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Gnomon

About a Body Coming to Terms with the Sun

A sundial is born. Between the sun's movement and the stick called gnomon, the vertical shadow-caster. It tells the time during the day. But there is nothing intrinsically *logical* about the time indicated on the ground. Gnomon could cast the moon's movement instead, which also works (but accurate only at full moon), and which does not really matter in the end because we would divide a day into twelve anyway. What we know is that Gnomon knows how to come to discernible terms with the sun by intercepting its light. An intelligible body who writes. We, together with it, read a geometrical model of the world.

We do not really know why the shaft or pin is called a gnomon, but we do know that this word designates that which understands, decides, judges, interprets or distinguishes, the ruler which makes knowledge possible. The construction of the sundial brings natural light and shadow into play, intercepted by this ruler, a tool of knowledge.

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Who knows, who understands? Never did Antiquity ask these two questions. Where should the head, the eye be placed in this observatory? In the band of shadow, at the source of light, or at the tip of the sundial pointer? These are modern problems. For example, the use of the telescope assumes the invention of the subject, which will place itself on the right side of the viewfinder, contemplating, observing, calculating, arranging the planets: it does not exist in the ancient Greek language. In those days the world as such was filled with knowledge in the same way as it is said the skies sang to the glory of God. For this culture the gnomon knew, discerned, distinguished, intercepted the light from the Sun, left lines on the sand as if it were writing on the blank page and, yes, understood.

Michel Serres, 'Gnomon: The Beginnings of Geometry in Greece',
in *A History of Scientific Thoughts: Elements of a History of Science*
(Blackwell, 1995) 79; 80.

Tyrone Slothrop

About Being a Strange Erotic/Military Logistics

Tyrone Slothrop, the protagonist of Thomas Pynchon's novel *Gravity's Rainbow* (1973) does not know what he is made of. But he knows that the terrifying V-2 rocket bombs are falling across Europe, and the location of his sexual pleasure (erection) is in sync with the exact site of future bomb drops. So, the secret forces are chasing him for this unusual sensitivity, while Slothrop himself struggles with all kinds of paranoid and anti-paranoid feelings, to live as a sort of human gnomon. After he becomes *scattered*, strangely, aspects of him appear in other people.

Rain drips, soaking into the floor, and Slothrop perceives that he is losing his mind. If there is something comforting—religious, if you want—about paranoia, there is still also anti-paranoia, where nothing is connected to anything, a condition not many of us can bear for long. Well right now Slothrop feels himself sliding onto the anti-paranoid part of his cycle, feels the whole city around him going back roofless, vulnerable, uncentered as he is, and only pasteboard images now of the Listening Enemy left between him and the wet sky. Either They have put him here for a reason, or he's just there. He isn't sure that he wouldn't, actually, rather have that *reason*...

Bland, still an apprentice, hadn't yet shaken off his fondness for hallucinating. He knows where he is when he's there, but when he comes back, he imagines that he has been journeying underneath history: that history is Earth's mind, and that there are layers, set very deep, layers of history analogous to layers of coal and oil in Earth's body... it's hard to get over the wonder of finding that Earth is a living critter, after all these years of thinking about a big dumb rock to find a body and psyche, he feels like a child again, he knows that in theory he must not attach himself, but still he is in love with his sense of wonder, with having it found again, even this late, even knowing he must soon let it go.... To find that Gravity, taken so for granted, is really something eerie, Messianic, extrasensory in Earth's mindbody... having hugged to its holy center the wastes of dead species, gathered, packed, transmuted, realigned,

and rewoven molecules to be taken up again by the coal-tar Kabbalists of the other side, the ones Bland on his voyages has noted, taken, boiled off, teased apart, explicated to every last permutation of useful magic, centuries past exhaustion still finding new molecular species, combining into new synthetics... The rest of us, not chosen for enlightenment, left on the outside of Earth, at the mercy of a Gravity we have only begun to learn how to detect and measure, must go on blundering inside our front-brain faith in Kute Korrespondences, hoping that for each psi-synthetic taken from Earth's soul there is a molecule, secular, more or less ordinary and named, over here— kicking endlessly among the plastic trivia, finding in each Deeper Significance and trying to string them all together like terms of a power series hoping to zero in on the tremendous and secret Function whose name, like the permuted names of God, cannot be spoken... plastic saxophone reed *sounds of unnatural timbre*, shampoo bottle *ego-image*, Cracker Jack prize *one-shot amusement*, home appliance casing *fairing for winds of cognition*, baby bottles *tranquilization*, meat packages disguise of slaughter, dry-cleaning bags *infant strangulation*, garden hoses *feeding endlessly the desert*... but to bring them together, in their slick persistence and our preterition... to make sense out of, to find the meanest sharp sliver of truth in so much replication, so much waste.... Lucky Bland, to be free of it.

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He's looking straight at Slothrop (being one of the few who can still see Slothrop as any sort of integral crea- ture any more. Most of the others gave up long ago try- ing to hold him together, even as a concept—"It's just got too remote" 's what they usually say). Does Bodine now feel his own strength may someday soon not be enough either: that soon, like all the others, he'll have to let go? But somebody's got to hold on, it can't happen to all of us—no, that'd be too much... Rocketman, Rocketman. You poor fucker. "Here. Listen. I want you to have it. Understand? It's yours."

Does he even hear any more? Can he see this cloth, this stain?

Thomas Pynchon, *Gravity's Rainbow* (Vintage, 2013; first published in 1973) 515; 698; 878.

Gödel, Escher, Bach

About Different Levels of Abstraction

A common question that both Architecture and AI have been preoccupied with: how to communicate mind/thinking with material/physical systems. Cognitive scientist Douglas Hofstadter explores the idea of intelligence that presumes paradoxes, through the works of Gödel, Escher, and Bach, which resulted in his 777 pages book, *Gödel, Escher, Bach: an Eternal Golden Braid* (1979). Here we see that meaning and information reside somewhere between different levels of abstraction, different levels of a symbol-handling system, different levels of reality, different levels of tolerable complexity, different levels of encoding and decoding. The levels can comfortably mix; isomorphism takes place.

Liftability of Intelligence

Thus we are left with two basic problems in the unraveling of thought processes, as they take place in the brain. One is to explain how the A-level traffic of neuron firings gives rise to the high-level traffic of symbol activations. The other is to explain the high-level traffic of symbol activation in its own terms—to make a theory which does not talk about the A-level neural events. If this latter is possible—and it is a key assumption the basis of all present research into Artificial Intelligence—then intelligence can be realized in other types of hardware than brains. Then intelligence will have been shown to be a property that can be "lifted" right out of the hardware in which it resides—or in other words, intelligence will be a software property. This will mean that the phenomena of consciousness and intelligence are indeed high-level in the same sense as most other complex phenomena of nature: they have their own high-level laws which depend on, yet are "liftable" out of, the lower levels. If, on the other hand, there is absolutely no way to realize symbol-triggering patterns without having all the hardware of neurons (or simulated neurons), this will imply that intelligence is a brain-bound phenomenon, and much more difficult to unravel than one which owes its existence to a hierarchy of laws on several different levels.

Here we come back to the mysterious collective behavior of ant colonies, which can build huge and intricate nests, despite the fact that the roughly 100,000 neurons of an ant brain almost certainly do not carry any information about nest structure. How, then, does the nest get created?

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Where does the information reside?

> ACHILLES   But what about those intermediate levels of structure? You were saying that the caste distribution should best be pictured not in terms of ants or signals, but in terms of teams whose members were other teams, whose members were other teams, and so on until you come down to the ant level. And you said that that was the key to understanding how it was possible to describe the caste distribution as encoding pieces of information about the world.

ANTEATER   Yes, we are coming to all that. I prefer to give teams of a sufficiently high level the name of "symbols". Mind you, this sense of the word has some significant differences from the usual sense. My "symbols" are ACTIVE SUBSYSTEMS of a complex system, and they are composed of lower-level active subsystems ... They are therefore quite different from PASSIVE symbols, external to the system, such as letters of the alphabet or musical notes, which sit there immobile, waiting for an active system to process them.

> ACHILLES   Oh, this is rather complicated, isn't it? I just had no idea that ant colonies had such an abstract structure.

ANTEATER   Yes, it's quite remarkable. But all these layers of structure are necessary for the storage of the kinds of knowledge which enable an organism to be "intelligent" in any reasonable sense of the word. Any system which has a mastery of language has essentially the same underlying sets of levels.

> ACHILLES   Now just a cotton-picking minute. Are you insinuating that my brain consists of, at bottom, just a bunch of ants running around?

ANTEATER   Oh, hardly. You took me a little too literally. The lowest level may be utterly different. Indeed, the brains of anteaters, for instance, are not composed of ants. But when you go up a level or two in a brain, you reach a level whose elements have exact counterparts in other systems of equal intellectual strength-such as ant colonies.

> TORTOISE   That is why it would be reasonable to think of mapping your brain, Achilles, onto an ant colony, but not onto the brain of a mere ant.

ACHILLES   I appreciate the compliment. But how would such a mapping be carried out? For instance, what in my brain corresponds to the low level teams which you call signals?

> ANTEATER   Oh, I but dabble in brains, and therefore couldn't set up the map in its glorious detail. But—and correct me if I'm wrong, Mr. Crab—I would surmise that the brain counterpart to an ant colony's signal is the firing of a neuron; or perhaps it is a largerscale event, such as a pattern of neural firings.

CRAB   I would tend to agree. But don't you think that, for the purposes of our discussion, delineating the exact counterpart is not in itself crucial, desirable though it might be? It seems to me that the main idea is that such a correspondence does exist, even if we don't know exactly how to define it right now. I would only question one point, Dr. Anteater, which you raised, and that concerns the level at which one can have faith that the correspondence begins. You seemed to think that a SIGNAL might have a direct counterpart in a brain; whereas I feel that it is only at the level of your ACTIVE SYMBOLS and above that it is likely that a correspondence must exist.

> ANTEATER   Your interpretation may very well be more accurate than mine, Mr. Crab. Thank you for bringing out that subtle point.

ACHILLES   What does a symbol do that a signal couldn't do?

> ANTEATER   It is something like the difference between words and letters. Words, which are meaning-carrying entities, are composed of letters, which in themselves carry no meaning. This gives a good idea of the difference between symbols and signals. In fact it is a useful analogy, as long as you keep in mind the fact that words and letters are PASSIVE, symbols and signals are ACTIVE.

ACHILLES   I'll do so, but I'm not sure I understand why it is so vital to stress the difference between active and passive entities.

> ANTEATER   The reason is that the meaning which you attribute to any passive symbol, such as a word on a page, actually derives from the meaning which is carried by corresponding active symbols in your brain. So that the meaning of passive symbols can only be properly understood when it is related to the meaning of active symbols.

ACHILLES   All right. But what is it that endows a SYMBOL—an active one, to be sure—with meaning, when you say that a SIGNAL, which is a perfectly good entity in its own right, has none?

> ANTEATER   It all has to do with the way that symbols can cause other symbols to be triggered. When one symbol becomes active, it does not do so in isolation. It is floating about, indeed, in a medium, which is characterized by its caste distribution.

CRAB   Of course, in a brain there is no such thing as a caste distribution, but the counterpart is the "brain state". There, you describe the states of all the neurons, and all the interconnections, and the threshold for firing of each neuron.

ANTEATER   Very well; let's lump "caste distribution" and "brain state" under a common heading, and call them just the "state". Now the state can be described on a low level or on a high level. A low-level description of the state of an ant colony would involve painfully specifying the location of each ant, its age and caste, and other similar items. A very detailed description, yielding practically no global insight as to WHY it is in that state. On the other hand, a description on a high level would involve specifying which symbols could be triggered by which combinations of other symbols, under what conditions, and so forth.

ACHILLES   What about a description on the level of signals, or teams?

ANTEATER   A description on that level would fall somewhere in between the low-level and symbol level descriptions. It would contain a great deal of information about what is actually going on in specific locations through-out the colony, although certainly less than an ant-by-ant description, since teams consist of clumps of ants. A team-by-team description is like a summary of an ant-by-ant description. However, you have to add extra things which were not present in the ant-by-ant description—such as the relationships between teams, and the supply of various castes here and there. This extra complication is the price you pay for the right to summarize.

ACHILLES   It is interesting to me to compare the merits of the descriptions at various levels. The highest-level description seems to carry the most explanatory power, in that it gives you the most intuitive picture of the ant colony, although strangely enough, it leaves out seemingly—the most important feature—the ants.

ANTEATER   But you see, despite appearances, the ants are not the most important feature. Admittedly, were it not for them, the colony wouldn't exist but something equivalent—a brain—can exist, ant-free. So, at least from a high-level point of view, the ants are dispensable.

ACHILLES   I'm sure no ant would embrace your theory with eagerness.

ANTEATER   Well, I never met an ant with a high-level point of view.

CRAB   What a counterintuitive picture you paint, Dr. Anteater. It seems that, if what you say is true, in order to grasp the whole structure, you have to describe it omitting any mention of its fundamental building blocks.

Douglas Hofstadter, *Gödel, Escher, Bach: an Eternal Golden Braid* (Basic Books, 1979) 364; 330–332.

The Generator

About Breakfast Menus and Getting Things Operational

For architect Cedric Price the atoms of the world are made of activities: gardening, tending pets, listening to the radio, conversation, drawing, washing up, accounting, drinking, cooking …—They can be thought of as *breakfast menus*, not in the order of how a recipe is written, but in the order of how they are able to capture and generate pleasure. These are then operated by a series of relocatable structures and controlling processors embedded in every component of buildings.

In defining architecture, you don't necessarily define the consumption of it. All the designs we did for Generator were written as menus, and then we would draw the menu, and because I like bacon and eggs for breakfast, it was all related to that bit of bacon and that bit of egg; they were all drawn, however cartoon-like, in the same order—not in the order the chef or cook would arrange them on your plate, but in the order in which the consumer would eat them. And that is related to the consumption or usefulness or architecture, not the dispenser of it.

Cedric Price, *Re: Cp* (Springer Science & Business Media, 2003) 58.

D-Tower

About Emotional Logistics and Hatching Alienness

Something between a sculpture and a glowing tower that is connected to the Internet has four modes: red for love, blue for happiness, yellow for fear, and green for hate. This simple symbolic grammatisation of the city's emotion intensifies, embodies, catalyses what we usually perceive rather *sub-naturally*. Once it's on track, people can exchange love letters with the gothic-inspired, light-emitting alien.

A coherent hybrid of different media in which architecture is part of a larger interactive system of relationships, in which the intensive (feelings and qualia) and the extensive (space and numbers) start exchanging roles, in which human action, colour, money, value and feelings all become networked entities.

It consists of a physical building (the tower), a questionnaire and a website. All three parts are interactively related. The building is a 12-meter-high structure in which standard and non-standard geometries together make up a complex polyester surface formed by a computer-generated molding technique (CNC milled styrofoam). This surface is very similar to a Gothic vault structure, in which columns and surface share the same continuum. The building is related to the website and to the questionnaire, and the last two are in turn related to each other.

The website is a visual representation of the inhabitants' responses to the questionnaire, written by the Rotterdam-based artist Q. S. Serafijn, which deals with everyday emotions like hate, love, happiness and fear. Every month the questions become more precise, and the answers are graphed in different "landscapes" on the website. The landscapes will show the valleys and peaks of emotions for each of the city's postal codes.

Second, the four emotions are represented by four colours, green, red, blue and yellow, and determine the colours of the lamps illuminating the building. Each night, driving through Doetinchem, one can see which emotion is most deeply felt that day.

Finally, under the tower, inhabitants of the city can also place their own messages on the emotional landscapes on the website. They can also add a photograph and a short letter to the site; these are linked to the landscape by means of a small clickable virtual flag. To further intensify the relations between all these elements, the tower will send prewritten love letters and flowers from "love addresses" to "hate addresses," and at the end of each year the tower will present a 10,000-euro prize to the address with the highest emotions. The tower is expected to stay in place for decades, making the visualization of the emotional states of different people on different streets in different neighbourhoods especially involving. The city's different states of emotionality will be archived and made accessible on the website.

V2_Lab for the Unstable Meida, *D-TOWER*;
http://v2.nl/archive/works/d-tower

Weather Yesterday

About Intensifying Informational Remains

A beautiful LED weather board installed in a public square of East London. It is displaying the classic weather icons such as sunny, cloudy, and rainy. Not for weather forecasting, though. It charges the square with a 24-hour delay feed of weather yesterday, that is, with informational remains. Extremely mundane and ironic.

The Weather Yesterday takes our obsession with progress ad absurdum by sardonically changing our focus from forecast to the past. The installation is enabled through a post-live link to the nearest weather station forecast displaying the weather at any point in time exactly as it was, yesterday. The Weather Yesterday is both perceptive and entertaining, a humorous homage to our obsession with communication technology and the potential for sunshine. First presented in Hoxton Square, London in 2012 while the city was playing host to the Olympics, The Weather Yesterday celebrates the weather as a predominant topic of discussion in British culture while exploring a phenomena of human life: our fixation with the future and technological progress. The Weather Yesterday is a paradoxical object that places us in the twilight zone and emphasises the transition from the virtual to the physical while addressing the urgency by which we are generating endless streams of information, which are not linked to any real life experiences.

TROIKA, *The Weather Yesterday*; https://troika.uk.com/project/the-weather-yesterday/

Weather

About Global Weather Infrastructure and Abstraction

Media historian and philosopher John Durham Peters reminds us that weather is already an *abstraction*, a constructed object that emerges from our data-hungry planetary infrastructures, and vice versa.

Another key technique for managing—constituting—the weather was statistics. Along with crime and suicide, the weather was statistically normalized in the nineteenth century. Like forecasting, statistics presupposes a telecommunications infrastructure that can unite the findings of dispersed observers into aggregates, such as populations, markets, or weather systems, that would defy individual sensory perception. There is no enterprise so data-hungry as meteorology, and as a probabilistic science it inspired many quantitative innovations later used for social and economic phenomena. Important mathematical thinkers such as the Marquis de Laplace, Adolphe Quetelet, and Charles Babbage were fascinated by problems of meteorological data gathering.[1]

John Ruskin articulated the imperative of nonlocal coordination in a 1839 speech at the Meteorological Society of London that has become a landmark for weather historians. Ruskin saw the new field as distinguished by its great utility and beauty: "It is a science of the pure air, and the bright heaven ... He, whose kingdom is the heaven, can never meet with an uninteresting space ... the meteorologist ... rejoices in the kingdoms of the air." Meteorology was distinct as a science, he claimed, because it could never be the work of a lone genius. An individual's "observations are useless; for they are made upon a point, while the speculations to be derived from them must be on space." Instead, "it was necessary that the individuals should think, observe, and act simultaneously, though separated from each other, by distances, on the greatness of which depended the utility of their observations." He dreamed of "a vast machine ... omnipresent over the globe, so that it may be able to know, at any given instant, the state of the atmosphere at every point on its surface."[2] His dream of global omnipresence awaited not only the telegraph but also softer political and intellectual infrastructures. The key point here is that

modern weather was already an abstraction, something that local experience could not be trusted to observe.

Ruskin supplies the title to Paul Edwards's excellent study of the emergence of a global weather infrastructure in the twentieth century, *A Vast Machine*. The history of modern meteorology and climate science is full of media in the semiotic (telegraphs, journalism, radio, television, and satellites) and ontological senses (devices for measuring, monitoring, and constituting things). Satellites were important, but equally so was the forging of worldwide standards of meteorological measurement and reporting; as usual, the problem was not the channels for moving information, but the standards (formats) for packaging and reading it. Weather forecasting was arguably the first world wide web, Edwards argues: a global network for the exchange of data, not only in creating a genuinely global project, but also in terms of computer technology.

John Durham Peters, 'Weather and Modernity', in *The Marvelous Clouds: Toward a Philosophy of Elemental Media* (University of Chicago Press, 2015) 251–252.

1   Stephen M. Stigler, *Statistics on the Table* (Cambridge, MA: Harvard University Press, 1999), chapter 2.
2   'Remarks on the Present State of Meteorological Science,' *Transactions of the Meteorological Society* Vol. 1 (London: Smith, Elder, and Co., 1839), 56–59, quotes from 57 and 59.