It deformed,” said Heng. “It avoided contact.”

In some ways, Ted would have preferred to go out in a blaze of glory. With the limited charge rate of the solar panels, and the narrow time-window available for the GMS to re-establish course data, it was unlikely they’d be able to bring the systems on-line fast enough to fire up the drive and start the sweeping curve back towards Earth. Unless the GMS came up with positive news soon, they’d be better to forget going home and instead just follow the cluster. With their remaining fuel, they could even catch it up. They could devote their last months, maybe a year of life sharing their experience. The solid-state data core would be intact and they could make sure the original data, and any new information obtained, still got back to Earth.

He cleared his throat, ready to make the suggestion, but then the module interior began to brighten again. A ball of light approached from the receding cluster. Was this another automatic defence mechanism, triggered after the creature assessed their size as too risky for collision? In seconds, the ball filled the forward view and then engulfed the mission vessel. Instantly every screen in the module flickered to life.

“Power status?” snapped Ted.

"Full power," said Heng. "Full Power in every battery." He paused. "It's like nothing happened. Everything's intact; spatial positioning, vehicle orientation, course data." He glanced at an old wind-up watch on his wrist. "Time appears correct too. GMS is on track for scientific module separation in 4 minutes and then main engine burn in 4 minutes 20 seconds."

They were going home.

Lenska lifted her hand in a parting wave to the cluster. "Thank you."

Her words surprised Ted, but she was right, this was an act of intelligence and compassion. The cluster creatures had saved their lives. And, if not an actual communication, this was the first time the creatures had acknowledged their existence. He could hardly contain the emotion filling him. In their first encounter with intelligent extra-terrestrial life, this small disparate group of mankind had been deemed worthy of saving, but not worthy of engaging in actual dialogue. He wasn't too sure how he felt about that on mankind's behalf. The spectacular capability of the creatures to instantly re-set every system on the mission vehicle spoke of tremendous technological mastery, far in advance of their own. Without doubt, the creatures must also have known their purpose, and thought it acceptable to allow any knowledge gathered to go back to Earth. Ted too lifted his hand and mouthed a thank you.

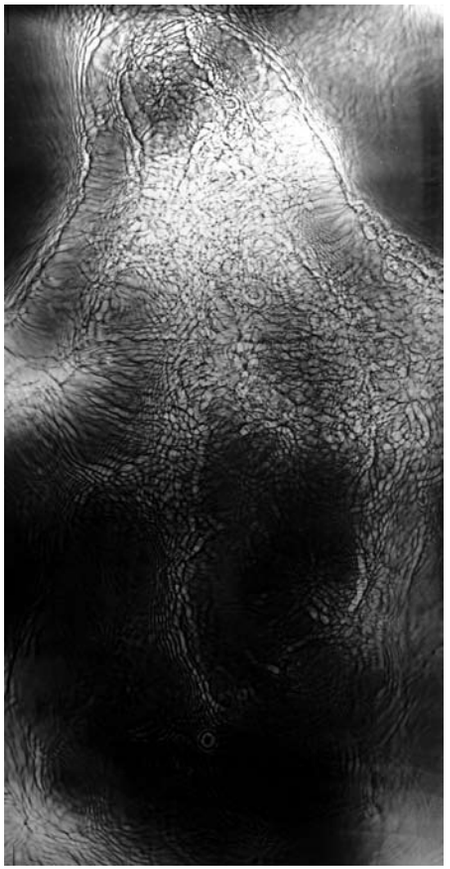
Ted had one small regret; the meaning of the original signal remained a mystery. He had always felt that, though simple, it was important.

Then it hit him. "Oh my God," he said. "I know what it means."

Lenska turned. "What?"

"The pulse signal. It's so simple. A faster moving object catching up to and destroying a slower moving object. It's a warning! Danger, keep out of our way."

Ted grinned smugly; even the great Silverman hadn't managed to work that out.



SECRETS OF THE ROMANOV CRYSTAL

ALISTAIR POTTER

Image from the series *Hybrid* by Susanne Ramsenthaler

The origins of the crystal are unknown. It first came into record as being sold by the Faberge Company to Czar Alexander III in 1897. It was always assumed the crystal was manufactured for or by the Faberge Company shortly before this date, but recent investigations into the crystal's properties have rendered this an impossibility.

The crystal was carried to Britain on HMS Marlborough in 1919 when, during the Russian Civil War, King George V sent the ship to rescue his aunt, Dowager Empress Maria Feodorovna, and other members of the Russian Imperial Family. From then on the crystal's history is unclear until it emerged at a London auction house in 1962, to be acquired by the British Museum for their permanent collection.

The crystal's properties were accidentally discovered when it was taken from storage and prepared for display in the British Museum, to complement a visiting display of Russian artworks and artefacts associated with the Russian Royal Family. One of the museum's technicians was levelling a display using a laser level when the laser beam fell on the crystal. To his amazement, the crystal cast a dazzling array of strange unearthly images onto the surrounding walls; one image for every facet.

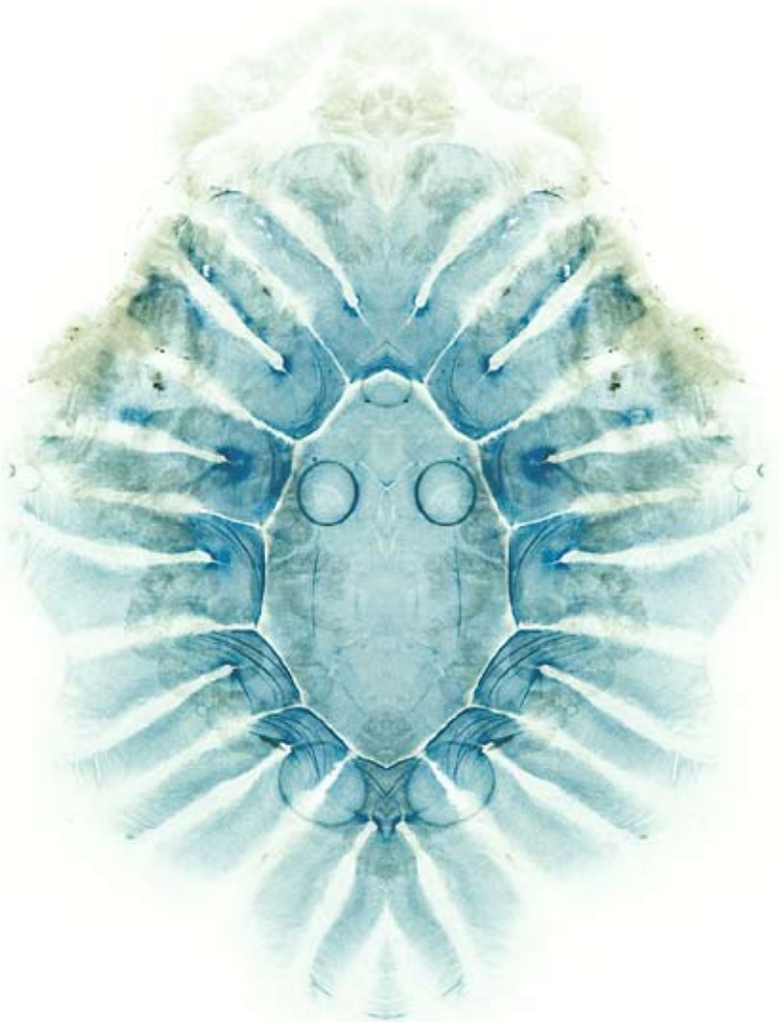
The crystal is a Hectagon, having 100 sides, which produced 99 distinct images. Further investigation revealed that applying a laser source to each of the facets produces another 99 individual images. Initially the crystal was thought to contain 9,900 images, but it soon revealed more. When a laser is targeted at certain precise incident angles and rotations relative to a facet, further image sets emerge.

It is now thought that each facet can reveal at least 18 million individual images. It was also discovered that by varying the intensity of the laser some of the images change to produce what is in effect a moving image sequence. Another avenue of investigation has shown that different laser sources produce different results, and that using multiple laser sources on a single facet also alters the resultant images. Further investigation is needed to reveal if these are duplicate image sets, or entirely new images. The crystal is believed to contain many billions of images and moving image sequences.

Some of these images are shown here in 2-dimensional format, though it is strongly suspected that a suitable 'lens' could alter the projected image to produce a 3-dimensional display.

The displayed images appear to represent an array of life forms, which bear closest relationship to members of the terrestrial phylum Cnidaria, more commonly known as jellyfish. I use the word terrestrial with some confidence. It is now accepted that the crystal is of non-terrestrial origin. Scientists suspect it may serve a similar function to the Golden Record sent into deep space with Voyagers 1 & 2 in 1977. However due to the limited thematic range of the content explored so far, others think it could simply be the alien equivalent of a reference book.

How the crystal arrived on Earth, and how long it has been here remains a mystery. What is certain, there is much more to be revealed.



AN AMBITION FOR SYMMETRY BREAKING

STEVE HUGHES

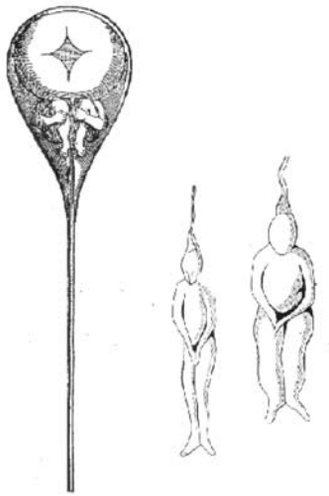
Images from the series *Hybrid* by Susanne Ramsenthaler

THE FLOATING LABORATORY

The floating laboratory manifests today as a relatively disordered and weakly tied affiliation of investigators driven by their curiosity to collaborate transiently in pursuing an understanding of ourselves, the world and our place in it. It does not recognise the distinction of categories such as science and art and has no exclusionary mechanism. It reflects and celebrates the former ambitions of generations of consortia from as far back as the 16th century who cast off in their sailing ships to investigate the unknown world and to negotiate fresh views and understandings of nature. Their names make a roll call of achievement immersed in the illustrated accounts of their voyages and enshrined evocatively in the names of their ships, like Roebuck, Endeavour, L'Uranie, Astrolabe, Naturaliste, Geographe, Investigator, Beagle, Rattlesnake, and latterly Challenger. Their findings tested and challenged the accepted knowledge of their times and still illuminates ours today. We shall return for a poignant example to the voyage of HMS Rattlesnake and its illustrious assistant surgeon Thomas Huxley later in this essay.

Floating Laboratory both in its precedents and intent is very much a descendant of the Enlightenment, that still unfinished and polemical project of the 17th and 18th centuries which sought to centre action on contested notions of reason. As such it is unrepentantly grounded in empiricism and aligns with the proposition of the likes of Bacon and Locke that we as a collective learn best about the world and consequently that *we* as individuals should learn about the world through our experience of it and that we *should* question (detach ourselves from) the scriptural and scholastic sources of knowledge impressed upon us and passed down to us by the social hierarchy as reason. For the Enlightenment this opposition of text and senses, at least in England, represented an important confrontation between free thinkers who were to found a scientific order and the ecclesiastical and state institutional powerbase which imposed social order via their distinct concepts of reason. While the enlightenment project did not actually achieve an overthrow of the scriptural and scholastic tyranny it was sufficiently successful in supporting the growth of scientific empiricism, as expressed in the work of colossi like Hooke, Newton and Boyle, for us now to be able to reconfigure the confrontation as a debate around the question of the possibilities of the detachment of the quest for knowledge from the previous body of theory. Floating Laboratory espouses one side of this debate, "floating" representing the desirability of detachment and "laboratory" representing the opportunity for empiricism in the sense both of experiment and experience. At the same time it recognises that laboratories are of necessity bound to be places of hierarchy, formality, disciplined practice, normativity, and standardisation if the observations made in them are to provide a reliable platform for knowing the world. Nevertheless the ordered systems and knowledge generated in laboratories amount to many layers of theory which inevitably shape and limit the making of new observations.

While some will rejoice in the concept that what we know colours what we see, not least for its challenge to the primacy of the visual senses, floating laboratory seeks to release sensory experience from those prior colourings. To challenge the former tendency we would point to the microscopic observations of sperm (see drawings below) in which people drew what they thought they saw while coloured by the dominant preformationist theory. The small preformed persons or homunculi they honestly but erroneously saw and drew corresponded to the requirement for a continuing preformed stem from the seed of Adam. Their vision was indeed coloured theory and reproductive biology was misled and set-back considerably towards the scholastic view founded on Aristotle. We can cite numerous examples of this type which illustrate the risk of *theory ladeness* of observation.



Drawings of human sperm showing the homunculus by Hartsoeker 1694

Nevertheless at the end of the day there is probably then no pure empiricism, for the simple reason that we have to start somewhere. For instance, a world without any maps would offer a very hesitant platform for exploration. Maps provide a navigational entree to a territory in the form of a representational theory of what is there. However, taking the "maps are theories" assertion a little further, at some point having entered a terrain with a map we tend to detach from the map and construct a new one. We are obliged to unmap in order to generate space for our exploration, a space into which to move our domain of experimentation. Until the moment when we detach, the predrawn map guides our experience and to the extent that a map represents a topological and social theory of the terrain it portrays, it invests us with that theory as well as the social conventions which overlay it. Thus what we experience and see at this stage has a high degree of symmetry with theory, a symmetry reinforced by the symbolic representations used in the theory as well as the social discussions and affirmations in which it is situated. This starts to explain why symmetry breaking is such an urgent goal for the floating laboratory since symmetry represents an unwillingness to detach or cast off.

Symmetry and symmetries are all about us and play an important role in our aesthetic appreciation of the world and our fellow creatures and their artefacts. Symmetries, from mathematical equations to classical-architecture provide and support a sense of balance, regularity, stability, equality and harmony. It has been argued that this relates to a preference for potential mating

partners who exhibit little in the way of facial asymmetries as an indicator of their genetic wholesomeness. While the modern enlightened reflexive view may have difficulty buying in to this expression of determinism or idealism or even the underlying theories of evolutionary psychology, it does remain that symmetry is a determinant of natural beauty which is quite appropriately explored and further developed by artists interested in forms and transformations in visual and conceptual space.

An easy way of experiencing symmetry for oneself is just to think of or look at a sphere such as a billiard ball. If we rotate it in any direction around any of the axes of space (vertical, horizontal, near-far) it looks the same because it has perfect symmetry. However, if we change its shape to that of a rugby ball, rotations around some of those axes will produce very different aspects because we have broken its symmetry.

The process of symmetry-breaking is one of the essentials of the emergence of form in both living and non-living objects from sub-atomic to cosmological scale. The principle can equally be applied to behaviours and learning as to structures. From one human perspective it is what separates our elegant body forms and those of many of our fellow creatures from symmetrical featureless footballs. Symmetry breaking starts in a significant way very early in our development when a formless symmetrical blob of cells derived from the fertilised egg, acquires asymmetry in three senses or planes equivalent to the x y and z axes by which we map three dimensional space. These are dorsal ventral (back- front), anterior posterior (head – tail) and lateral (side to side, left – right). Front – back asymmetry is easy to recognise in a body, as is head – tail but left-right asymmetry is less obvious and requires that we look into a mirror since left –right asymmetry is also talked about as mirror symmetry. If we take a nicely tailored left glove and observe its reflection in a mirror it will look like a right glove as we can check by looking at our right hand in front of the reflection (in the same front to back orientation), but no amount of forcing will get that glove onto the right hand. This is another way of saying that right and left gloves are mirror images of one another which are not super-imposable. It might seem that this left-right asymmetry is just a trivial consequence of the establishment of the other two asymmetries but it is unlikely to be as simple as that especially when we consider that later in development there is further symmetry breaking imposed on the bilateral right – left mirror symmetry (e.g. in mammals the heart is more on the left and the liver more on the right; different sides of the brain are associated with different activities).

For me this implies that cells in the act of proliferating and differentiating into structures (on a trajectory) need to have some intrinsic or extrinsic reference as to which side of the body they will form or occupy and that this may be instrumental in setting up the other axes . This was brought home to me emphatically when I learned that it is estimated that 25% of identical twins are apparently mirror images (known as mirror twins) of one another with respect to left-right asymmetries. That is to say that non-symmetrical skin markings, finger or hair whorls can be used to distinguish the twins one from another as mirror images. They also display higher frequencies of discordance for other asymmetries than would be expected from the frequencies of asymmetry in the general population. Remembering that identical (monozygotic) twins derive from a splitting of very early stage embryos, that is, in the morulla stage after a few divisions of the fertilised egg cell (zygote), then one might be forgiven for thinking that the basis for left-right asymmetry is likely to be established very early in embryogenesis, before the other asymmetries, perhaps even within the single fertilised egg itself. There is some experimental evidence for this from studies of mouse embryos though the origins or triggers of the asymmetric transition are unknown. It seems likely that there is some unequal partitioning or spatial distribution of an asymmetric molecule or molecular assembly caused by chance or by a geometrical necessity which sets up the asymmetry. There are no shortage of theories and plausible molecular mechanisms to explain the propagation of asymmetries once established.

Some of the interesting collection of planktonic stinging organisms we group together as jellyfish (Cndierians, sea nettles) exhibit remarkable features of symmetry and symmetry breaking. They are classified as members of the phylum Coelenterata which in textbooks are described as being composed of two layers of cells and as possessing radial symmetry. This is readily seen in the very common medusoid jelly fish, the bell, inverted saucer or dome-shaped animals often found on or near to shores or in estuaries. Basically if we rotate them around an axis down through the centre of the bell their aspect viewed from any angle above or from the side will stay the same. Jellyfish can have another substantive form, largely unseen, that of the polyp which in many ways is similar to the form of the sea anemone, which also exhibits radial symmetry. For most jellyfish polyps tend to be the sedentary form and medusas the pelagic or drifting form. However, there is a further form, the free swimming planula larva which is assumed during the sexual reproductive phase. This slightly flattened intermediate between medusa and polyp is regarded as having bilateral symmetry, or , in my language, left-right asymmetry or mirror symmetry. Notably, this transient breakage of symmetry perhaps heralds the more complete state of left-right asymmetry manifest later in evolution in more complicated animals (the Bilateria). So jellyfish are rather exciting, standing at one of the great transition points in evolutionary development of body forms. We might be forgiven for thinking of them as floating laboratories from the early Phanerozoic.

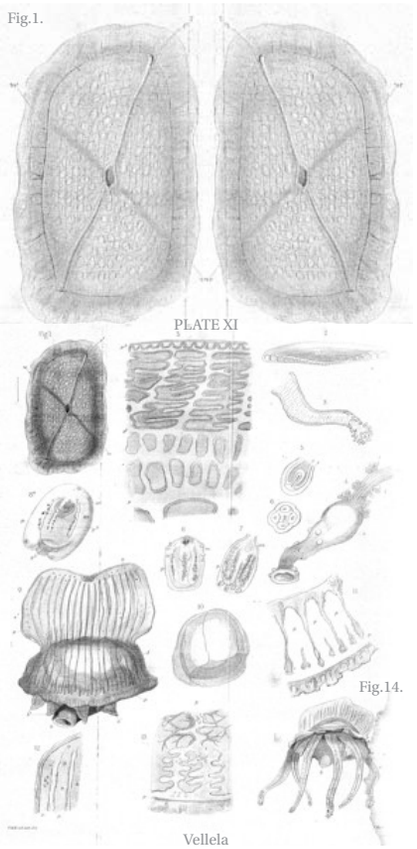
But the story gets even better. For a smaller group of jellyfish it is not the medusoid form but the polyp form which makes up the larger pelagic animal which we can see on the ocean or sea shore. The medusoid phase is but a tiny bud relaeased from the polyp which serves merely to perform sexual reproduction . They are classified as Hydroid jellyfish or members of the Hydrozoa. Well known examples are Physalis, the Protuguese Man-o-war and Vellela vellela, the enigmatic “by the wind sailor”. Rather than medusoid bells of neutral buoyancy they have air-filled structures, pneumatecysts, which besides

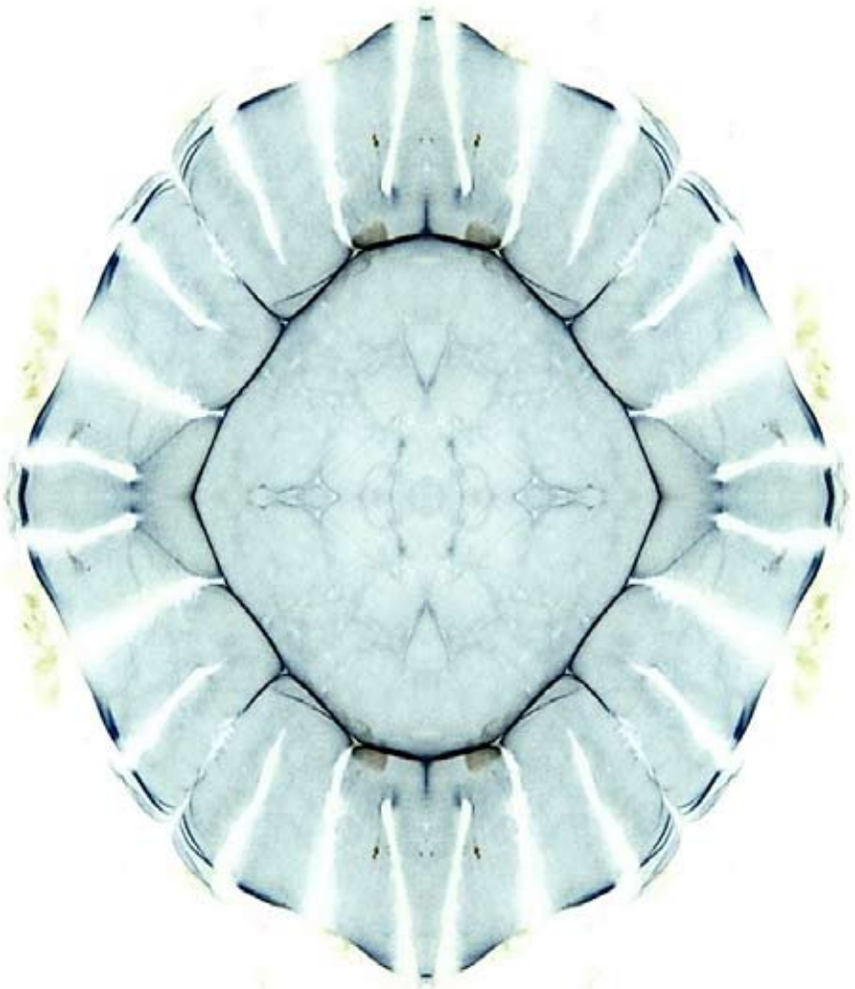
keeping them afloat and in a position to hang down their stinging tentacle to trap prey, act as a sail to afford wind propulsion. The great investigator and polymath Thomas Henry Huxley caught and examined many specimens of Physalis and Vellela in the tow net of HMS Rattlesnake during his voyage to the southern continent (1846 -1850). Fortunately for us he was a committed empiricist being both an acute and diligent observer as well as a skilled draughtsman, who was prepared to challenge the accepted ideas of his day. His observations of Cniderians (which he calls Alcalephae, still sea nettles), their structural features and life cycles enabled him to link the medusoid and polypoid forms and to separate them from the indiscriminate group of Radiata into which the French naturalists had lumped them along with sponges and starfish and much else. He produced a detailed account of the Oceanic Hydrozoa illustrated with detailed lithographs taken from his original sketches of fresh material. His drawings of Vellela and its life cycle are particularly fine and some are reproduced here by permission of the University of Exeter Library. He shows us the intermediates of the life cycle including the medusa. But most importantly he drew the sail. The sail is a cartilaginous (soft bony) vertical extension of an air filled raft-like structure to which a network of polyps is anchored. Symmetry is restricted to the form of the individual polyp units which are differentiated into specialised types, some hanging their tentacles deep, others around the mouth which transport prey and others which bud off the medusal form. The raft, as Huxley's drawings show contains a roughly concentric set of air tubes and has an oval or slightly lozenged plan. Critically the sail is set across the oval at an angle to its short and long axes. This represents a serious case of symmetry breaking since an individual Vellela float, either in two dimensional plan or three dimensional object, cannot be superimposed on its mirror image. However, as early observers reported from their floating laboratories, both asymmetric forms, right handed and left handed mirror image pairs of Vellela can be found on the oceans. This has profound implications for the sailing ability of these little verisimilitudes of floating laboratories. The asymmetry of sail and float and the relative effects of wind drag on the sail and water drag on the submerged polyps means that Vellela can sail at an oblique angle to the wind rather than just drifting directly downwind. What's more, the right handed and left handed forms have the tendency to go off on opposite tacks and follow divergent courses relative to the wind. Mass strandings of Vellela tend to consist predominantly of individuals of one handedness or the other suggesting that asymmetry may have some role in the spatial distribution of the population across the oceans. It has in fact been proposed that right and left handed forms partition between the northern and southern hemispheres but it is unlikely to be as simple as this. However clever we might be at constructing distributional models to explain the asymmetry, there is much that we still have to learn about it. Is its developmental origin down to a random 50-50 process, or is there a genetic difference in the population which favours left or right handed development? Is this form of symmetry breaking related mechanistically to that of bilateral organisms as appears to be the case for the planula larva? Is there an asymmetry in the organisation of the polyp(s) below waterline?

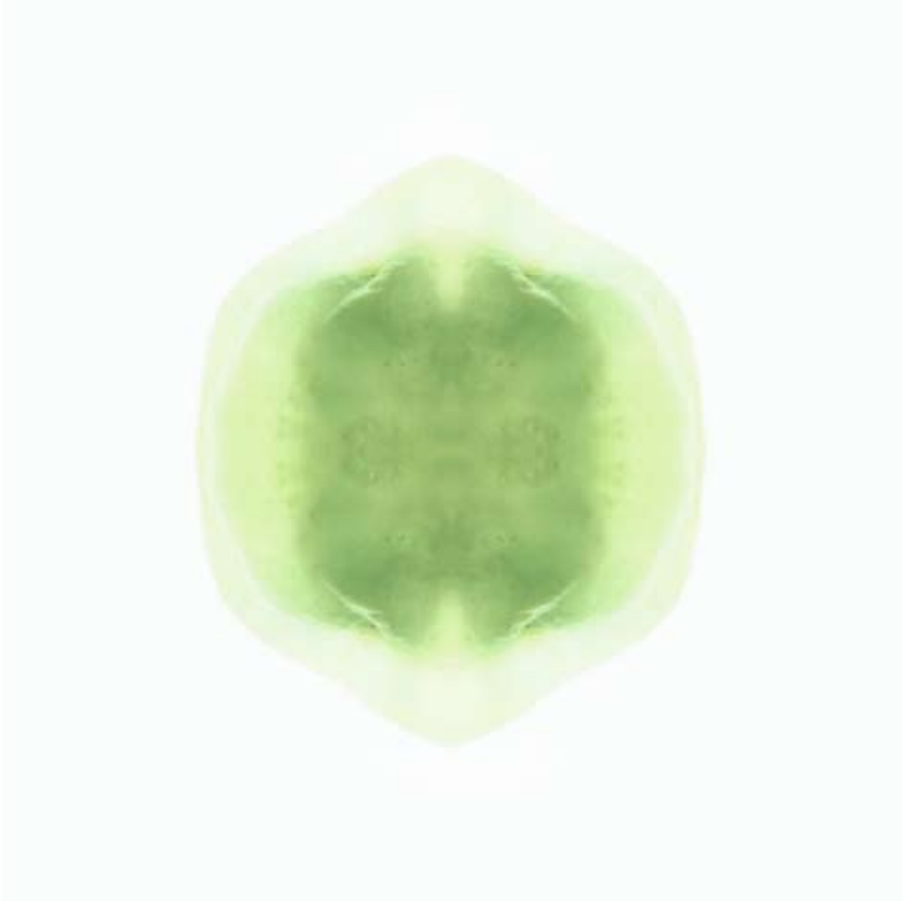
A final enigma is illustrated by the (s) of the previous sentence. This reflects the question of whether Vellela should be viewed as a colonial organism composed of diversified interconnected polyps or a single organism in the from of a branched polyp which has undergone specialised changes to meet functional opportunities. Current day text books are not in agreement on this so perhaps here again we should hold Vellela for the moment as an intermediate in evolution, a floating laboratory of experimentation with the possibilities of colonial cooperative or individual life as well as various modes of symmetry breaking and ocean travel.

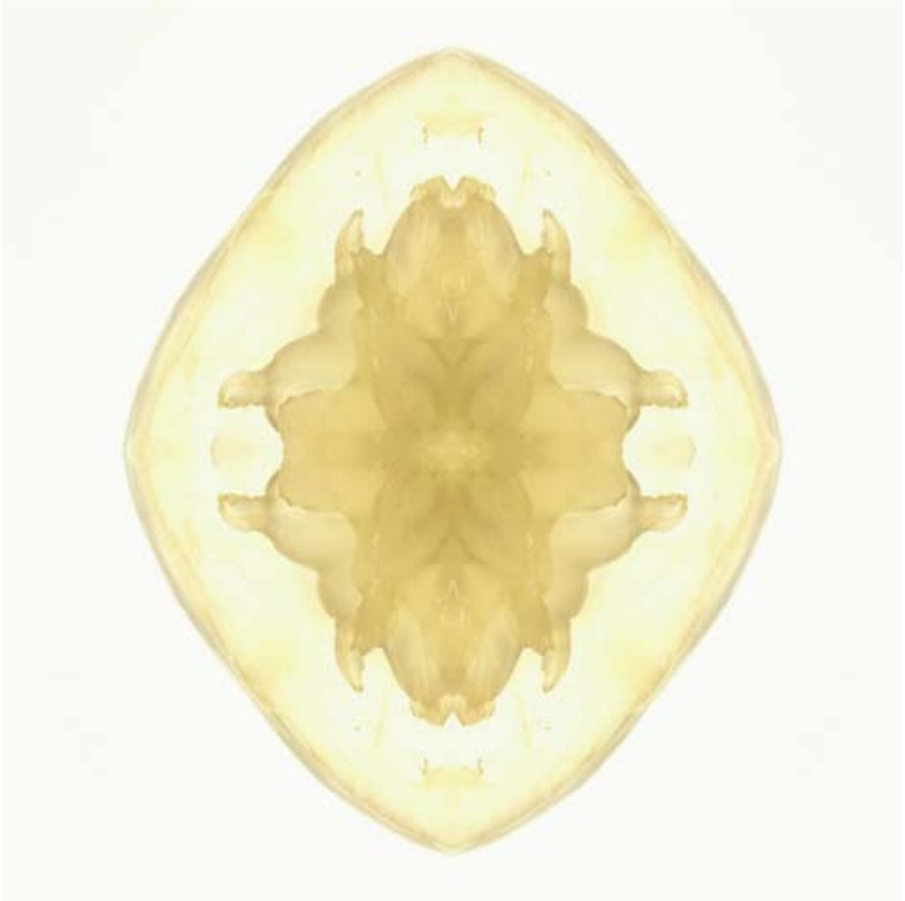
Vellela makes a wonderful icon for the Floating Laboratory of today. Wherever we look for symmetry breaking and wherever it takes us in the way of new opportunities for form and novelty in our interpretations of the world as we explore and experience it, we can look to Vellela as reminder of an enduring strategy.
I acknowledge the silent contributions which many friends and colleagues have made to the development of the ideas here expressed a well as to the modulation of the drift of Floating Laboratory. In particular I would like to thank my good friend Barry Barnes for his restrained critique of my tendency to go overboard in reinventing the Enlightenment and the Economic and Social Research Council for supporting my research.

Plate11. taken from T.H.Huxley's Oceanic Hydrozoa illustrating various aspects, individual organs and life cycle stages of Vellela vellela. The plan view figure1 is reproduced above as a pair of mirror images illustrating the non-superimposability of right and left handed forms. Figure 14 (bottom right) shows the more mature organism viewed from slightly below the waterline showing the communal mouth and extended tentacles of the polyp colony.









BESTIALITY/ALPHONSO LINGIS

Images from the series *Hybrid* by Susanne Ramsenthaler

Sea anemones are animate chrysanthemums made of tentacles. Without sense organs, without a nervous system, they are all skin, with but one orifice that serves as mouth, anus, and vagina. Inside, their skin contains little marshes of algae, ocean plantlets of a species that has come to live only in them. The tentacles of the anemone bring inside the orifice bits of floating nourishment, but the anemone cannot absorb them until they are first broken down by its inner algae garden. When did those algae cease to live in the open ocean and come to live inside sea anemones? Hermit crabs do not secrete their own shells, but instead lodge their bodies in the shells they find vacated by the death of other crustaceans. The shells of one species of hermit crab are covered with a species of sea anemone. The tentacles of the sea anemones grab the scraps the crab tears off when it eats. Since sea anemones have stings on their tentacles, the crab is protected from predator octopods, which are very sensitive to sea anemone stings. When the hermit crab outgrows its shell, it locates another empty one. The sea anemones then leave the old shell and go to attach themselves onto the new one as the crab waits. How do sea anemones, blind, without sense organs, know it is time to move?

Ocean extends over seventy-one percent of Earth's surface, and ninety percent of the ocean is more than three kilometers deep. Below a depth of three hundred meters, living beings move in total darkness. Squid that live in the depths where light penetrates eject clouds of ink to hide behind before their enemies, but an abyss-dwelling squid, *Heteroteuthis dispar*; ejects a cloud of fluid glowing with bioluminescent bacteria to light up the waters before itself and locate prey.

Small nomadic bands of people have long lived in the rain forests of the world. But until recently only two commercial ways were found for humans to live off the rain forest without destroying it—tapping rubber trees and collecting Brazil nuts. Rubber has many essential uses in industry, and Brazil nuts have always commanded good prices on the export market. But there are so many species of trees intermixed in the rain forest that rubber tappers and nut collectors often had to walk for an hour from one tree of a species to the next. It early occurred to settlers to cut down the wild forest and plant plantations of rubber trees and Brazil nut trees. The Brazil nut plantations always failed. The trees grew vigorously, flowered, but never produced any nuts. Only fifteen years ago did biologists discover why. The Brazil nut flowers can be pollinated by only one species of bee. This bee also requires, for its larvae, the pollen of one species of orchid, an orchid that does not grow on Brazil nut trees. When did Brazil nut flowers come to shape themselves so as to admit only that one species of bee? What we know as Brazil nuts are kernels which, on the tree, are enclosed in a very large wooden husk containing hundreds of them. The Brazil nut tree is hardwood, and the husk about its seeds is of wood hard as iron. There is only one beast in Amazonia that has the teeth, and the will, to bore into that husk. It is a medium-sized rodent, and when it bores through the husk, it only eats some of the seeds. The remaining seeds are able to get moisture, and push their roots into the ground. Without that rodent, the nuts would be permanently entombed, and Brazil nut trees would have died out long ago.

There is perhaps no species of life that does not live in symbiosis with another species. When did celled life, with nuclei, come to evolve? The Microbiologist Lynn Margulis established that chloroplasts and mitochondria, the oxygen-processing cellular energy-producers in plants and animals, were originally independent cyanobacteria that came to live inside the cells of plants and animals. Colonies of microbes evolved separately, and then formed the symbiotic systems which are the individual cells, whether of algae or of our bodies.

Human animals live in symbiosis with thousands of species of anaerobic bacteria, 600 species in our mouths which neutralize the toxins all plants produce to ward off their enemies, 400 species in our intestines, without which we could not digest and absorb the food we ingest. Some synthesize vitamins, others produce polysaccharides or sugars our bodies need. The number of microbes that colonize our bodies exceeds the number of cells in our bodies by up to a hundredfold. Macrophages in our bloodstream hunt and devour trillions of bacteria and viruses entering our porous bodies continually. They replicate with their own DNA and RNA and not ours; they are the agents that maintain our borders. They, and not some Aristotelian form, are true agencies of our individuation as organisms. When did those bacteria take up lodging in our digestive system, these macrophages take up lodging in our bloodstream?

We also live in symbiosis with rice, wheat, and corn fields, with berry thickets and vegetable patches, and also with the nitrogen-fixing bacteria in the soil that their rootlets enter into symbiosis with in order to grow and feed the stalk, leaves, and seeds or fruit. We also move and feel in symbiosis with other mammals, birds, reptiles, and fish.

How myopic is the notion that a form is the principle of individuation, or a substance occupying a place to the exclusion of other substances, or that the inner organization, or the self-positing identity of a subject is an entity's principle of individuation! A season, a summer, a wind, a fog, a swarm, an intensity of white at high noon have perfect individuality, though they are neither substances nor subjects. The climate, the wind, a season have a nature and an individuality no different from the bodies that populate them, follow them, sleep and awaken in them.

Let us liberate ourselves from the notion that our body is constituted by the form that makes it an objective for the observation and manipulation of an outside observer! Let us dissolve the conceptual crust that takes hold of it as a subsistent substance. Let us turn away from the anatomical and physiological mirrors that project it before us as a set of organs and a set of biological or pragmatic functions. Let us see through the simple-mindedness that conceives of the activities of its parts as functionally integrated, and it as a distinct unit of life. Let us cease to identify it with the grammatical notion of a subject or the juridical notion of a subject of decisions and initiatives.

The form and the substance of our bodies are not clay shaped by Jehovah and then driven by his breath; they are coral reefs full of polyps, sponges, gorgonians, and free-swimming macrophages continually stirred by monsoon climates of moist air, blood, and biles.

Every animal has its modes of being in a pack; it is not a substance with its own properties. What would a wolf all alone do? A whale, a flea, a rat, a fly? What would be a cry independently of the population that it

calls or that bears witness to it? Schools of fish, flocks of birds, prides of lions are not lower forms of society, rudimentary beginnings of the political and economic order of the polis. They are movements and affects, differentials of speed that compose, intensities that materialize their force.

A pack of wolves, a cacophonous assemblage of starlings in a maple tree when evening falls, a whole marsh throbbing with frogs, a whole night scintillating with fireflies exert a primal fascination on us. What is fascinating in the pack, the gangs of the savannah and the night, the swarming, is the multiplicity in us — the human form and the nonhuman, vertebrate and invertebrate, animal and vegetable, conscious and unconscious, movements and intensities in us that are not yoked to some conscious goal or purpose that is or can be justified in some capitalist program for economic growth or some transcendental or theological fantasy of object-constitution or creativity seated in us. Aliens on other planets, galaxies churning out trillions of stars, drops of water showing, under the microscope, billions of squiggling protozoa are mesmerizing. What is mesmerized in us are the inhuman movements and intensities in us, the pulses of solar energy momentarily held and refracted in our crystalline cells, the micro-organic movements and intensities in the currents of our inner coral reefs.

Movements do not get launched by an agent against masses of inertia; we move in an environment of air currents, rustling trees, and animate bodies. Our movements are stirred by the coursing of blood, the pulse of the wind, the reedy rhythms of the cicadas in the autumn trees, the whir of passing cars, the bounding of squirrels, and the tense, poised pause of deer. The differentials of speed and slowness liberated from our bodies do not block or hold those movements only; our movements compose their differentials, directions, and speeds with those movements in the environment. Our legs plod with elephantine torpor; decked out fashionably, we catwalk; our hands swing with penguin vivacity; our fingers drum with nuthatch insistence; our eyes glide with the wind rustling the flowering prairie.

These movements have not only extension; they surge and ebb in intensity. They are vehement, raging, prying, incandescent, tender, cloying, ardent, lascivious. It is by its irritability, its fear,its rage, its languor, its exuberance that an octopus in the ocean, a rabbit caught in our headlights, a serpent in the grass, a cat on the couch, a dolphin in the ocean become visible to us. Our movements become irritable with the insistent whine of a mosquito, fearful before the fury of a hornet whose nest we have disturbed, languid with the purring of a cat, exuberant in the sparkling of the coral fish in the tropical surge.

We assign special importance, in everyday life, to purposive or goal-oriented movement. Yet most movements—things that fall, that roll, that collapse, that shift, that settle, that collide with other things, that set other things in motion—are not goal-oriented. How little of the movements of the bodies of octopuses frolicking over the reef, of guppies fluttering in the slow currents of the Amazon, of cockatoos fluttering their acrobatics in the vines of New Guinea, of terns of the species *Sterna paradisaea* scrolling up all the latitudes of the planet from Antarctica to the Arctics, of humans are teleological! How little of these movements are programmed by an advance representation of a goal, a result to be acquired or produced, a final state! They do not get their meaning from an outside referent envisioned from the start, and do not get their direction from an endpoint, a goal, or result. Without theme, climax, or denouement, they extend from the middle; they are durations.

How even less are these movements initiatives by which an agent posits and extends its identity! They are nowise the movements by which a conscious being seeks to maintain and consolidate and stabilize itself, even less integrate itself.

In the course of the day, our bodies shift, lean, settle; agitations stir them. Most of the movements of our arms and hands are aimless; our eyes glide in their sockets continually buoyed up and rocked by the waves of the sunlight. Even most of the movements to which we assign goals start by just being an urge to move, to get the day going, to get out of the house. We leave our house for a walk in the streets, a stroll along the beach, a saunter through the woods. In the Ryongi Zen Garden in Kyoto, for five hundred years each morning the monk rakes again the sands into waves. The *campesina* in Guatemala occupies her hands with the rhythms and periodicity of her knitting as she sits on the stoop gossiping with her friends. The now old Palestinian who will never leave this refugee camp fingers his prayer beads.

Every purposive movement, when it catches on, loses sight of its teleology and continues as a periodicity with a force that is not the force of the will launching it and launching it once again and then once again; instead it continues as a force of inner intensity. The carpenter climbs up the roof to nail shingles; almost at once his mind lets loose the alleged objective and the rhythm dum-dum-dum-DUM dum-dum-dum-DUM continues his movements as it does the dancer in the disco. And the force he feels in those movements is not the force of his deciding will, but the vibrant and vital intensity of his muscles on the grip of the fine, smoothly balanced hammer he likes so much. The rhythm of his hammering composes with the rhythm of the wind currents passing in and with the falling leaves. And when he pauses, he, alone in the neighborhood, registers the nearby tapping of a nuthatch on a tree trunk.

The movements and intensities of our bodies compose with the movements and intensities of toucans and wolves, jellyfish and whales. Psychoanalysis is there to sanction as infantile every intercourse with other animals which it so quixotically interprets as representatives of the father and mother figures of its Oedipal triangle. But one is not aiming at an identification with the other animal. Still less is one identifying the other animal with another human.

The hand of the child that strokes the dolphin is taking on the surges of exuberance that pulse in its smooth body while the dolphin is taking on the human impulses of intimacy forming in close contact with the child's face. The woman who rides a horse lurches with the surges of its impulses while the horse trots with her prudent programming. The movements of her body are extending differential degrees of speed and retardation, and feeling the thrill of speed and the soothing decompression of retardation. These movements are not productive; they extend neither toward a result nor a development. They are figures of the repetition compulsion: we stroke a calf each night on the farm, we ride a

horse through the woods with the utterly noncumulative recurrence of orgasm.

Our skunk climbs up on our lap, folds her legs under her round smooth body, closes her mouth and eyes, and vibrates a glowing contentment. The postural axis that lines up our torso and limbs for tasks now relaxes, our thighs cease to be muscled levers for going places and turn into a soft warm cushion, our eyes cease to inspect and observe her and wander soft-focus, and our whole body becomes a non-functional mass where her contentment rumbling through it is undifferentiated from its pulsating sensuality.

When we watch the seals glide up and down the rocks and into the sea, we feel the tedium of the bodies we had to evolve when we left the ocean. A hundred seventy pounds, of salty brine mostly, in an unshapely sack of skin: what a clumsy weight to have to transport on our bony legs! We can certainly understand the dolphins and whales, mammals that evolved on land but long ago returned to the ocean. When we return to the ocean, we have to pull a layer of rubber skin, strap on a buoyancy compensator, an air tank with regulator and gauges, weight belt, eye mask, and flippers. And then how ludicrous we look when we lurch our bodies equipped with all these prosthetic organs out of the dive shop and wade with flippered feet across the beach till we reach deep water!

In the deep, all these supplementary organs only make our species-organs non-functional. We abandon our upright posture that we long ago evolved in order to free our hands for grasping, taking, manufacturing, and expressing. The swim-strokes we trained into our bodies to move across the surface of water are useless underwater; we fold our hands under us so as not to stir up the sand in front of our eyes. Our flippered feet take up the wave movements of fish, and we mostly do that only to descend and ascend when out air tank is used up. Underwater any coral head, the most biologically diverse environment on the planet, will occupy our mesmerized eyes for the hour we have. We are reduced to just eyes, looking without surveying. We learn nothing, not even how to identify species of fish as the shimmering colors and undulatory forms silently streak about us; back on the beach, paging through the *Guide Book of Tropical Fishes*, we can't be sure, looking at their static pictures, if what we saw was a Moorish Idol or a Heniochus, called "Poor Man's Moorish Idol." The publishers have taken to printing their guide books of tropical fishes on plasticized pages bound with plastic rings so that divers can take them down with them. I used to ask divemasters what that fish we had seen was, and was put out that they never seemed to know. It was only later that I realized, what they realized long ago, that the high point of diving is not to distinguish some rare fish but to be observed by them. It is the pleasure of having a pair of angelfish accompany you the whole dive, swimming next to your goggles, peering into everything you stick your nose into. It is the exhilaration of having the great shark careen by or pause inches from your head, its small lemon-yellow eye fixed on you. At first it may take some effort to avoid doing something, trying to drive it off or to flee. But with familiarity, that comes naturally. (Sharks do not like the taste of Homo sap meat anyway. When they see surfers, stuffed into their black wet suits, lying on surfboards with their feet in flippers, the shark's poor eyesight sometimes mistakes them for seals, which some species of sharks do eat. They take a bite of a surfer and then—like Count Dracula in Paul Morrisey's sixties film, deceived into thinking that the Italian girl he sank his fangs into is a virgin—puke it out when they realize their mistake.) You feel your eyes and your big bloated body completely exposed to that yellow eye which nothing whatever of its response to you. Sharks have skin like us, not scales, but no expression. No tremors of curiosity, distrust, repugnance, antagonism, or menace shiver or crease that skin. There is no cause for fear. Under the gaze of the shark, your eyes entirely cease to be organs for observing, cease to be organs, become only surfaces on your non-functional anorganic plenum. Time extends in a motionless span, coming from nowhere, going nowhere.

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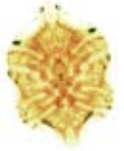
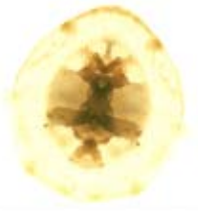




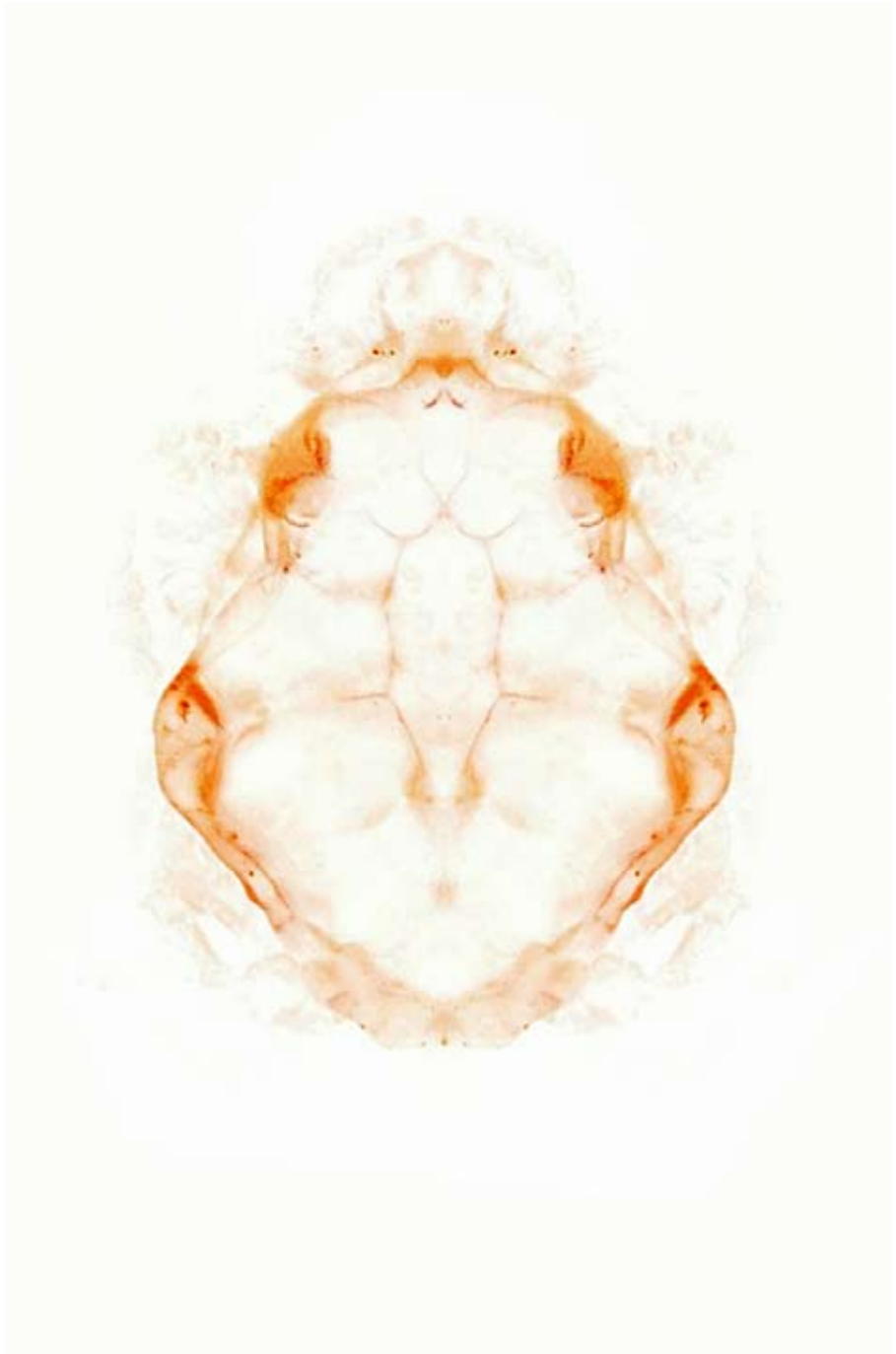

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