3.2 Missing the impossible: how we talk and write about space

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3.2.1. Introduction

“It’s late at night, and you receive an urgent phone call from the White House. ‘The President wants to know why we should continue to put humans in space. He wants a one-page summary on his desk by tomorrow morning.’ What do you write?”⁸⁹ These are the opening words of Michael Huang’s article on *The Top Three Reasons for Humans in Space* which appeared in *The Space Review* in April 2005. Huang, who runs the website *Spaceflight or Extinction* – its title is based on a quotation from Carl Sagan’s book *Pale Blue Dot: A Vision of the Human Future in Space* (1994)⁹⁰ – may certainly be assumed to be biased strongly in favour of sending humans to space. This initial question, however, whether intentionally or not, puts a precisely pointed finger on one of the more problematic issues of humanity’s urge towards expanding their existence beyond the limits of the planet Earth: when political and financial stakeholders of spaceflight are to be persuaded to engage in sending humans to space, they must be presented not only with a meaningful and transmittable vision but also with arguments which convey and stabilize its practical viability.

This paper is going to propose the following argument: as the medium in which both vision and arguments are developed is usually that of written or spoken language, the product to be presented to its addressee or addressees – in this case the U.S. president – is structured not only by the facts which it conveys content but also inevitably by the additional meanings inherent in the terms used. These meanings are evoked and enforced by the terms’ historically grown semantics that stem from contexts other than the specific issue in question and unavoidably influence the issue. Following Marshal McLuhan’s famous dictum “The medium is the message”,⁹¹ this connotational influx of meanings is a non-negotiable key element of the medium – language – and as such crucial to the message ‘humans in space’. It is, to put it pointedly, impossible to create discourse without this dialectic relationship between medium and message. This is especially true in the case of a message concerned with something about which we know next to nothing, i.e., the implications and consequences of humans not only travelling for a short time but

also actually existing, living, working, reproducing in space. Here, this particular structural impossibility is reinforced by the discourse's as of yet uncharted horizon of reference. Thus, Huang's question "What do you write?" is a short version of a whole complex of questions, asking whether the writer knows precisely what he or she is doing when encoding space in language, when choosing specific words instead of others, using metaphors or, even more important, conceptual terms which are colloquially comfortable and seemingly self-evident in their meaning. However, these terms, in fact carry semantic weight that cannot but cross the borders of the terms' pragmatic situational content, and in turn influence this content from beyond these borders, placing it in a context which may enhance or subvert, but will certainly invest it with more than the terms' literal meaning.

3.2.2. The Motto's Mission: a case study

Let us take, for example, the motto which can be found on the NASA homepage under the heading 'Mission': "The more we know about the universe, the more we learn about ourselves. From satellites monitoring our planet's resources to orbiting observatories monitoring deep space, every NASA mission embodies the spirit of discovery."⁹² This short text carries the semantic weight of at least five concepts which have, from the purely ontological point of view, just about nothing to do with the object the motto pertains to – the universe – and everything with the way historically grown meanings have come to shape our perception of space: 'Knowledge', 'Learning', 'Ourselves', 'Embodiment' and 'Spirit'.

An analysis of the historical development of these contexts and of the use they are put to by the NASA mission statement shows that reflecting on the ways we talk and write about space by means of the heuristic instruments used and honed by the Humanities can make an important contribution to deal with the challenges presented by the exploration of space. Knowing precisely what we do when we talk and write about space will enable us to recognize, and consequently, overcome the limits of our perception of the Unknown Other. In this manner, crossing the borders into space will not simply repeat the colonization patterns inherent to our traditional 'poetics of discovery' as, for instance, implemented by the developments after the Great Encounter of 1492 but rather makes it possible and indeed challenges us to discover alterity as something to be aware of, to respect and to adjust to productively.

3.2.2.1. Knowledge

The concept of knowledge we automatically associate in a context like that of the NASA motto is one that is or rather understands itself as being based on solid

scientific evidence, meaning that what we know is something that exists independently outside our subjective perceptions. Recent debates, however, have readjusted the ontological notion of knowledge as something that is already there and only needs to be retrieved, towards the epistemological notion of knowledge as something that is produced by sets of practices, mechanisms, and principles, assembled by structural affinities, necessity, and historical coincidence and controlled by strategies of perception inherent to their approach to their specific goal. In short, if we talk about knowledge we talk about ways to talk and write about space, conventionalized nowadays in the name of scientific evidence – but this convention in itself is a historically grown one, which has to be revalidated time and again.⁹³

To illustrate this it is helpful to look at the way the biblical writings of the Old Testament, to be precise: the Genesis narrative deals with both terrestrial and extraterrestrial space, as the knowledge generated by the Bible in this area as in many other respects shaped scientific thought up to the 18th century when finally the notion of the Bible transmitting the true voice of God was replaced by the realisation that it was written by humans. This realisation was instigated and promoted by the then emerging Humanities in the shape of philological and historiographical approaches to the text of the Bible which proved that the inconsistencies of this text were due not to God's playfully enigmatic encoding of esoteric truths, but to the human factor – errors as well as creative imagination – in narrating, writing and translating early Judeo-Christian history.

There are two significant passages on space in the Genesis narrative. The first is the story of Noah's ark as related in Gen. 6–8. Having expelled Adam and Eve from Paradise and decreed the hardship of labour – labour of the land for Adam, labour of childbirth for Eve – as a suitable penalty for having eaten from the tree of Knowledge, after some time God finds that the tribes that sprung from Adam and Eve have started to enjoy themselves with the promiscuous taking of lovers, ignoring the strictures placed upon them, and he decides to exhaustively cleanse the space of his creation from these degenerates. Only Noah is spared and ordered to build the arc which then becomes the vessel in which God's living creation – animals and humans – survive. This vessel, as a closed-in space wholly dependent on God's Will, is a symbol for the radically monologue type of knowledge God wishes to instil in the survivors. It is the knowledge that the whole of the space created by God's Word is subject to his authority exclusively, not to be challenged by human perception or intelligence, and this is the paradigm that dominated the sciences until early modernity: whatever the scientifically validated evidence concerning natural phenomena, including them into the space of biblically generated knowledge made it imperative to bring them into line with God's prerogative of giving meaning to creation, this stricture being so forceful that Isaac

Newton even in 1706 put forth the idea in his work *Optics* that the concept of 'space' must be thought of as God's sensorium for the relations between all parts of his creation – even if, in the later editions, he inserted an 'as if' into the relevant passage to put some distance between the dogmatic belief in God's omnipotence and his own scientific findings.⁹⁴

The second narrative referred to, also in Genesis, tells the story of the tower of Babel. This time, the threat to God's order of space is inspired not by humankind's frivolous zest for living, but by the desire of Noah's descendants to create a symbol for themselves that might represent the unity of mankind: "They said, 'Come, let's build ourselves a city, and a tower whose top reaches to the sky, and let's make ourselves a name, lest we be scattered abroad on the surface of the whole earth.'"⁹⁵ Yahwe, it is recorded, then "came down to see the city and the tower, which the children of men built" and was not amused: "Behold, they are one people, and they have all one language, and this is what they begin to do. Now nothing will be withheld from them, which they intend to do."⁹⁶ The end of the story is well known – God "confused the language of all earth"⁹⁷, so the builders should not understand each other and stop reaching out into a space, which was not for them to reach out into, it being the privileged space where God Himself dwelt. Of course this story first and foremost served the purpose of rationalizing the historical fact that there were different languages spoken among peoples which the Old Testament claimed to be all of the same origin, but it is nonetheless significant that this rationalization should be couched in an image which binds space to language and vice versa, implying that had humankind retained the unity of language it might have long since reached the sky and become humans in space.

Fig. 1. Pieter Bruegel the Elder, *The Tower of Babel*, 1563, Kunsthistorisches Museum, Vienna.

What these two paradigms shaping the meaning of humans in space have meant for the history of science is most clearly illustrated by an effort made by the Jesuit priest Athanasius Kircher to bring scientific evidence to bear on God's seemingly wanton destruction of human achievement. One of the key figures in the process which on the threshold to modernity strove to reconcile God's authority with the emergence of autonomous scientific thought, Kircher in 1679 in his book *Turris Babel* did the maths on the Babel tower project and came to the following conclusion: as the distance between earth and sky was, in his reckoning, 265,380 km, 4.5 million men would have had to put together 400 trillion of bricks over a time span of 3,400 years to finish the tower – and by then there would not only have been considerable problems of engineering but, much more important, the weight of the tower would have forced the earth from its place in the middle of the universe, which in turn would have ultimately destroyed it – so God was fully justified in stopping the builders, as he only wanted to save the world.⁹⁸

It was only after Galilei and Kopernikus between proved that the earth and with it man was not at the centre of the universe and thus triggered the most memorable identity crisis of pre-secular Western humankind that knowledge, in the course of the 18th century, started to become something to be gathered and evaluated unhampered by metaphysical determinism – or at least something that defined itself as purely scientific in the sense of the word ‘knowledge’ as used by NASA. To serve this purpose, the concept of knowledge had to shed its connections with what had once been its wellspring, i.e., theology, the Arts and the Humanities: by the end of the 19th century scientific knowledge had been purified at the cost of losing sight of the fact that the very medium within and through which it existed, namely language, however pure the scientific interest, retained, and still retains today, the potential of historically grown polyvalence, especially when crystallized into conceptual terms like ‘knowledge’.

3.2.2.2. Learning

Since the Middle Ages, learning has first had the meaning of acquiring knowledge of the Holy Script so as to be able to affirm its content. Then, as already mentioned above, approaching pre-modernity it meant reconciling scientific evidence with the dominant framework of Christian dogma. It was only after the aforementioned identity crisis that a concept of learning began to emerge during the 18th century, which, coupled with the ascent of reason as the leading category of humanness, became a technology of self-modelling. This concept is an offspring of European Enlightenment, when man finally left the idea of himself as a puppet of God behind and took over responsibility for the shaping of both his own history and

history as such. However, learning then, in the early modern times, always encompassed the acquisition of an awareness of the rhetoricity of all knowledge: public reasoning as promoted by Kant in his famous essay on Enlightenment⁹⁹ meant not only to be sure of facts but also to be able to configure them according to a logic of discourse which was conscious of itself, of the fact that talking and writing were bound to historical patterns of perception which functioned more like images than like, for example, mathematical diagrams.

Not long ago, Dan Brown's novel *The Da Vinci Code* (2003) gave a concise resumé of how learning in the Western world was and still is bound to what may be called the Image Factor. Centred around the Louvre in Paris as a space where not only the beauty of culture but also the knowledge about the construction of history by means of such beauty is stored in thousands of masterpieces, the narrative tells the story of the deciphering of the da Vinci code as a story of learning how to look beyond the merely beautiful towards the patterns of thought embedded therein. What is of interest here is a subtext not immediately evident: in Leonardo da Vinci, Brown chose an artist who, like Kircher, stood at the threshold between pre-modern affirmative and modern critical learning, and who thus allowed Brown to

Fig. 2. *The Apple Macintosh logo.*

show how closely art and science were and still are related to each other. It is not by mere chance that the process of learning the protagonists go through during the narrative begins with an artist who was one of the first to construct flying machines – like, for example, a helicopter as documented by several drawings – and reaches its climax with Newton’s apple which allows the protagonists to finally break the cryptex code, Newton being the one to first define space as a physical reality. And it is equally no mere chance that Apple Macintosh uses the fruit from the biblical Tree of Knowledge as its logo, bitten into, of course, as the users of Apple Macintosh computers are thus implicitly advertised as having acquired superior knowledge *avant la lettre* by simply buying – according to its promotion – superior hardware.

This connection, which may or may not be a subtle way of product placement in Brown’s novel, anyway underlines once more the point Brown is trying to make, i.e., that learning means nothing like an acquisition of fixed meanings but rather the ability to take their hidden agenda into account, weigh them against each other and reach the conclusion that, preposterous as Brown’s theory of Jesus having spawned a genealogical line which is still extant may seem as such, in the age of spaceflight, which was anticipated by da Vinci and prepared for by Newton, there may be a lot more to be learned from the arts than meets the eye. Precisely because their curiosity in the ‘real world’ – and, intrinsically connected with this, the conditions of what may be termed ‘reality’ and why – stems from the same wellspring as that of the natural sciences.

3.2.2.3. Ourselves

The notion of man as an indivisible entity, an identity or self, is a product of the Enlightenment as well and can be found reflected in the early modern notions of space: it was René Descartes who first developed the idea of two different, but coexisting concepts of space, one which manifests itself in the material world outside the thinking individual – *res extensa* – and one which exists as the inner space of thought, the *res cogitans*, the realm of the thinking individual’s perception of space. After Newton had scientifically defined this outer space, the Cartesian idea of the two spaces became the origin of what until well into the 20th century remained a bone of contention in the debates on space, as this idea opened up the question of whether man in thought realizes what is ontologically outside him, space that “is”, or whether man constructed space according to topological premises, so that space even in its physically evident aspects always remains bound to man’s topological perception, an effect rather than the cause of the notion of space and thus a projection of ourselves.

Stanislaw Lem in his 1968 novel *Solaris* quite decisively went for the second option. The astronaut Kris Kelvin is sent to the planet Solaris to join the crew stationed there and finds his colleagues housing guests who, as he begins to realise when these guests are joined by Kelvin's dead wife, are generated by the ocean outside the station which is obviously a living thing in its own right and with its own inexplicable powers. Lem's novel leaves open whether this ocean actively reproduces shapes stored in the crew members' memories by telepathic communication with the human minds or whether the fact that they seem to recognize these figures is an effect of their emotional projections on creatures which serve as a kind of imagination-activating screens. The moral of the plot is that, in Lem's opinion, humans in space need to be aware that they tend to meet the Unknown Other by projecting 'ourselves' onto or into it, thereby creating potentially dangerous, even lethal situations for themselves, because they are not equipped to recognize that this Unknown Other may well be nothing like 'ourselves', that it may have neither identity nor sociality, not even something like what we think of as intelligence; it may neither wish to communicate nor lend itself to cooperation, it may not even be alive in the sense of the term as we use it.

3.2.2.4. Embodiment

Giving a body to something, which has none yet makes it visible, defines its location in space. This in itself is nothing new to modernity, as already Aristotle had argued for a concept of space consisting of bodies in relation to each other – but where Aristotle had used the term 'body' in a purely physical way, meaning the material extension of any given thing or substance, today the term 'body' is colloquially linked to the human body – also an effect of the 18th century reshaping the idea of humanity, when the human body began to be recognized – and one might argue, constructed – as existing in a position where culture and nature, individuality and sociality interact: free of the Christian determinism which had decreed all bodily functions, lusts and sicknesses as signs implemented either by God or the Devil, emancipated towards the notion of identity and at the same time normalized and disciplined by an ever tighter growing network of societal rules, the body became one of the key features of cultural theory, while the natural sciences began to investigate its physical workings with a vengeance – up to the point when the borders between the 'wet ware' of the human body and the technology used to heal, mediate and even create it today begin to become ontologically obsolete.¹⁰⁰

To talk of 'embodying' nowadays thus carries an ambiguous message, especially in a context where the question is asked whether or not to send humans into

space: on one hand, ‘embodying’ in the NASA motto may well be read as a tentative move towards using the human body in space exploration, on the other, the distinctly indistinct subject of the NASA missions – there is no ‘I’ or even ‘we’, however faintly, to be discerned in the motto, leaving the empty space to be phantasmatically filled with the amorphous identity of an institution with all its consolidated political and financial interests – doing the embodying might just as well cancel this possibility, as there seems no such thing like a human body to be sent.

Said ambivalence is an intrinsic part of the choice of words manifest in the NASA motto, and it shows up the danger inherent to the idea of embodying, as Lem diagnosed it in *Solaris*: whether human body or physical body in the Aristotelian sense, giving something a body in any case means defining a shape for it which in turn fixates its content. A typical example for this is the well-known phenomenon of the man in the moon: the need to fix a shape seems to be an overwhelming one, decorative in its effects, but also prone to shuttering our perception towards other possibilities, including that of shapelessness, of unbodiness – which might well be what we encounter in space if we should indeed ever meet other forms of life.

Fig. 3. *The Man in the Moon* (source: www.planetfusion.co.uk).

3.2.2.5. Spirit

At the beginning of the Genesis narrative it is God's Spirit that is hovering over the waters prior to, by God's word, becoming embodied in all the floral and faunal creatures due to inhabit the newly minted world. And, of course, it is the Spirit which later, in the Gospels, plays a major role in the mediation between God and humankind, even revising the Babel verdict by countering the multi-lingualism of God's people by giving the Apostles the ability to speak each and every language in the world during the Pentecost miracle. Again, the meaning of the word 'spirit' leans towards a progredient secularisation during the 18th century, when its religious implications are superseded by the inherently moral intellectuality of Enlightened man – but still, more than the other concepts, the term 'spirit' retained its biblical sense, at least in part, investing the idea of discovery here with the charisma of a God-given will to know for knowledge's sake.

This charisma, however, with the beginning of human space exploration has been invested with a particular kind of doubt, i.e., that of whether spirituality as established by religion and intellectually and morally reconfigured by Enlightenment will bear the strain of crossing the borders into space. The answer, which Roy Bradbury gives to this question in his 1951 short story collection *The Illustrated Man* is an emphatic 'no'. The following is an extract from the second of these stories, entitled *Kaleidoscope*. A spaceship has exploded on collision with a meteor, and its crew has been "thrown into space like a dozen silver fish" in their space suits. As they float apart from each other, radio transmission between them becomes weaker and weaker, until there is nothing but silence: "The many good-byes. The short farewells. And now the great loose brain was disintegrating. The components of the brain which had worked so beautifully and efficiently in the skull case of the rocket ship firing through space were dying one by one; the meaning of their life together was falling apart. And as a body dies when the brain ceases functioning, the spirit of the ship [...] was dying. [...] The voices faded and now all of space was silent. [...] They were all alone. Their voices had died like echoes of the words of God spoken and vibrating in the starred deep. [...] the shards of the kaleidoscope that had formed a thinking pattern for so long, [was] hurled apart."¹⁰¹

Of course, this is a literary text, and its use of metaphors to create an artefact is so obvious that there is no reason at all to consider the answer which Bradbury gives binding – but just along the same lines the evocation of the spirit in the NASA motto in its content is fragile at best, maintaining an integrity of the concept 'spirit' which has been developed under historical conditions that did not take the crossing of humans into space into account. This is why this passage metaphorically connects the 'spirit' with the metaphor of the kaleidoscope: encountering the

Other in space, even if it this means ‘only’ encountering virtual spatial endlessness, may, perhaps even must, mean the shattering of thinking patterns like that of the name of ‘spirit’.

3.2.3. Conclusions

What the NASA motto gives to its readers is what Richard Geertz would have called a “thick description”¹⁰² of space exploration – a description which is deeply imbedded in cultural contexts which of themselves are not explicitly named but implicitly drawn upon to make space exploration ‘visible’. What becomes visible too is that ‘the universe’ as depicted by this ‘thick description’ is biased with atopolological rather than ontological angle: the five concepts mentioned in the motto together constitute nothing less than a comprehensive topology of the discourse on humanity during the last centuries, extrapolating from these topoi a universe which is a priori anthropomorphous. Talking and writing about space using the semantic means offered by language in all the contextual and historical ramifications of connoted meanings must thus be seen as a process of constructing our object – as something which shows us first and foremost ourselves as we are, and so also shows us that we cannot see anything else but what we can see, what we are equipped to see, both technologically and epistemologically.

My analysis neither laments nor denounces the essentially narcissistic quality of our perception of space or the not less significant colonizing attitude towards the Other which springs from it. It is a mere banality to state that a medium as developed by humans, as language undoubtedly is, is at all levels structured to mirror and feed back into the identity of the species whose physical and mental abilities provide the condition of its existence. It might, however, be interesting to know whether whoever authored the NASA motto was fully aware of what he or she was doing in drawing on the subtexts and semantic reservoirs of meaning adherent to the terminology he or she employed, as the ad hoc of the medium, as opposed to its historical emergence, is indisputably a matter of choice: if the author knew what he or she was doing, this would mean that the employment of those five concepts was strategically used to ensure an uncritical identification with the agenda of NASA missions into space, considering that said agenda are coached in the immediately recognizable conceptual pillars of human identity on Earth. If, on the other hand, the author drew on this recognizability because he or she simply judged the terms employed as conveniently covering the issues concerned in a less-than-complex way suitable to the intellectual abilities of the average consumer, this would argue for an uncritically affirmative anthropomorphous projectionism. The latter might induce some doubts as to the institution’s critical potential necessary

for a responsible stance towards the issue concerned, while the former argues for an in-depth knowledge of human susceptibility for well-staged manipulation tactics and thus falls under the heading of public relation functionaries' strategic cynicism, inviting and cementing trust in NASA's professionalism.

The point of this sketchy excursion into what has long since been renounced by cultural studies as the 'author's intention' is not that of ideological polemics but rather that of emphasizing that the conscious knowledge of the fact that we do not really know precisely what we talk or write about when we mean 'humans in space' can be used productively in dealings with phenomena 'out there', from the mental and emotional impact of long-term existence of humans in, say, colonies on Mars to the possible contact with non-human life. In the case of the NASA motto, if we adhere to the notion that its author knew precisely what he or she was about, this productive use is documented in the supremely well-staged invitation to bring our own notion of humanity to bear on our perception of the Other and thus stabilize our will to expand into space along familiar lines, rather than becoming prey to fears of what incalculable forces might sabotage our progress. These fears, as we know so little, being out of necessity no less irrational than the assumption of an altogether anthropomorphous universe.

This leads me to my final resume of my thesis: missing the fact that it is impossible to construct anything like an accurate image of 'the universe' means, first and foremost, missing the chance inherent in the knowledge of this very impossibility. The Humanities have been long since aware of the problems connected with the limits, patterns and self-reproducing conceptualizations of our perception. They do not offer any standard recipe for dealing with those problems. On the contrary, they make us aware that it is precisely the notion of standard recipes which make us vulnerable. What may be and indeed must be gained from employing the humanities in the development of the world-wide project 'Humans in Space' is the development of a double-edged awareness of the problem: first, the awareness of that how we talk and write about space always has an artificial, even fictionalizing dimension which we cannot avoid – but that we can certainly avoid not taking this into account; second, the awareness that what we may meet out there cannot be a priori presumed to be anything like ourselves, neither in knowledge or learning, in body or spirit.

The consequence of this line of thought is that when we design a one-page summary on the reasons for sending humans into space for the U.S. president, we need to make a case not only for the probability of surmounting the financial and technological limits which yet keep humanity from existing in space, but also for the awareness that the distance between humanity and the Unknown Out There can only be breached by what Homi Bhabha called "the borderline work of culture":¹⁰³ whatever happens when humans leave Earth to live and work in outer

space will happen not within what our historically grown notion of humanity has come to treat as a given framework, but between this framework and potentially wholly different others, including both the challenges of a new environment with the ensuing necessity of redefining humanity itself and the (however yet improbable) contact with other forms of life. The awareness of this may in time well prove to be the crucial asset of humanity and, by methodological inference, of Humanities in Outer Space.

⁸⁹ Huang, Michael. “The Top Three Reasons for Humans in Space”. *The Space Review* 11 Apr. 2005 <http://www.thespacereview.com/article/352/1>.

⁹⁰ “Since hazards from asteroids and comets must apply to inhabited planets all over the Galaxy, if there are such, intelligent beings everywhere will have to unify their home worlds politically, leave their planets, and move small nearby worlds around. Their eventual choice, as ours, is spaceflight or extinction.” Sagan, Carl. *Pale Blue Dot: A Vision of the Human Future in Space*. New York: Random House, 1994. p. 327.

⁹¹ McLuhan, Marshal. *Understanding Media: The Extensions of Man*. Cambridge: MIT Press, 1994. p. 7.

⁹² “Current Missions”. Website of NASA. <http://www.nasa.gov/lb/missions/highlights/index.html>

⁹³ Knorr-Cetina, Karin D. *Epistemic Cultures: How the Sciences Make Knowledge*. Cambridge, MA: Harvard University Press, 1999.

⁹⁴ Dünne, Jörg, ed. *Raumtheorie. Grundlagentexte aus Philosophie und Kulturwissenschaften*. Frankfurt am Main: Suhrkamp, 2006. p. 26; as for the modification of the passage towards a mere simile in the context of ongoing scientific debates.

Koyré, Alexandre and Bernhard Cohen. “The Case of the Missing Tanquam: Leibniz, Newton and Clarke”. *Isis* 52 (1961): 555–566.

⁹⁵ Gen. 11, 4. – For the following quotations from the text of the Bible cf. the King James Bible text version at <http://www.bartleby.com>.

⁹⁶ Gen. 11, 6.

⁹⁷ Gen. 11, 7.

⁹⁸ The full title of Athanasius Kircher’s book is as follows: *Turris Babel, Sive Archontologia Qua Primo Priscorum post diluvium hominum vita, mores rerumque gestarum magnitudo, Secundo Turris fabrica civitatumque exstructio, confusio linguarum, & inde gentium transmigrationis, cum principalium inde enatorum idiomatum historia, multiplici eruditione describuntur & explicantur*. Amsterdam: Jansson-Waesberge, 1679.

⁹⁹ Immanuel Kant’s short essay ‘Was ist Aufklärung?’ appeared in December 1784 in the *Berlinische Monatsschrift* (Berlin Monthly); for an English translation cf. <http://www.english.upenn.edu/~mgamer/Etexts/kant.html>.

¹⁰⁰ Cregan, Kate. *The Sociology of the Body: Mapping the Abstraction of Embodiment*. London: Sage, 2006. Burkitt, Ian. *Bodies of Thought Embodiment, Identity and Modernity* London: Sage, 1999. Csordas, Thomas J, ed. *Embodiment and Experience: The Existential Ground of Culture and Self*. Cambridge: Cambridge University Press, 1994.

¹⁰¹ Bradbury, Roy. *The Illustrated Man*. London: Grafton, 1977. p. 43.

¹⁰² Geertz, Richard. “Thick Description: Towards an Interpretative Theory of Culture”. *The Interpretation of Cultures*. New York: Basic Books, 1973. pp. 3–30.

¹⁰³ Bhabha, Homi K. *The location of culture*. London: Routledge, 2000, p. 16.