I say that I am not sure if that has completely convinced me. Ceecee says that anyone wishing to be completely convinced does not want to live. She laughs and winks. The stars, outside, agree with her.

Translated from the German by John Rayner.

A particularly vexing characteristic of language as a medium is its low degree of consistency: language is never fixed. Instead, it is subject to constant conversion; both its material and its symbolic forms continually undergo transmutation, thus altering the scope of references, meanings, and cosmologies. Language, as a mode of existence, goes through a continual phase change—from the dense, material form of letters (its signifier) to the diffused clouds of meaning (its signified). The English natural philosopher John Wilkins, a key figure in the establishment of the Royal Society, was keen to change this principle of indeterminacy between signs and words. His aim was to create a “Real Character” whereby things and words would become identical. This excerpt presents early indications of his idea of a universal language, demonstrating the close relationship of such “plain speech” and its ideology of fact and reason—hallmark values for the Royal Society, and, by extension, scientific imperialism and human domination upon the planet—with secrecy and cryptography. This chapter has Wilkins string together fantastic examples of ancient methods—strangely material, corporeal, and carnal—that were used to convey secret messages with the belief that, if one is able to understand the secret modes of transportation and disguise used to disperse private missives, one is...
able truly to comprehend language. In his essay, John Tresch pays special attention to the other way of keeping messages secret, namely in the form of “secret writing,” a phenomenon Wilkins addresses elsewhere. The idea behind this form is that, if one is able to understand cryptography, one is able to construct a general theory of communication. Today, our communication technologies are based on mathematical communication theories, having evolved into clouds that confine everything as fragments of configurable data: entities, agencies, privacy, and openness. As we enter this new age of confusion between immaterial and material, not so different from the thunderous, indeterminate climate at the start of the Enlightenment, we must sensitize ourselves to the material world in which words are connected to actual things, to things of concern.

John Wilkins (1614–1672) was an English natural theologian who advocated a curious mélange of religious, scientific, and political views. For current readers, this might appear perplexing, but, in fact, it nicely illustrates the character of the eventful times surrounding the English Civil War and the scientific revolution. As one of the founders of the Royal Society, he helped spread the “new science” before becoming Bishop of Chester in 1668.

John Tresch is Associate Professor in History and Sociology of Science at the University of Pennsylvania. Trained in anthropology and in history and philosophy of science, his work explores cosmological connections among the physical and human sciences, technology, politics, and the arts. Recent and current research topics include technological utopianism in romantic-era science and art, contemporary encounters between Buddhism and neuroscience, and the science of Edgar Allan Poe.
That of Harpagus the Mede (mentioned by Herodotus and Justin) who when he would exhort Cyrus to a conspiracy against the king his uncle, (and not daring to commit any such message to the ordinary way of conveyance, especially since the king’s jealousy had stopped up all passages with spies and watchmen) he puts his letters into the belly of a hare, which, together with certain hunters nets, he delivered unto a trusty servant, who under this disguise of a huntsman, got an unsuspected passage to Cyrus. And Astyages himself was by this conspiracy bereaved of that kingdom which was then the greatest monarchy in the world.

To this purpose likewise is that of Demaratus, king of Sparta, who being banished from his own country, and received in the Persian court, when he there understood of Xerxes his design and preparation for a war with Greece, he used these means for the discovery of it unto his countrymen. Having writ an epistle in a tablet of wood, he covered over the letters with wax, and then committed it unto a trusty servant, to be delivered unto the magistrates of Lacedaemon; who, when they had received it, were for a long time in a perplexed consultation what it should mean; they did see nothing written, and yet could not conceive but that it should import some weighty secret; till at length the king’s sister did accidentally discover the writing under the wax: by which means the Grecians were so well provided for the following war, as to give a defeat to the greatest and most numerous army that is mentioned in history.

The fathers of the council of Ephesus, when Nestorius was condemned, being strictly debarred from all ordinary ways of conveyances, were fain to send unto Constantinople by one in the disguise of a Beggar.

Some messengers have been sent away in coffins being dead: some others in the disguise of brute creatures, as those whom Josephus mentions in the siege of Jotapata, who crept out of the city by night like dogs.

Others have conveyed letters to their imprisoned friends, by putting them into the food they were to receive, which is involving his epistles in a piece of bread, did send them by a certain nobleman in the form of a beggar. There is another relation of one, who rolled up his letters in a wax-candle, bidding the messenger tell the party that was to receive it, that the candle would give him light for his business. There is yet a stranger conveyance spoken of in Æneas, by writing on leaves, and afterwards with these leaves, covering over some sore or putrid ulcer, where the enemy would never suspect any secret message.

Others have carried epistles inscribed upon their own flesh, which is reckoned amongst those secret conveyances mentioned by Ovid.

* Caveat hoc custos, pro charta, conscia tergum, probeat, inque suo corpore verba ferat.8

But amongst all the ancient practices in this kind, there is none for the strangeness, to be compared unto that of Hystiæus, mentioned by Herodotus, and out of him in Aulus Gellius, who whilst

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1 Herod. l. 1. cap. 123. Justin. l. 1.
2 Justin. l. 2. See the like related of Hamucar. Ib. l. 21.
3 Such as formerly they were wont to write upon, whence the phrase *Rasa tabula* and *litera a litera*.
5 De Bello Judaic. l. 3. c. 8.
6 Herrn. Hugo de Orig. Scrib. c. 15. Solemn. de Cryptographia. l. 8. c. 7.
7 Poliorcet. c. 31.
8 De Arte Amand.
9 Herod. l. 5. c. 35. Noctes Atti. l. 17 c. 10.
he resided with Darius in Persia, being desirous to send unto Aristagoras in Greece, about revolting from the Persian government, (concerning which they had before conferred together) but not knowing well how at that distance to convey so dangerous a business with sufficient secrecy, he at length contrived it after this manner: he chose one of his household-servants that was troubled with sore eyes, pretending that for his recovery his hair must be shaved, and his Head scarified; in the performance of which Hystiaeus took occasion to imprint his secret intentions on his servant’s head; and keeping him close at home till his hair was grown, he then told him, that for his perfect recovery, he must travel into Greece unto Aristagoras, who by shaving his hair a second time, would certainly restore him. By which relation you may see what strange shifts the ancients were put unto, for want of skill in this subject that is here discoursed of.

It is reported of some fugitive Jews at the siege of Jerusalem, who more securely to carry away their gold, did first melt into bullets, and then swallow it down, venting it afterwards amongst their other excrements. Now if a man had but his faculty, who could write Homer’s Iliads in so small a volume as might be contained in a nut-shell; it were an easy matter for him, by this trick of the Jews, securely to convey a whole packet of letters.

2. When all the land-passages have been stopped up, then have the ancients used other secret conveyances by water; writing their intentions on thin plates of lead, and fastening them to the arms or thighs of some expert swimmer. Frontinus relates, that when Lucullus would inform a besieged city of his coming to succour them, he put his letters into two bladders, betwixt which a common soldier in the disguise of a sea-monster, was appointed to swim into the city. There have been likewise more exquisite inventions to pass under the water, either by a man’s self, or in a boat, wherein he might also carry provision, only having a long trunk or pipe, with a tunnel at the top of it, to let down fresh air. But for the prevention of all such conveyances, the ancients were wont in their strictest sieges, to cross the rivers with strong nets to fasten stakes in several parts of the channel with sharp Irons, as the blades of swords, sticking upon them.

3. Hence was it that there have been other means attempted through the open air, either by using birds, as pigeons and swallows instead of messengers, of which I shall treat more particularly in the sixteenth chapter. Or else by fastening a writing to an arrow, or the weight that is cast from a sling.

Somewhat of this nature, was that intimation agreed upon betwixt David and Jonathan, though that invention does somewhat savour of the ancient simplicity and rudeness. It was a more exact invention mentioned by Herodotus concerning Artabazus and Timoxenus, who when they could not come together, were wont to inform one another of any thing that concerned their affairs, by fastening a letter unto an arrow, and directing it unto some appointed place, where it might be received.

Thus also Cleonymus king of Lacedaemon, in the siege of the city Trezene, injoined the soldiers to shoot several arrows into the town, with notes fastened unto them having this Inscription Ἴκω τον Ὑλιν ἔλειν δερηςαν. I come that I may restore this place to its liberty. Upon which the credulous and discontent inhabitants were very willing to let him enter.

10 Joseph. de Bello Juda. l. 6. c. 15.  
11 Solin. Polyhist. c. 5.  
12 De Stratag. l. 3. c. 13.  
13 Plin. l. 10. c. 37  
14 1 Sam. xx.  
15 Urania, sive l. 8. c. 128.  
16 Polynæus, l. 2. See Plutarch in Cimon. Vol. II.
When Cicero was so straightly besieged by the Gauls, that the soldiers were almost ready to yield; Caesar being desirous to encourage him with the news of some other forces that were to come unto his aid, did shoot an arrow into the city, with these words fastened unto it, *Cæsar Ciceroni fiduciam optat, expecta auxilia*. By which means the soldiers were persuaded to hold out so long, till these new succours did arrive and break up the siege.

The same thing might also be done more securely, by rolling up a note within the head of an arrow, and then shooting of it to a confederate’s tent, or to any other appointed place.

To this purpose is that which Lysius relates out of Appian, concerning an ancient custom for the besieged to write their minds briefly in a little piece of lead, which they could with a sling cast a great distance, and exactly hit any such particular place as should be agreed upon, where the confederate might receive it, and by the same means return an answer.

Of this nature likewise are those kind of bullets, lately invented in these German wars, in which they can shoot, not only letters, corn, and the like, but (which is the strangest) powder also into a besieged city.

But amongst all other possible conveyances through the air, imagination itself cannot conceive any one more useful, than the invention of a flying chariot, which I have mentioned elsewhere. Since by this means a man may have as free a passage as a bird, which is not hindered, either by the highest walls, or the deepest rivers and trenches, or the most watchful centinels. But of this perhaps I may have occasion to treat more largely in some other discourse.

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241
to in the overall order of the universe. He said this invention was "the only way to unite the seventy-two languages of the first confusion"; it would return what was lost after the fall of Adam and the Tower of Babel.\footnote{John Wilkins, An Essay towards a Real Character and a Philosophical Language, London: Printed for SA: Gellibrand, and for John Martin, Printer to the Royal Society, 1668.}


Yet Wilkins' plan for a universal language was first announced in Mercury, twenty-seven years earlier: his luminous, Apollonian real character first graced the pages of a book whose primary examples were secret utterances made under attack, surrounded by enemies—under the sign of Mars.

This interlacing of new and old, the public and the secret, has remained part of the knowledge arrangements minted by Wilkins and his associates, and of which we are the inheritors. The new order cloaked itself in openness while prescribing who spoke, what was said, and the language used.

The present project—Grain, Vapor, Ray—suggests that new cosmological arrangements may be underway, leading out of the modernity whose chief building blocks were "matters of fact," inert materials disconnected from human concern.

Son of a goldsmith, grandson of a Puritan divine, Wilkins assayed the materials to forge a new natural, human, and divine order. His language projects illustrate the pathways and perils involved in framing new maps of the universe, or cosmogroms. They shed oblique light on our own transition by focusing our attention on the relations between cosmology and the ontology of language. Like Wilkins, we must ask: do we have the right kinds of words for the world we're moving into?

2. Angelic versus corporeal transmissions

When he published Mercury in 1641, Wilkins had already published two books explaining and defending Galileo, theories of multiple worlds, and a machine for space travel. In 1648, he published Mathematical Magick, which elevated mechanics to the status of a liberal art, tracing its principles from simple balances and pulleys to automata, irrigation devices, and war machines.\footnote{John Wilkins, Mathematical Magick, or, the Wonders That May Be Performed by Mechanical Geometry, in two books, 4th ed. London: Edw. Gellibrand, 1648/1691; e-book version, Whitefish, MT: Kessinger Publishing, 2003.}

His were among the first English books on these subjects. He wrote Mercury, he said, not solely for his "own farther delight" but because "the ignorance of secret and swift conveyances, hath often proved fatal, not only to the ruin of particular persons, but also of whole armies and kingdoms." Providing intellectual satisfactions, securing the life and death of nations: these were two duties of the new learning.\footnote{Peter Dear, "What is the History of Science the HistoryOf?," Isis, vol. 96, no. 3 (2005), pp. 390–406.}

Questions of commerce were also nearby. The subject, he wrote, "belongs to the mint of knowledge; expressions being current for conceits, as money is for valuations." Just as those who "traffic" must understand "the several kinds of money, and that it may be framed of other materials besides silver and gold," so would those who profess the knowledge of nature or reason need to know the different means of expressing it.\footnote{Wilkins, Mercury, p. 1.}

Throughout Wilkins' Mercury, language underwent not only translations, but also material conversions and state changes: from dense object, to diffuse cloud, to pointed emanation.

At its angelic limit, it left matter behind. Humans have "organical bodies" and thus need "corporeal instruments." Angels, incorporeal, are exempt from these constraints. They also move fast: despite the "mad celerity of the celestial orbs," in a race between an angel and Aristotle's primum mobile—the initiator of the motion of the crystal spheres—"it would be but an even lay which should prove the swifter." Yet, he noted drily, "It is not so easy to employ a good angel, nor safe dealing with a bad one."\footnote{Wilkins, Mercury, p. 2.}

Mercury is a compilation of ways of keeping communication secret and of making it faster. He classed his examples into fabulous, magical, and natural and true: among the first were lodestones at great distances that point, under "a strange immaterial power," to spell out letters, as well as the "diabolical magic" described by Agrippa that allowed Pythagoras to write on the moon. Such reports, like his references to John Dee and Robert Fludd, show more than passing familiarity with the Paracelsian and Rosicrucian cosmos still being elaborated in the early seventeenth century. This was a world of "signatures" that linked earthly and celestial entities, where knowledge required the patient, erudite, and, at times, intuitive decipherment of ubiquitous signs revealing God's plan and hierarchy. The effective powers of plants, metals, and elements could be made legible, with work, through their sensory qualities. Investigators
interrogated the microcosm of the sublunar realm—bodily, intuitively, rationally, mystically—for connections to the macrocosm; all revealed the creator’s intentions.

Wilkins knew this work. In the 1640s, he was close to the circle of Samuel Hartlib, a Baconian reformer and a major force for the Neoplatonic revival. Wilkins explained his choice of title for Mathematical Magick (which borrowed from the Rosicrucian Robert Fludd) as an “allusion to vulgar opinion, which doth commonly attribute all such strange operations unto the power of magick.” Yet far from launching a polemic, he left it at that. Angels would be excellent messengers; alas, they’re hard to tame.

3. Physical graffiti

Wilkins’ main topic was communication of the human sort, for which eyes, ears, and discrete material marks were required. He found secret writing everywhere: “metaphors, allegories, and divers other tropes of oratory” demand decipherment; hieroglyphics, found secret writing everywhere: “metaphors, allegories, and divers for which eyes, ears, and discrete material marks were required. He excellent messengers; alas, they’re hard to tame. A soldier swims to your shore “in the enemy would never suspect.” A servant “troubled with sore eyes” arrives from the city of a friend, and tells you, blinking, that his condition will be cured if you shave his head: on his shorn scalp, you find the message your friend has “scarified” on him.

All this fleshy language—carved into bodies, borne by breathing, pulsating creatures—registers the importance for Wilkins, as for the mechanics, Paracelians, alchemists, and natural magicians he frequented, of getting to grips physically with matter in its various forms. Experienced labor with resistant and yielding materials was needed to compose and decipher secret plans—whether those of God, one’s co-conspirators, or one’s enemies.

But another linguistic ideal lurked in his examples: that of simplification and outright dematerialization. His analysis of the minimum conditions of signification anticipated binary codes: “Whatever is capable of a competent difference, perceptible to any sense, may be a sufficient means, whereby to express the cogitations [...] but it is sufficient if they bee but twofold, because two alone, may with somewhat more labour and time, bee well enough contrived to express all the rest.” Communication approached a pure logical operation: the only matter needed was a mark or its absence.

His universal character, introduced in Chapter 13, might be understood as a materialization of this ideal of immateriality: a language completely transparent to that of which it speaks, bypassing any historical, national, or individual overlay. “Though several nations may differ in the expression of things, yet they all agree in the same conceit of them”; a language purified of arbitrary additions would let these universal ideas shine through to their referents. The removal of the interference particular languages brought between ideas and things would dissolve differences between peoples.

Wilkins ended the book by recalling that Mercury’s speed and stealth have also associated the messenger god with theft; he worried that his book “may unhappily advantage others, in such unlawful courses.” Yet every art can be used for ill as well as good: “If all those usefull inventions that are lyable to abuse, should therefore be concealed, there is not any Art or Science, which might

11 Wilkins, Mercury, p. 67.
12 Wilkins, Mercury, p. 67; see a similar discussion in Francis Bacon: Advancement of Learning (Oxford, 1605), Chapter 1, p. 6; for an updated version of the same title with an Introduction by Jerry Weinberger, Philadelphia, PA: Paul Dry Books.
13 Wilkins, Mercury, p. 56.
be lawfully profest.” In the name of openness, and a kind of technological original sin, Wilkins defended the teaching of arts of enclosure and deception.

4. Language at “Warre”

When, in the 1650s, Wilkins turned his efforts toward realizing this universal language, he was neither the first nor the only one: the call for such a language had already been raised by Francis Bacon, and more recent attempts came from Giambattista Della Porta, Francis Lodwick, and George Dalgarno. A distinct aspect of Wilkins’ plan, however, was its deep association with the epistemological, theological, and political ambitions of the Royal Society.

Those goals were rooted in the English Civil War; the strife between the Puritan Parliament led by Cromwell and the Royalists, whose Catholic-friendly King Charles I lost his head in 1649. The middle years of the century witnessed an explosion of pamphlets denouncing Parliament, the aristocracy, and Cromwell, and demanding a levelling of conditions, religious tolerance, sharing of land and its fruits, with Ranters exempting “the chosen ones” from sin and the Fifth Monarchy Men rejecting worldly government altogether.

Inflammatory language of condemnation, revolt, and prophecy filled the air. In 1646, Wilkins published Ecclesiastes, a hugely influential manual for writing sermons; he advocated logical construction and argument, refraining from unnecessary rhetoric, and advanced the ideal of plain speech. Calm, exact language would cool passions rather than inflame them.

These arguments served as a rehearsal for the Royal Society, many of whose future members were gathering regularly in his rooms at Oxford. While Wilkins’ position seemed relatively safe—he had Royalist patrons and married Cromwell’s sister—political winds could quickly change.

In the face of attacks on the university, he and his Oxford friends redrew lines of allegiance. Wilkins wrote the preface to Seth Ward’s Vindicia Academiarum, a response to both Thomas Hobbes’ Leviathan (1651) and John Webster’s Academiarum Examen (1654). Webster’s book was a blistering attack on the teaching in the universities, painting it as vain and willfully ignorant. Its dedication read:

In an Aegyptian darkness men do live,
O’ercome with Fancies which the Schoolmen give;
High-building-Tower men, who such notions make,
Nothing but Babel we from them can take.

Webster was an advocate of Baconian reform, a promoter of experiment and experience against the scholastic “Babel” of received wisdom. Yet he also championed the Neoplatonic and magical quest for intuitive grasp of divine signatures, and scolded universities for neglecting such pursuits. His book made explicit the connection implied in Mercurius between “Hieroglyphical, Emblematical, Symbolical and Cryptographical learning,” grammar, and “the discovery of the universal Character.” All these forms of language-study, he argued, were steps toward a return to the “Angelical and Paradisical language” of Adam, unlocking “the rich treasury of nature’s admirable and excellent secrets.”

In reply, Wilkins and Ward damned Webster’s confusion of mystic hermeneutics with the universal character, drawing a strong line between Rosicrucianism and the experimental program developing at Oxford. Wilkins fumed:

What a loose and wild kind of vapouring is that [chapter] about Cryptography, and the universal Character. [...] wherein he doth assent unto the highly illuminated fraternity of the Rosycruçians In his large encomiums upon Jacob Behem, in that reverence which he professes to judiciall Astrologie, which may sufficiently convince what a kind of credulous fanatic Reformer he is like to prove.

Ward condescendingly elaborated: “Hieroglyphics and Cryptography, were invented for concealment of things, and used either in mysteries of Religion which were infanda [infamous] or in the exigencies of Warre [...] and Grammar is one of those Arts and Language one of those helps, which serve for explication of our minds and notions.”

Yet the distinction between concealment and explication is not as

14 Mary M. Slaughter, Universal Languages and Scientific Taxonomy in the Seventeenth Century, Cambridge: Cambridge University Press, 1982
17 Shapiro, John Wilkins.
21 Wilkins as “N.S.” in Vindicia Academiarum, p. 28 (199).
22 Ward, in Vindicia Academiarum, p. 18 (212).
obvious as Ward tried to make it. Wilkins’ *Mercury* had seamlessly linked secret writing to universal language, even appealing to the authority of Lord Bacon who had referred secret writing “to the art of Grammar, noting it as a deficient part.”

Yet in 1654, on the defensive, Wilkins and Ward were drawing a new map of the universe along with its key. Despite considerable common ground with many of the radical educational reformers, they blasted Webster’s “vapouring” as the ravings of an enthusiast: they renounced the mystic connections and signatures of the Neoplatonists, natural magicians, and Rosicrucians. Seating on their ark was limited; its materials had to be inspected and approved.

This moment marks a significant break in language ontology. Wilkins and Ward expelled the promiscuous divine language of signatures crisscrossing microcosm and macrocosm, replacing it with language as a tool of strict, systematic reference, joining natural objects and universally-shared ideas. From the late 1650s, as the Royal Society took shape, Wilkins devoted his energies to fortifying this rampart, which took the concrete form of the Essay towards a Real Character and a Universal Philosophy, published in 1668.

5. A monument of plainness

At nearly 500 folio pages-long and sponsored by the Royal Society, Wilkins’ *Real Character* was a monument to that organization’s goals. His artificial language was the exemplary vessel of “plain speech,” rational theology, and legitimate natural philosophy.

It began with a theory of language’s origins and principles, followed by “philosophical tables” of the logical divisions of the beings of the world. It mapped out forty major categories or genera (with subheadings including herbs, animals, parts, quantities, qualities, actions, and relations). Each of these was itemized further into “differences” and “species,” identified with the aid of naturalist John Ray. Though Wilkins admitted gaps and defects in this universal classification, his artificial language depended on its accuracy. The “real character” served as an indexing system for this map of all things.

Each word started with a primary radical sign for the genus; a mark to the left indicated the first subcategory or difference, one to the right, the species. Suffixes and substitutions introduced further inflections of these “integrals,” and a limited number of “particles” would “circumstantiate and modifie” them. These were the bricks and mortar of the real character, which could also be realized in a speakable “philosophical language” that used a combination of Latin and Greek characters. Each genus was given a two-letter radical, and additional letters made specific entities plain: out of (De), which stood for *Element*, one could form (Deb), noting the first difference, to signify *Fire*; (Deb) would denote the first species, or *Flame*. A string of these characters, assembled according to his general grammar, could express anything a natural language could; as proof, he spelled out the Lord’s Prayer in fifty languages natural, followed by the real character.

Figure 1: Building blocks of the real character: the forty “genera” and their signs, along with the signs that mark “differences” and “species,” from John Wilkins, *An Essay towards a Real Character and a Philosophical Language*, p. 387.

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In this language, every difference made a difference: “Every Word being a description of the thing signified by it; Every Letter being significant.” The word embodied the relations of the map; the map contained the world. Once the elements were stabilized, their relations could be further charted, revealed, and clearly expressed.

Robert Hooke, the Royal Society’s Curator of Experiments, demonstrated the flexibility of the language by using it to compose an essay on timekeeping devices; and Thomas Sprat’s 1667 promotional History of the Royal Society, written at Wilkins’ request, described a Repository containing objects arranged “according to the exact Method of the Ranks of all the Species of Nature, which has been compos’d by Doctor Wilkins.” The constant self-reference of the Real Character—between dictionary, tables, philosophical language, and real character—now reached out to grip the world as possessed by Wilkins and his associates. The things of the world confirmed the map and each of its mutually reinforcing indexes.

Even as it excluded certain elements of previous knowledge schemes—notably, the esoteric analogies of Fludd, Dee, and the Rosicrucians—this cosmogram of a new order preserved and renewed elements of its predecessors: Temple, Tabernacle, and Ark. Just as Hooke’s Repository contained objects of “the greatest part of all the several kinds of things, that are scattered throughout the Universe,” Wilkins enumerated “the divers species of beasts that were to be received into the Ark,” listing the quantities and kinds of food to feed them, the construction of their stalls, and the size of the boat. His philosophical language would not only present the domains of creation in their true aspects; it would aid in the rational explication of Scripture. Knowledge of the words and works of the Lord at last—or once again—would be communicable to all: to all, that is, who were willing and permitted to get onboard with his scheme.

Figure 2: The Creed, as translated into John Wilkins’ philosophical language, from his An Essay towards a Real Character and a Philosophical Language, p. 404.


26 Wilkins, Real Character, p. 464.
King Charles II liked the Real Character so much that he made John Wilkins Bishop of Chester; and yet Jonathan Swift cleverly mocked Wilkins’ projects in Gulliver’s Travels (Part 3, Chapter 5) with his depiction of the Academy of Lagado, in Gulliver’s fourth voyage. Its “Projectors in Speculative Learning” took so seriously their goal “to replace words with things” that they abandoned speech, pulling objects out of bags to express their thoughts.  

6. Encode/enclose

After Wilkins died in 1672, his project fell into esteemed neglect. One reason for this was that a new ideal of language and knowledge took over, with the celebrated successes of Newtonian mechanics and mathematics. Rather than purified words capturing visible and essential characteristics of distinct objects, the most reliable form of knowledge was now said to be that which established formal laws on the basis of quantifiable primary qualities: mass, speed, and location.  

Yet for this merger of observation, measurement, and reason to hold as universal, the ground cleared by Wilkins was crucial. The public presentations of Newton’s cosmos (which left unanswered major questions about the specificity of living things, fueling endless later debate) occupied the space of a rational order of discrete visible entities carved out by Wilkins. Gottfried Wilhelm Leibniz framed his dizzyingly ambitious programs for a universal character and calculus ratiocinator—often presented as precursors to modern logic and computing—as improvements on Wilkins’ work.  

Paradoxically, Wilkins’ insistence on the materiality of communication—both in the carnality of Mercury and the precise differences registered by the characters of the Real Character—prepared the way for a later perception of logic, thought, and language as abstract, immaterial, and eventually, “virtual.”  

One of Wilkins’ decisive moves, like that of other knowledge projects of the seventeenth century, was “decontextualization”: objects had to be cut out of their previous natural (and supernatural) settings. Yet that was only the first step: the next was to position them within a complete, encompassing framework of beings, specifying them logically and essentially in relation to other de- and re-contextualized entities. Wilkins’ book inscribed an object-orient ed ontology, defining the world by discrete and concrete objects within a logical structure—preparing them for what we now recognize as “information processing.” This move was aligned with the period’s “disembedding” of the economy from longstanding relations and mutual obligations, noted in connection to both acts of enclosure and the formalization of monetary obligation and debt.  

After 1688, the Royal Society’s exemplary experiments and rhetoric of the “modest witness” set a new standard; its Protestant latitudinarian tolerance became the coin of the realm. It established that the language of knowledge was “plain speech,” which not only excluded vocal enthusiasm and contentious metaphysics, theology, or politics, but also banned the meaning-saturated universe of the earlier part of the century. Its densest expressions, the height of “clarity and distinctness,” were efficient symbols indecipherable to most—whether Wilkins’ hieroglyphs, Newton’s proofs, or the specialized nomenclatures of later expert languages. Such “plain speech” and “straight talk” has since served to disqualify unruly arguments and interests not reducible to matters of fact.  

It’s worth hammering on the fact that Wilkins’ first public presentation of his universal character—whose goal was to convey timeless truths “legible to all nations and languages”—appeared in Mercury, an anonymous text concerned with deceitful languages emphasizing speed and privacy. Though the universal language might appear to be at odds with the aims of Mercury, the real character was visibly indistinguishable from cryptography, and was composed using logic akin to that used in composing a new code. Further, at least until the day when everyone would have adopted it, this code was readable only by a learned few: its designers and implementers, Wilkins, and his friends. Given the air of conspiracy and political threat of the mid-century under which this group first formed—an atmosphere explicit in Mercury—we might also see a shared anxiety and defensiveness at the creation of both.  

In Mercury, Wilkins said that secret messages that use letters have one “grand inconvenience in them [] that they are not without suspicion.” The hardest messages to decipher are those that don’t look like messages at all—those that fade transparently into their surroundings. The ideal of plain and open speech—pure, transparent information—underwrote global projects of enclosure: the regulated space of scientific debate; the estates that Fellow of the Royal Society

32 Mary M. Slaughter, Universal Languages, p. 185.  
36 Mercury, p. 13.
William Petty mapped out, measured, and claimed in Ireland; the territories enclosed and “improved” from Asia to the Americas; the coins recalled by Newton, as Warden of the Mint, to bind the idea and words of value securely to a stable gold coin, stamped by the king. Wilkins and his fellows worked hard to found a world of stable facts and discrete objects that stay in place, bound to a closed system of fixed laws proclaimed by experts. Except in moments of controversy or crisis, the work that has gone into making that cosmos appear natural, unquestionable, and self-evident largely passes unseen. While our era often defines itself by publicity and openness, Öffentlichkeit, it is a telling fact that several of the most brilliant contributors to the concepts and practices of modern communication and information—Wilkins and Leibniz, Charles Babbage and Claude Shannon—were adepts of cryptography. As was made clear by Edgar Allan Poe (who often mimicked Babbage), the best-kept secrets hide in plain speech.

7. Into the new confusion

Without ever laying his hands (or eyes) on Wilkins’ Real Character, Jorge Luis Borges wrote an essay about it—the same essay that contained his anecdote about a Chinese encyclopedia whose categories for “animals” defied our sense of order (an anecdote later purloined by Michel Foucault, who never mentioned Wilkins). “The impossibility of penetrating the divine pattern of the universe,” Borges wrote, “cannot stop us from planning human patterns, even though we are conscious they are not definitive.” Yet Borges’ faith in our awareness of the limits of knowledge seems misplaced. We keep thinking that finally we’ve got it—or that we will, very soon. We now pattern our world from bits: scanned, archived, and mined. This cosmos is particulate and aggregate, points of data swarming in endlessly reconfigurable sets. Distributed learning machines re-synthesize experiences, organizations, and organisms. They frame natural orders, not only out of primary qualities, but now from colors and sounds; all senses coded and re-combined in new universal languages, transmitted at lightning speed.

Two kinds of clouds are hovering. “Cloud computing” updates Wilkins’ real character, with greater abstraction and firmer grip: algorithms crawl behind the scenes of the visible “commerce of goods and souls,” continually refreshing semantic webs that structure the world they contain. Our natural classifications, identities, possessions, and allegiances are held—in the name of free and friendly transparency—in remote repositories, powered and cooled by vast inputs of electricity, owned by corporate cabals, with backdoors open to sovereign inspection.

Other clouds, echoing Noah’s, threaten floods. The byproducts of our productivity provoke the earth’s reply; in answer, we go mute. After the confusion of languages, “the Anthropocene” names an unresolvable confusion of entities and agencies. Human actions reshape the earth’s surface, our efforts at control trigger chaos, the “great acceleration” rushes to crash after crash.

These temperature-shifts, state-changes, and material and semiotic destabilizations call to mind a wicked nursery rhyme:

Little Willy from the mirror
Licked the mercury right off
Thinking in his childish error
It would cure the whooping-cough.
At the funeral Willy’s mother
Turned and said to Mrs. Brown:
’Twas a chilly day for Willy
When the mercury went down.

This sneaky little ditty serves up mercury as cure, as knowledge (thermometer), as deceiver (error), as poison (poor Willy). For five centuries we’ve been addicted to Mercury’s secrecy and speed. He’s made us as mad as hatters.

Mercury goes retrograde and quicksilver poisons. The time may be approaching, again, for one cosmos to make room for another. Under the signs and motions of what powers, with what materials and marks, will we know this order, write it, and build it? The aim can no longer be simply to trap the inhuman universe in our magic mirrors, to “scarify” it with our swift and possessive marks. The task is more enigmatic. It suggests a reframing of the covenant with that which sustains us: to call and answer with our magic mirrors, to “scarify” it with our swift and possessive marks.

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