

## XVI. Transmission of Knowledge

(1) There remaineth the fourth kind of rational knowledge, which is transitive, concerning the expressing or transferring our knowledge to others, which I will term by the general name of tradition or delivery. Tradition hath three parts: the first concerning the organ of tradition; the second concerning the method of tradition; and the third concerning the illustration of tradition.

(2) For the organ of tradition, it is either speech or writing; for Aristotle saith well, “Words are the images of cogitations, and letters are the images of words.” But yet it is not of necessity that cogitations be expressed by the medium of words. For whatsoever is capable of sufficient differences, and those perceptible by the sense, is in nature competent to express cogitations. And, therefore, we see in the commerce of barbarous people that understand not one another’s language, and in the practice of divers that are dumb and deaf, that men’s minds are expressed in gestures, though not exactly, yet to serve the turn. And we understand further, that it is the use of China and the kingdoms of the High Levant to write in characters real, which express neither letters nor words in gross, but things or notions; insomuch as countries and provinces which understand not one another’s language can nevertheless read one another’s writings, because the characters are accepted more generally than the languages do extend; and, therefore, they have a vast multitude of characters, as many, I suppose, as radical words.

(3) These notes of cogitations are of two sorts: the one when the note hath some similitude or congruity with the notion; the other *ad placitum*, having force only by contract or acceptation. Of the former sort are hieroglyphics and gestures. For as to hieroglyphics (things of ancient use and embraced chiefly by the Egyptians, one of the most ancient nations), they are but as continued impresses and emblems. And as for gestures, they are as transitory hieroglyphics, and are to hieroglyphics as words spoken are to words written, in that they abide not; but they have evermore, as well as the other, an affinity with the things signified. As Periander, being consulted with how to preserve a tyranny newly usurped, bid the messenger attend and report what he saw him do; and went into his garden and topped all the highest flowers, signifying that it consisted in the cutting off and keeping low of the nobility and grandees. *Ad placitum*, are the characters real before mentioned, and words: although some have been willing by curious inquiry, or rather by apt feigning, to have derived imposition of names from reason and intendment; a speculation elegant, and, by reason it searcheth into antiquity, reverent, but sparingly mixed with truth, and of small fruit. This portion of knowledge touching the notes of things and cogitations in general, I find not inquired, but deficient. And although it may seem of no great use, considering that words and writings by letters do far excel all the other ways; yet because this part concerneth, as it were, the mint of knowledge (for words are the tokens current and accepted for conceits, as moneys are for values, and that it is fit men be not ignorant that moneys may be of another kind than gold and silver), I thought good to propound it to better inquiry.

(4) Concerning speech and words, the consideration of them hath produced the science of grammar. For man still striveth to reintegrate himself in those benedictions, from which by his fault he hath been deprived; and as he hath striven against the first general curse by the invention of all other arts, so hath he sought to come forth of the second general curse (which was the confusion of tongues) by the art of grammar; whereof the use in a mother tongue is small, in a foreign tongue more; but most in such foreign tongues as have ceased to be vulgar tongues, and are turned only to learned tongues. The duty of it is of two natures: the one popular, which is for the speedy and perfect attaining languages, as well

for intercourse of speech as for understanding of authors; the other philosophical, examining the power and nature of words, as they are the footsteps and prints of reason: which kind of analogy between words and reason is handled *sparsim*, brokenly though not entirely; and, therefore, I cannot report it deficient, though I think it very worthy to be reduced into a science by itself.

(5) Unto grammar also belongeth, as an appendix, the consideration of the accidents of words; which are measure, sound, and elevation or accent, and the sweetness and harshness of them: whence hath issued some curious observations in rhetoric, but chiefly poesy, as we consider it, in respect of the verse and not of the argument. Wherein though men in learned tongues do tie themselves to the ancient measures, yet in modern languages it seemeth to me as free to make new measures of verses as of dances; for a dance is a measured pace, as a verse is a measured speech. In these things this sense is better judge than the art:

“Cœnæ fercula nostræ  
Mallem convivis quam placuisse cocis.”

And of the servile expressing antiquity in an unlike and an unfit subject, it is well said, “*Quod tempore antiquum videtur, id incongruitate est maxime novum.*”

(6) For ciphers, they are commonly in letters or alphabets, but may be in words. The kinds of ciphers (besides the simple ciphers, with changes, and intermixtures of nulls and non-significants) are many, according to the nature or rule of the infolding, wheel-ciphers, key-ciphers, doubles, &c. But the virtues of them, whereby they are to be preferred, are three; that they be not laborious to write and read; that they be impossible to decipher; and, in some cases, that they be without suspicion. The highest degree whereof is to write *omnia per omnia*; which is undoubtedly possible, with a proportion quintuple at most of the writing infolding to the writing infolded, and no other restraint whatsoever. This art of ciphering hath for relative an art of deciphering, by supposition unprofitable, but, as things are, of great use. For suppose that ciphers were well managed, there be multitudes of them which exclude the decipherer. But in regard of the rawness and unskilfulness of the hands through which they pass, the greatest matters are many times carried in the weakest ciphers.

(7) In the enumeration of these private and retired arts it may be thought I seek to make a great muster-roll of sciences, naming them for show and ostentation, and to little other purpose. But let those, which are skilful in them, judge whether I bring them in only for appearance, or whether in that which I speak of them (though in few words) there be not some seed of proficience. And this must be remembered, that as there be many of great account in their countries and provinces, which, when they come up to the seat of the estate, are but of mean rank and scarcely regarded; so these arts, being here placed with the principal and supreme sciences, seem petty things: yet to such as have chosen them to spend their labours and studies in them, they seem great matters.