

John Bulwer: *Chirologia, or The naturall language of the hand*

London, 1644

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Commentary

Hand to Mouth to Eye:

John Bulwer's Natural Language of Gesture

Little is known about the life and career of the English physician and natural philosopher John Bulwer (1606–1656) outside of the five books he published after the outbreak of the English Civil Wars, on various topics concerning nonverbal communication and the sense experience of body movements: seeing hand motions and facial expressions, reading lips, and the nature of hearing and speech disorders.

Today Bulwer is best known as an early proponent of Deaf education and a natural historian of sign language. The British Deaf Association, for example, cites Bulwer's *Chirologia, or, the naturall language of the hand* (1644) as the first printed account of an early version of British Sign Language (BSL).¹ The verbose title informs the reader that *Chirologia*—a neologism from the Greek *chiro* (hand) and *logos* (language)—is a work on the “naturall language of the hand, composed of the Speaking Motions, and Discoursing Gestures thereof,” with a second work published along with it: *Chironomia* (from *chiro* [hand] and *nomos* [law]), on “manuall rhetoric, Consisting of the Naturall Expressions, digested by art in the hand, as the chieftest instrument of eloquence.”²

Bulwer's other works expanded on this natural language of the body, including *Pathomyatomia* (1649), one of the first works to study the action of the muscles of the face in producing expressions, and *Anthropometamorphosis: Man Transform'd, or the*

¹ British Deaf Association, “What is BSL?,” <https://bda.org.uk/help-resources/>.

² John Bulwer, *Chirologia, or, The naturall language of the hand composed of the speaking motions, and discoursing gestures thereof: whereunto is added Chironomia, or, The art of manuall rhetoricke...* (London: Thomas Harper, 1644).

Artificial Changeling (1650),³ a natural history of body modifications—principally accounts of tattooing, piercing, and scarification gathered from travelers’ reports—that deviated from the “mould intended by Nature” by inhibiting clear expression of mental states through shapes and motions of the face and hands. Bulwer planned to pair his two works on natural motions of the hand, *Chirolugia* and *Chironomia*, with two volumes on the natural motions of the head, *Cephalelogia* and *Cephalenomia*, in a complete account of this “natural Language of the Body, to wit, the *Hand* and the *Head*” (*Chirolugia*, “To the Candid and Ingenious Reader”).

Throughout *Anthropometamorphosis*, Bulwer argues that practices of body modification obstruct the visual perception of bodily shapes and movements that are meant to mirror specific mental states and emotions. The “Man Transform’d, or the Artificial Changeling” of the title refers to a body “abused” by such modifications. By providing an account of the “abuse” of the body, Bulwer claims, his work complements Galen of Pergamon’s canonical medical text *On the Usefulness of the Parts of the Body*: “The two Books being laid open, one of the *use of parts*, the other of the *abuse of parts*, is read, at which the Ghost of *Galen* appears, as raised up at the report of the prodigious *abuse of parts*” (*Anthropometamorphosis*, “The intent of the Frontispiece unfolded”).

The main ethical implications of what Bulwer called his “corporall philosophy” are laid out here in the comparison between Bulwer’s own text and Galen’s, a standard work of the classical, medieval, and early modern medical curriculum on functional anatomy and physiology. Modifying the body in ways that mean universally recognizable expressions and gestures become obscure—at least to white European merchants and explorers—breaks the semiotic link between bodily motions and the mental states they express. This makes communication across cultural and linguistic differences impossible, Bulwer argues, because the modifications disrupt the body’s natural purpose to be visually perceived as a mirror of the soul.

Historians of science and philosophy have increasingly become interested in Bulwer, a somewhat idiosyncratic figure in the history of the English scientific revolution who was largely disconnected from the scientific networks that predated the founding of the Royal Society in 1660. Born in London as the son of a physician, Bulwer received his medical degree towards the end of the English Civil Wars (1642–51), a series of armed conflicts between supporters of the English monarchy and Parliament that aggravated disagreements in the Church of England concerning proper worship. In his works—published between 1644 and 1653—Bulwer took up the challenge issued by the English statesman, scientist, and reformer Francis Bacon (1561–1626) in his *On the Advancement of Learning* (1605): to establish a universal language to help repair

³ J. B. [John Bulwer], *Anthropometamorphosis: Man Transform’d, or the Artificial Changeling. Historically presented, in the mad and cruel Gallantry, foolish Bravery, ridiculous Beauty, filthy Fineness, and loathsome Loveliness of most Nations, fashioning & altering their Bodies from the Mould intended by Nature* (London: J. Hardesty, 1650).

political, religious, and social divisions and unify the arts and sciences in a single grammar of philosophy.⁴

The most well-known and influential universal language projects of this kind in the seventeenth century—such as John Wilkins’s account of secret communication in *Mercury* (1641) and his taxonomy of symbols in *An Essay Towards a Real Character, and a Philosophical Language* (1668), Jan Amos Comenius’s calls for pansophic education, learning, and language in *Via Lucis* (1668), and G. W. Leibniz’s proposal for an “alphabet of human thought” in his *Dissertation on the Art of Combinations* (1666)—all aimed to reconstruct the universal language of nature that had existed before the biblical Fall and expulsion from the Garden of Eden. In the traditional narrative, Adam’s naming of all the living creatures in the Garden created a perfect language of direct, one-to-one correspondence between words and things. After the Fall, however, human beings lost the knowledge of creation we had in our original state of innocence and plenitude. Baconian universal language projects aspired to reverse this epistemic and semiotic break between words and things and the divine punishment of the confusion of tongues (*confusio linguarum*) that humanity suffered for the construction of the Tower of Babel.

In Bacon’s view, the reversal of these two curses—the separation of words and things and the confusion of tongues—requires the right philosophical grammar: “a kind of Grammer, that may diligently enquire, not the *Analogie of words* one with another, but the *Analogie* between Words and Things, or Reason” (*AL* VI.1). Against the rhetorical excesses of scholastic disputation and florid preaching, Bacon called for a return to the principle of classical rhetoric, invoking Quintilian’s warning in the *Institutio Oratoria* against the disproportionate study of style in oratory.⁵ The study of words to the exclusion of “matter,” or the things to which words refer, leads to what Bacon terms “Pigmalions frenzie”—the idolatrous love of signs or pictures (just as Pygmalion became infatuated with the statue he carved) rather than the things represented by them (*AL* VI.1).

The analogy between words and things, according to Bacon, should not be determined by relations between conventional words and things—for example, the word *horse/equus/cheval* and a horse in the world. Bacon’s philosophical grammar sought universal signs that represent things directly “without the helpe and mediation of *Words*” (*AL* VI.1). The written graphemes and phonetic sounds of “horse,” or “horse” as a *word*, will vary across languages. A Baconian universal language that can refer directly to the horse as a thing without using a conventional word for “horse,” however, aimed to

⁴ Francis Bacon, *The Advancement of Learning*, ed. Michael Kiernan, in *The Oxford Francis Bacon*, vol. 4 (Oxford: Clarendon Press, 2000). Hereafter *AL*.

⁵ Bacon’s discussion of the “first distemper” of learning in *AL* I.IV is likely an allusion to *Institutio Oratoria* VIII, in which Quintilian advises the orator that the best words are connected with the things spoken about (*nam plerumque optima rebus cohaerent; Institutio Oratoria* VIII, *prooemium*). On this connection, see A. C. Howell, “*Res et verba*: Words and Things,” *ELH* 13, no. 2 (1946): 131–42.

transcend the postlapsarian differences of languages and approximate the perfect Adamic naming and knowledge of creation.

Bacon suggested two ways of constructing this universal language through grammatical study and innovation. The first way—which inspired the artificial language projects of Wilkins, Leibniz, and others—involved establishing nonverbal or symbolic signs that do not resemble the things they signify, but signify things directly, without the mediation of words. The second way, which Bulwer takes up, involved discovering and developing sign systems that refer directly to things by resembling them (*ex congruo*). Bacon further divided these *ex congruo* signs into hieroglyphs—the “first born” writing systems, predating alphabets—and bodily gestures, or “transitory hieroglyphs” (*AL* VI.1).

Bulwer’s *Chirologia* opens with effusive praise of Bacon and a declaration of his plan to take up this second, lesser-known approach to a universal language. Following Bacon, Bulwer claims his work will offer an account of “*Gesture*, as the only speech and generall language of Humane Nature,” from its origin in the “Two Amphitheatres” of nature’s expression in the human body: the hand and the head. The universality of gesture is a function of the body’s divine design to move in instantly visible and meaningful motions such as clapping, handwringing, open-palmed gestures of surrender and supplication, pointing, nose-scrunching, smiling, grimacing, and eyebrow-raising. Quoting directly from *AL* IV.1, Bulwer claims that Bacon rightly identified a key “deficiencie” in Aristotle’s treatment of animate motion, namely, the failure to explain the significance of visible gestures as a direct and immediate expression of thought (*Chirologia*, “To the Candid and Ingenious Reader”).

For Bacon, this specific area of knowledge—the study of the ontological and semiological relationship between the soul and the body—was left unfinished in Aristotelian natural philosophy. Despite ably describing the meaning of postures and positions of animate bodies at rest (especially in the biological works on animal movement and in the pseudo-Aristotelian work *Physiognomonics*), the Aristotelian tradition had failed to explain “the Gestures of the Body when it is in Motion; which are no lesse comprehensible by Art, and of Greater use,” since the physiognomy of the body at rest reveals the state of the soul “in generall; but the Motions and Gestures of the face and Parts, doe not only so, but further declare [the state] of the present disposition, and of the will” (*AL* IV.1).

Bacon’s distinction here between physiognomy (which signifies states of the soul in general) and gesture (which signifies specific mental or emotional states) is key to Bulwer’s understanding of the body’s natural language. Gestures of the hands, head, and face, according to Bulwer, truly resemble the thoughts and emotions they express; they emerge from the “meere instinct of Nature” rather than from the conventions of spoken and written languages. Gestural communication without a shared written or spoken language, especially in trade and travel, reveals this natural correspondence of bodily motions and mental states:

Hence 'tis apparent, that there's no native law, or absolute necessity, that those thoughts which arise in our pregnant minde, must by mediation of our Tongue flow out in a vocall streame of words; [...] for when the fancy hath once wrought upon the *Hand*, our conceptions are display'd and utter'd in the very movement of a thought. For, the gesture of the *Hand* many times gives a hint of our intention, and speakes out a good part of our meaning, before our words, which accompany or follow it, can put themselves into a vocal posture to be understood. (*Chirologia*, 3)

The correspondence of gesture and thought is prior to vocal articulation, both physiologically and semiotically. For Bulwer, thoughts and emotions can be expressed immediately in bodily gesture, and only proximally through vocal articulation. This is because the eye is a quicker sense than hearing and can perceive movement before the ear can hear sounds, but also because of our natural instinct to express our thoughts in through bodily instruments best designed to communicate them immediately, namely, the hand and the head.

Bulwer's description of this natural instinct grounds his dynamic "motism" of signs, thoughts, things, and names. Indicative gestures (principally pointing) connect things in the world to the mental states that relate to them. The names given to things in written and spoken languages, moreover, have their basis in gestures indicating those things. For example, in his account of finger gestures and shapes (*dactylogia*), Bulwer connects the gestures and shapes themselves, the things they signify, and the mental states expressed in making them:

The fore-finger put forth, the rest contracted to a fist, is an expresse of command and direction; a gesture of the Hand most demonstrative. This Finger being called Index ab indicando, Deicticos by the Greeks, id est Demonstrator. [...] And hence some of the Heathen gods were called Dii indigiti, because it was unlawfull to name them, or point them out as it were with this Finger. (Chirologia, 162)

The gesture of a forefinger extended and pointing, in Bulwer's physiological semiotics, is thus at once 1) a part and movement of the body; 2) an expression of a mental state of demonstrating, commanding, or naming; and 3) a demonstration of a thing in the world (some pagan gods were called "un-indicated gods" because naming them, as signified by the action of pointing, was forbidden).

Bulwer's main argument, that by using sense experience the hand can learn "to speak (as it doth naturally) literally all Languages," is captured in *Chirologia*'s remarkable frontispiece by the printer and engraver William Marshall (Figure 1). Two female figures—"Nature speaking" (*Natura loquens*), on the left, and the muse of eloquence and pantomime, Polyhymnia, on the right—gesture towards an open palm with the face of a helmeted woman (likely Athena, the goddess of wisdom) in its center. The face's mouth

is open, and water is pouring into a “reservoir of handwisdom” (*Cisterna Chirosophiae*), which is marked by four handshapes for “intellect,” “will,” “memory,” and “knowledge.”

The frontispiece of the companion volume *Chironomia*, on the use of gesture in speechmaking, shows this feminized natural language of gesture developed and perfected by classical male orators (Figure 2). Demosthenes, the Greek statesman praised by Cicero and Quintilian as the ideal orator, regards himself in a mirror (labeled *actio*) and is watched by Cicero and Roscius, the famed Roman actor with whom Cicero studied gesture and movement.

Published together, the two volumes of Bulwer’s “hand” philosophy connect natural history, medicine, semiotics, physiognomy, and rhetoric in an argument for reforming humanity in the divine image. What human beings lost in the Fall and the Babelian confusion of tongues was trust in the meaningfulness of gesture—the trust that allows us to communicate with each other and even with domesticated animals:

[this] is a kinde of knowledge that *Adam* partly lost with his innocency, yet might be repaired in us, by a diligent observation and marking of the outward effects of the inward and secret motions of beasts. [...] This *naturall Language of the Hand*, as it had the happinesse to escape the curse at the confusion of Babel: so it hath since been sanctified and made a holy language by the expressions of our Saviours *Hands*; whose gestures have given a sacred allowance to the naturall significations of ours. And God speakes to us by the signes of his *Hand* [...] when he works wonders, which are the proper signes of his *Hand*. [...] And as God speakes to us with his *Hand* by a supernaturall way: so we naturally speake to Him, as well as unto men, by the *appeale* of our *Hands* in *admiration*, *attestation*, and *prayer*. (*Chirologia*, 6–7)

In Bulwer’s natural order, Creator and creatures communicate through visible gesture. Remarkably, what distinguishes human beings from animals is not our rational capacity. Indeed, Bulwer claims that domesticated animals that routinely interact with humans are able “to understand and expresse themselves in this language of gesture” and are capable “not onely of the inward discourse of Reason, but of the outward gift of utterance by gesture” (*Chirologia*, 6). Humans, however, have bodies capable of the most dexterous and articulated gestures—among all creatures, we alone have hands.

In this sense, Bulwer draws on the traditional Galenic understanding of hands as uniquely human instruments and defining features of the most intelligent animals: “because Man was the wisest of all creatures, therefore he had *Hands*, given him, the *Hands* being added, that as he was the most intelligent, so he might have fit organs to do and explain what his knowledge did inlight him unto; *Art* in the *Hand* being the same with *Science* in the *Intellect*” (*Chironomia*, 1). Galen’s *On the Usefulness of the Parts*, in fact, begins with a discussion on the hand and human handedness; hands are superior and distinct as instruments, Galen argues, following Aristotle, because they can be directed by reason to accomplish a variety of tasks or aims. The skills of the hand are

instruments to accomplish particular ends of making things and doing things (building, crafting, writing, etc.), parallel to scientific learning and argument as instruments of intellectual knowledge. Humanity's creation in the image of God is principally signified by our handed-ness: what distinguishes *human* gesture from the gestures of other creatures is the dexterity of our expressive instruments. Bulwer even proposes a basic alphabet of gestures (Figure 3) that he claims have universal significations but can also serve as secret signs or "chirograms" of letters.

Human gestural uniqueness thus has a special place in Bulwer's ontological hierarchy of handedness. God communicates with human beings through manual signs of wonders and miracles, and human worship is fundamentally gestural in praise and prayer. As Jeffrey Wollock has shown, Bulwer shares the reforming aims of universal language projects, but his "corporall philosophy" also reflects contemporary arguments in the Church of England that focused on the experience of communal acts and rituals rather than on arguments, or even the particular words of the liturgy, for social and religious cohesion. Bulwer even figures salvation history itself as a history of gesture: in Eden, Eve handed the fruit of the tree to Adam, who took it with his hand, "with which hee tooke a curse that filled his *Hand* with labour," a gesture from which "all evil proceeded" (*Chirologia*, 72).

Four years after *Chirologia* and *Chironomia*, Bulwer published *Philocophus; or, The Deafe and Dumb Man's Friend* (1648) that argued for the establishment of educational institutions for the Deaf, inspired by his study of two Deaf brothers and how they "hear[d] with the eye."⁶ The frontispiece for *Philocophus* (Figure 4) indicates the development of Bulwer's motist physiology into a visual representation of a dynamic commonwealth of the senses grounded in the visual perception of motion. All the seated figures in this image, as Elizabeth Bearden has noted, are speaking and hearing by means of vision and touch: the man sitting at the table is "hearing" the man singing through lipreading, and the man kneeling is "hearing" the music of the viola da gamba by bone conduction through his teeth.⁷ The singer's command to watch the movement of his lips is indicated by the gesture of the man seated at the table, uniting the gestural movements of the hand and mouth and visually expressing Bulwer's argument that all senses operate by bodily motions that are best perceived by vision.

The eye "hears," then, especially in those with compromised hearing or total deafness, but not in the incidental way that the Aristotelian tradition describes the proper objects of sense—that the eye sees visible things and the ear hears audible things. On the contrary, observation of gestural communication and lipreading shows that the absence

⁶ John Bulwer, *Philocophus, or, The deafe and dumbe mans friend exhibiting the philosophical verity of that subtile art, which may inable one with an observant eie, to heare what any man speaks by the moving of his lips* (London: Humphrey Moseley, 1648).

⁷ Elizabeth Bearden, "Before Normal, There Was Natural: John Bulwer, Disability, and Natural Signing in Early Modern England and Beyond," *PMLA* 132, no. 1 (2017): 33–50.

of hearing is always compensated by the eye's ability to perceive movement, and that all sound is fundamentally motion that may be either heard or seen:

sound, [which] is but an accident of *speech*, & which is as they commonly speak, the *sensible quality* of *Hearing*, is reckoned by Philosophers to be *proprium sensile*, to wit, to be perceptible but to one *sense*: yet as it is *figure* and *motion*, which two alwayes imply one another, and of the essence of *speech*, it may be accounted *commune sensile*, and be perceived by more outward *Senses* than one. (*Philocophus*, 72)

Thus deafness, for Bulwer, is not an error or privation of the sense necessary for understanding or the exercise of reason. A long Aristotelian trend in philosophy and psychology dismissed Deaf people as incapable of learning or communication and defined the signifying power of words in terms of their audibility. Whereas congenitally blind people were thought to lack the sense most useful for survival, congenitally Deaf people were thought to lack the sense necessary for learning, since hearing was considered the sense necessary for understanding the meaning of words and the things—both individual things and the more general concepts—to which they refer.⁸ In Bulwer's motist philosophy, by contrast, speech is just a bodily motion, and bodily motion is best perceived by vision. The dedication to *Philocophus*, in fact, suggests that Deaf or hard of hearing people suffer from lack of support and education rather than an inherent deficiency.

In Bulwer's commonwealth of senses, vision and gesture can and do compensate for difficulties in perceiving motion as sound. His advocacy of Deaf education not only aimed to help Deaf and hard of hearing people achieve true knowledge of things in ways long thought impossible, but also hoped to refocus philosophy, rhetoric, and medicine on a shared world of visible and meaningful motions. This was and remains a radical argument: those who communicate only or primarily by gesture are, in a sense, the *best* communicators, since they express themselves in humanity's natural language of expressive motion—the basis, for Bulwer, of all meaningful communication and sense experience.

⁸ See, for example, Aristotle, *Sense and Sensibilia*, trans. J. I. Beare, in *The Complete Works of Aristotle*, ed. Jonathan Barnes (Oxford: Oxford University Press, 1984), 437a4–437a16.

Further Reading

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Source Text and Images

John Bulwer, *Chirologia, or, The naturall language of the hand composed of the speaking motions, and discoursing gestures thereof: whereunto is added Chironomia, or, The art of manuall rhetoricke...* (London: Thomas Harper, 1644), pp. 1–5.

[p. 1] In all the declarative conceits of Gesture, whereby the Body, instructed by Nature, can emphatically vent, and communicate a thought, and in the propriety of its utterance expresse the silent agitations of the minde; the *Hand*, that busy instrument, is most *talkative*, whose *language* is as easily perceived and understood, as if Man had another mouth or fountaine of discourse in his *Hand*. [...] [p. 2] For, the *Hand* being the *Substitute* and *Vicegerent* of the Tongue, in a full, and majestique way of expression, presents the *signifying faculties* of the soule, and the inward discourse of Reason: and as *another Tongue*, which we may justly call the *Spokesman* of the Body, it *speakes* for all the members thereof, denoting their *Suffrages*, and including their *Votes*. [...] [p. 3] The naturall resemblance and congruity of which expressions, result from the habits of the minde, by the effort of an impetuous affection wrought in the invaded *Hand*, which is made very plyant for such impressions. But whereas these speaking Organs are couplets, an active paire; sometimes they both, and not seldome one alone doth by a neat insinuation of speech, make and accomplish the habit. Sometimes differing words,

which visibly grow on one root of action, goe for Synonima's in gesture: and we shall sometimes see contrarietie of patheticall expression, in identity of posture.

Nor doth the *Hand* in one speech or kinde of language serve to intimate and expresse our mind: It speakes all languages, and as an *universall character of Reason*, is generally understood and knowne by all Nations, among the formall differences of their Tongue. And being the onely speech that is naturall to Man, it may well be called the *Tongue and generall language of Human Nature*, which, without teaching, men in all regions of the habitable world do at the first sight most easily understand.

[...] [p. 4] Hence 'tis apparent, that there's no native law, or absolute necessity, that those thoughts which arise in our pregnant minde, must by mediation of our Tongue flow out in a vocall streame of words; unto which purpose we must attend the leisure of that inclosed instrument of speech: Since whatsoever is perceptible unto sense, and capable of a due and fitting difference; hath a naturall competency to expresse the motives and affections of the Minde; in whose labours, the *Hand*, which is a ready Midwife, takes often times the thoughts from the forestalled Tongue, making a more quicke dispatch by gesture: for when the fancy hath once wrought upon the *Hand*, our conceptions are display'd and utter'd in the very moment of a thought. For, the gesture of the *Hand* many times gives a hint of our intention, and speakes out a good part of our meaning, before our words, which accompany or follow it, can put themselves into a vocall posture to be understood. [...] the *Hand* first appearing in the delivery, anticipates the Tongue, in so much as many times the Tongue perceiving her self forestall'd, spares it selfe a labour; to prevent a needlesse Tautologie: And if words ensue upon the [p. 5] gesture, their addition serves but as a Comment for the fuller explication of the manuell Text of utterance; and implyes nothing over and above but a generall [duty] of the minde to be perfectly understood.

A notable argument we have of this *discoursing facultie* of the *Hand* in our common Jesters, who without their voice, speaking onely by gestures, can counterfeit the manners, fashions, and significant actions of men. Which may be more confirm'd by that wonder of necessity which Nature worketh in men that are borne deafe and dumbe; who can argue and dispute rhetorically by signes, and with a kinde of mute and logistique eloquence overcome their amaz'd opponents; wherein some are so ready & excellent, they seeme to want nothing to have their meanings perfectly understood.

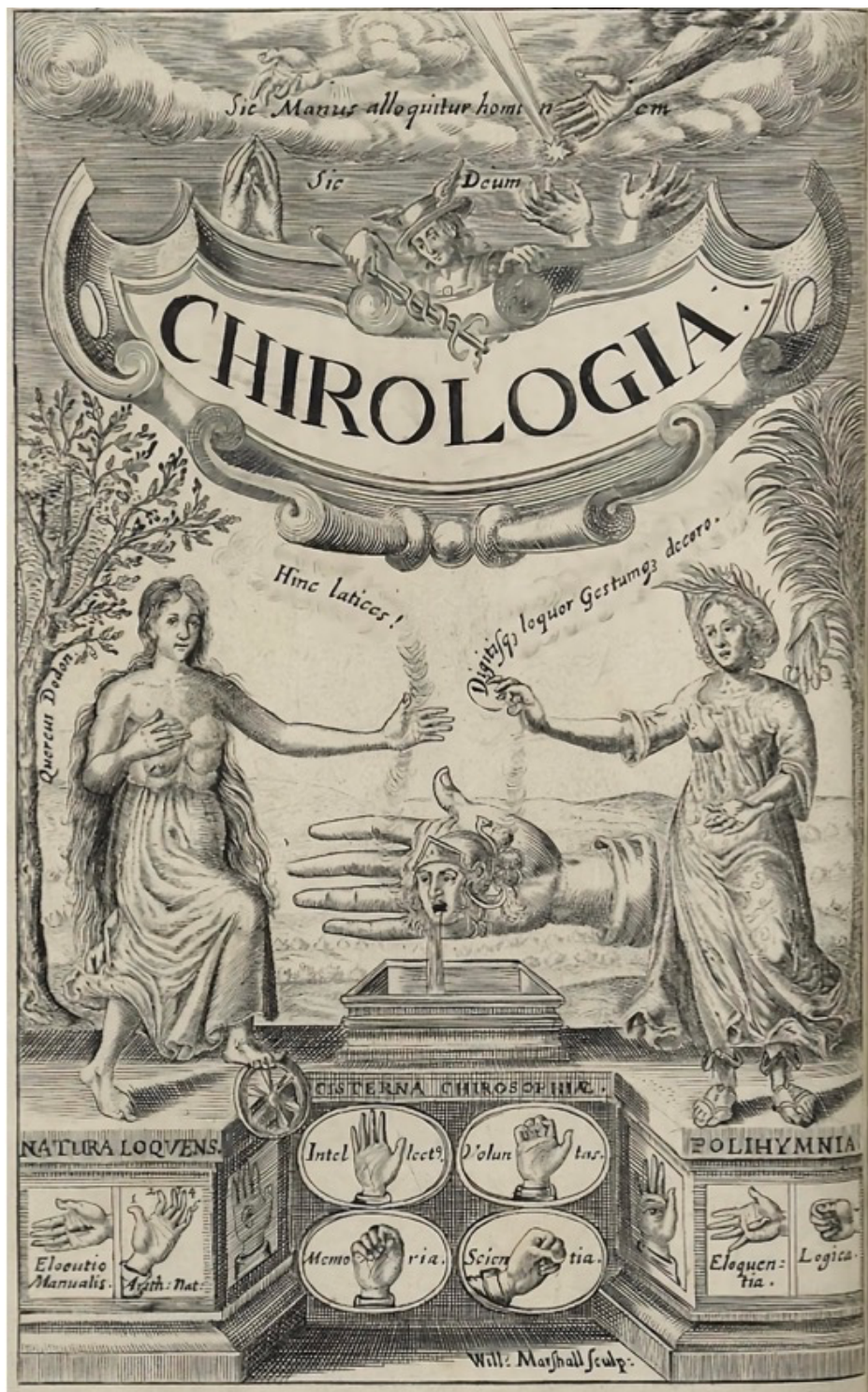


Figure 1: *Chirologia*, frontispiece.



Figure 2: *Chironomia*, frontispiece.

An Index of reference to the following Table, or Alphabet of naturall expressions.

Which Gestures, besides their typical significations, are so ordered to serve for privy cyphers for any secret intimation.

A B C D
Figures out the I Gesture. II Gest. III Gest. IV Gest.

E F G H
V Gest. VI Gest. VII Gest. VIII Gest.

I K L M
IX Gest. X Gest. XI Gest. XII Gest.

N O P Q
XIII Gest. XIV Gest. XV Gest. XVI Gest.

R S T V
XVII Gest. XVIII Gest. XIX Gest. XX Gest.

W X Y Z
XXI Gest. XXII Gest. XXIII Gest. XXIV Gest.

The necessary defect of these Chiograms in point of motion and percussion, which Art cannot expresse, must be supplied with imagination, and a topickall reference to the order and number of their Gestures.

Ad



Figure 3: *Chirolgia*, "Alphabet of naturall expressions."

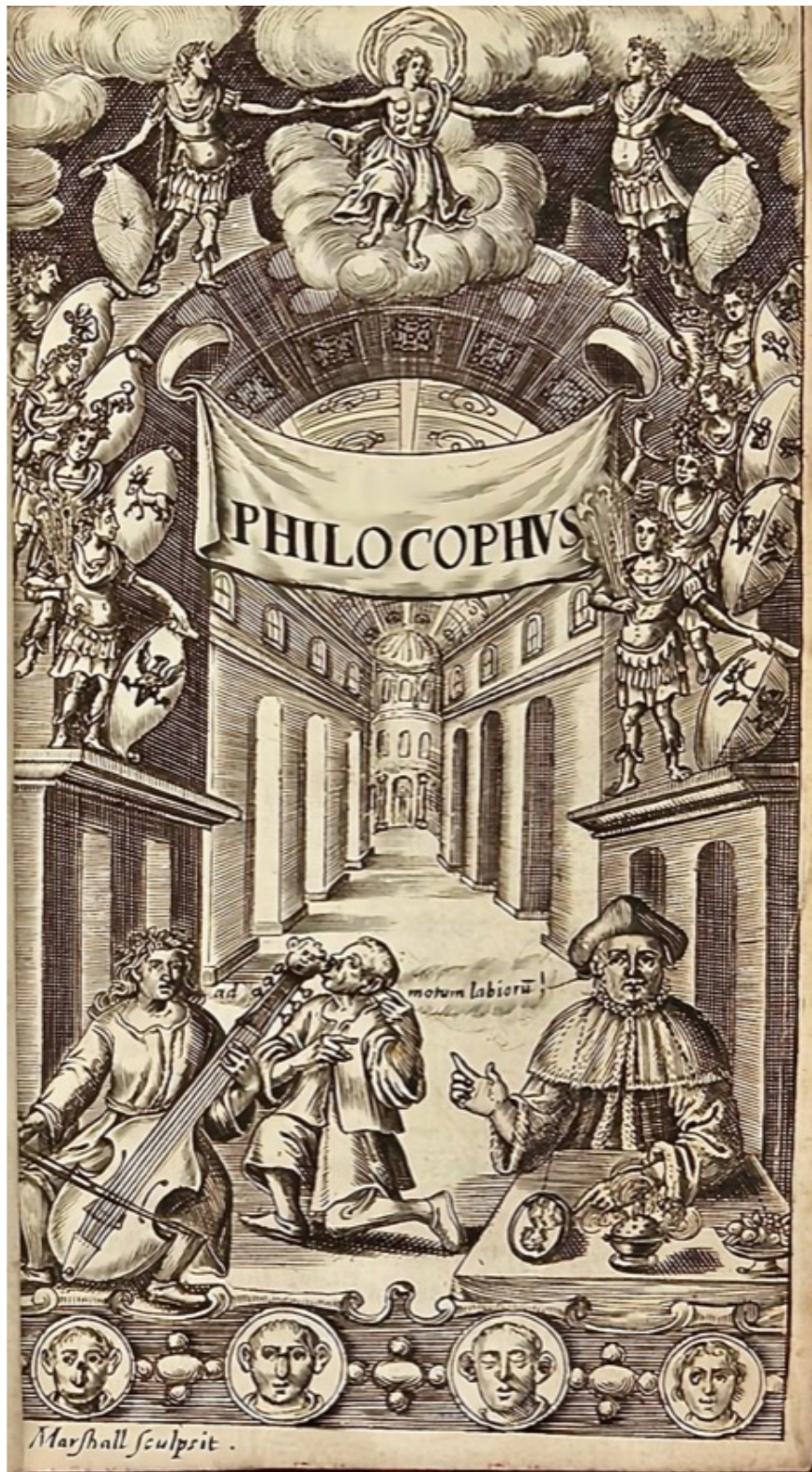


Figure 4: John Bulwer, *Philocophus, or, The deafe and dumbe mans friend* exhibiting the philosophicall verity of that subtile art, which may inable one with an observant eie, to heare what any man speaks by the moving of his lips (London: Humphrey Moseley, 1648), frontispiece.